2024 Annual Groundwater Monitoring Report

Range Road Coal Combustion Residual Landfill
3600 Range Road
China Township, Michigan

January 2025

Prepared For:

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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, which applies to the DTE Electric Company (DTE Electric) Range Road Coal Combustion Residual Landfill (RRLF) CCR unit. Pursuant to the CCR Rule, no later than January 31, 2018, and annually thereafter, the owner or operator of a CCR unit must prepare an annual groundwater monitoring and corrective action report for the CCR unit documenting the status of groundwater monitoring and corrective action for the preceding year in accordance with §257.90(e). On behalf of DTE Electric, TRC Engineers Michigan, Inc., the engineering entity of TRC, has prepared this 2024 Annual Groundwater Monitoring Report for calendar year 2024 activities at the RRLF CCR unit.

The RRLF was operating under the detection monitoring program at the start of the 2024 annual reporting period and remained in the detection monitoring program through the end of the 2024 annual reporting period. The semiannual detection monitoring events for 2024 were completed in April and October 2024 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 background levels. All the monitoring data that have been collected and evaluated under §257.90 through §257.98 in 2024 are presented in this report.

From August 2024 to January 2025 DTE Electric performed an additional uppermost aquifer characterization as detailed in the January 2025 *Additional Uppermost Aquifer Characterization Study, Range Road Landfill CCR Unit, 3600 Range Road, China Township, Michigan* (Aquifer Characterization Study) prepared by TRC. The Aquifer Characterization Study presents an analysis of geochemical, stable isotopic, and tritium 14 data collected in August 2024 along with pre-existing data from the RRLF CCR unit that further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water.

Potential SSIs over background limits were noted for several Appendix III constituents in one or more monitoring wells during the April and October 2024 monitoring events. These potential SSIs were determined to be a result of natural variability as documented in previous, still applicable alternative source demonstrations (ASDs) and or they were not statistically significant (i.e. verification resampling did not confirm the exceedance). No initial SSIs over background limits were recorded for Appendix III constituents during the April and October 2024 monitoring event. Therefore, detection monitoring will be continued at the RRLF CCR unit in accordance with §257.94 of the CCR Rule.

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, which applies to the DTE Electric Company (DTE Electric) Range Road Coal Combustion Residual Landfill (RRLF) CCR unit. Pursuant to the CCR Rule, no later than January 31, 2018, and annually thereafter, the owner or operator of a CCR unit must prepare an annual groundwater monitoring and corrective action report for the CCR unit documenting the status of groundwater monitoring and corrective action for the preceding year in accordance with §257.90(e). On behalf of DTE Electric, TRC Engineers Michigan, Inc., the engineering entity of TRC, has prepared this Annual Groundwater Monitoring Report for calendar year 2024 activities at the RRLF CCR unit (2024 Annual Report).

This 2024 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 2024 semiannual groundwater monitoring events for the RRLF CCR unit in addition to the alternative source demonstration (ASD) for the second 2023 semiannual detection monitoring event (Appendix A). Detection monitoring for these events continued to be performed in accordance with the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Range Road Landfill* (QAPP) (TRC, July 2016; revised August 2017) and statistically evaluated per the *Groundwater Statistical Evaluation Plan – DTE Electric Company Range Road Coal Combustion Residual Landfill* (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.

From August 2024 to January 2025 DTE Electric performed an additional uppermost aquifer characterization as detailed in the January 2025 *Additional Uppermost Aquifer Characterization Study, Range Road Landfill CCR Unit, 3600 Range Road, China Township, Michigan* (Aquifer Characterization Study) prepared by TRC (TRC, January 2025). A copy of the Aquifer Characterization Study is included in Appendix B. The Aquifer Characterization Study presents an analysis of geochemical, stable isotopic, and tritium data collected in August 2024 along with pre-existing data from the RRLF CCR unit that further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water as discussed more in Section 4 of this report.

1.2 Site Overview

The RRLF is located in Section 12, Township 4 North, Range 16 East, 3600 Range Road, China Township in St. Clair County, Michigan. The site occupies approximately 514 acres and is one-half mile west of the St. Clair River and one mile north of the Belle River Power Plant. Prior to Detroit Edison's operations commencing in the 1950s, the RRLF property was used as farmland. The property has been used continuously as a coal ash landfill since Detroit Edison Company (now DTE Electric) began coal ash landfilling operations at the RRLF in the 1950s and is constructed over a natural confining, low permeability clay-rich soil base that serves as an underlying soil barrier. The RRLF property consists of approximately 514 acres of which

approximately 402 acres are designated for landfill development. CCR currently occupies approximately 200 acres of the RRLF.

The RRLF is a licensed Coal Ash Landfill in accordance with Michigan's regulations and is owned and operated by DTE Electric. The disposal facility currently accepts coal ash from DTE Electric's Belle River power plant, from the now inactive former DTE Electric St. Clair power plant and has historically accepted coal ash from the former DTE Electric Marysville and Harbor Beach power plants. The RRLF is operated under the current operating license number 9395 in accordance with Michigan Part 115 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended.

1.3 Geology/Hydrogeology

The RRLF CCR unit is located approximately one-half mile west of the St. Clair River. In general, the RRLF is underlain by 86 to as much as 188 feet of laterally extensive low hydraulic conductivity silty clay-rich deposits. On the eastern portion and northwest corner of RRLF some thin partially saturated silty sand near-surface deposits are present. These deposits are not laterally contiguous, are not in communication with the deeper uppermost aquifer, do not yield a usable quantity of groundwater, and thus are not considered an aquifer per the CCR Rule. On a significant portion of the RRLF, there is a bedrock valley that trends from the northeast corner to the south-central area of the site. The valley is incised in the Bedford and/or Antrim Shale bedrock and filled with unconsolidated glacial deposits consisting of clay, silt, sand and/or gravel. Based on historical oil well logs from the RRLF area, the bedrock valley extends to depths of up to 303 feet below ground surface (ft bgs). Along the western portion of the RRLF, clay-rich till is present continuously to the top of the underlying Bedford or Antrim Shale bedrock in the area of SB-16-01 and SB-16-02 (Figure 1), creating a no flow boundary.

Groundwater within the uppermost aquifer sand/gravel is confined and protected from the CCR unit by the overlying clay-rich aquitard. The top of the sand/gravel uppermost aquifer encountered at each of the CCR monitoring wells and soil borings is at significantly different elevations across the RRLF that, where present, is first encountered at depths ranging from 86 to 196 ft bgs, immediately beneath the overlying clay-rich aquitard. The variability in boring/well depths is a consequence of the heterogeneity of the glacial deposits and is driven by the limited continuity of the coarse-grained sand and gravel outwash within the overlying/encapsulating fine-grained, silty clay till that confines the uppermost aquifer. In addition, there is an apparent lack of interconnection and/or significant vertical variation between the various uppermost aquifer sand and/or gravel units encountered across the RRLF CCR unit.

Given the horizontally expansive clay with substantial vertical thickness, the heterogeneity of the glacial deposits (with the top of the uppermost aquifer elevation across the RRLF CCR unit varying up to 100 feet vertically), the no-flow boundary to the west, and the lack of hydraulic interconnectedness of the uppermost aquifers encountered at the site in some areas, it is not appropriate to infer horizontal flow direction or gradients across the site. With the presence of the vertically and horizontally extensive clay-rich confining till beneath the RRLF CCR unit, there is no reasonable probability for the uppermost aquifer to have been affected by CCR from operations that began in the 1950s. This is further supported by the Aquifer Characterization

Study that demonstrates that groundwater is not in hydraulic communication with the CCR unit and further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water.

2.0 Groundwater Monitoring

2.1 Monitoring Well Network

A groundwater monitoring system has been established for the RRLF CCR unit as detailed in the *Groundwater Monitoring System Summary Report – DTE Electric Company Range Road Coal Combustion Residual Landfill* (GWMS Report) (TRC, October 2017). The detection monitoring well network for the RRLF CCR unit 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 north, east, and south perimeter of the RRLF and provide data on both background and downgradient groundwater quality that has not been affected by the CCR unit (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 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 detection monitoring event for 2024 was performed April 22 and 23, 2024 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 2024 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 2024 was performed from October 28 to 30, 2024 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. 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 October 2024 event is provided on Table 1 (static groundwater elevation data), Table 2 (field data), and Table 4 (analytical results). The laboratory analytical reports and field data for each detection monitoring event are included in Appendix C.

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 D.

2.2.3 Groundwater Flow Rate and Direction

As presented in the GWMS Report, and mentioned above, given the horizontally expansive clay with substantial vertical thickness, the heterogeneity of the glacial deposits (with the top of the uppermost aquifer elevation across the RRLF CCR unit varying up to 100 feet vertically), the no-flow boundary to the west, and the lack of hydraulic interconnectedness of the uppermost aquifers encountered at the site in some areas, it is not appropriate to infer horizontal flow direction or gradients across the site. Groundwater elevations measured during the April 2024 sampling event are provided on Table 1 and are summarized in plan view on Figure 3. Groundwater elevations measured during the October 2024 sampling event are provided on Table 1 and are summarized in plan view on Figure 4.

Groundwater elevation data collected during the most recent sampling event show that groundwater conditions within the uppermost aquifer are consistent with previous monitoring events and continue to demonstrate that the groundwater monitoring wells are appropriately positioned to detect the presence of Appendix III parameters that could potentially migrate from the RRLF CCR unit.

3.0 Statistical Evaluation

3.1 Establishing Background Limits

As discussed in the Stats Plan, intrawell statistical methods for RRLF were selected based on the geology and hydrogeology at the Site (primarily the presence of clay/hydraulic barrier, the variability in the presence of the uppermost aquifer across the site, and the presence of a no flow boundary on the west side of the aquifer), in addition to other supporting lines of evidence that the aquifer is unaffected by the CCR unit (such as the consistency in concentrations of water quality data). An intrawell statistical approach requires that each downgradient 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. 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 RRLF CCR unit 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 subsequent to the initial statistical limit calculation in 2018. The Appendix III prediction limits at the RRLF were updated per the Stats Plan and Unified Guidance in December 2021 to incorporate additional data collected since 2017 as presented in the December 15, 2021 Technical Memorandum, *Uppermost Useable Aquifer Prediction Limit Update – DTE Electric Company, Range Road Coal Combustion Residual Landfill* (included as Appendix D in the *2021 Annual Groundwater Monitoring Report – DTE Electric Company, Range Road Coal Combustion Residual Landfill,* TRC, January 2022).

3.2 Data Comparison to Background Limits – First 2024 Semiannual Event (April 2024)

For each semiannual monitoring event, 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.

The comparisons of the April 2024 monitoring event data to background limits are presented on Table 3. The statistical evaluation of the April 2024 Appendix III indicator parameters showed a potential initial SSI over background for:

- TDS at MW-16-05;

The boron, calcium, sulfate, and TDS concentrations at MW-16-01, the calcium, sulfate, and TDS concentrations at MW-16-06, and the calcium and sulfate concentrations in MW-16-05 are from natural variability and are not from a release at the RRLF as presented in the still applicable ASDs listed in Table 3. The 2018, 2019, 2020 and 2022 ASDs were prepared for the uppermost usable aquifer under the CCR Rule and included in the 2018, 2019, 2020 and 2022 annual GWMRs, respectively. The February 2024 ASD is included in Appendix A of this report. The conclusions of these ASDs are further supported by the Aquifer Characterization Study discussed in Section 4 and attached as Appendix B. The Aquifer Characterization Study demonstrates that groundwater is not in hydraulic communication with the CCR unit and further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water. Thus, CCR management activities are not influencing groundwater concentrations observed in the RRLF uppermost aquifer monitoring wells.

3.3 Verification Resampling for the First 2024 Semiannual Event

Verification resampling is performed 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. Constituents that initially exceed their statistical limit (i.e., have no previously recorded SSIs) will be analyzed for verification purposes.

Verification resampling for the April 2024 event was conducted on June 6, 2024, by TRC personnel. A Groundwater sample was collected for TDS at MW-16-05 in accordance with the QAPP. A summary of the analytical results collected during the June 2024 resampling event is provided on Table 3. The associated data quality review is included in Appendix D.

The verification result for TDS at MW-16-05 was below the prediction limit, therefore the potential SSI for TDS is not confirmed and no SSI will be recorded for the first semiannual 2024 sampling event. As such, detection monitoring was continued in accordance with §257.94 of the CCR Rule.

3.4 Data Comparison to Background Limits – Second 2024 Semiannual Event (October 2024)

The data comparisons for the October 2024 groundwater monitoring event are presented in Table 4. The statistical evaluation of the October 2024 Appendix III indicator parameters showed potential initial SSIs over background for:

- Fluoride at MW-16-05

As presented in Section 3.2, the calcium and sulfate concentrations at MW-16-06, the boron, calcium, and sulfate exceedances at MW-16-01 and the calcium exceedance at MW-16-04 have been previously demonstrated to be from natural variability and are not from the CCR unit as presented in the ASDs listed in Table 4, which are still applicable to the Second 2024 Semiannual Event. The conclusions of these ASDs are further supported by the Aquifer Characterization Study discussed in Section 4 and attached as Appendix B. The Aquifer Characterization Study demonstrates that groundwater is not in hydraulic communication with

the CCR unit and further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water. Thus, CCR management activities are not influencing groundwater concentrations observed in the RRLF uppermost aquifer monitoring wells.

3.5 Verification Resampling for the Second 2024 Semiannual Event

Verification resampling is performed 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. Constituents that initially exceed their statistical limit (i.e., have no previously recorded SSIs) will be analyzed for verification purposes.

Verification resampling for the October 2024 event was conducted on December 11, 2024, by TRC personnel. A Groundwater sample was collected for fluoride from MW-16-05, in accordance with the QAPP. A summary of the analytical results collected during the resampling event is provided on Table 4. The associated data quality review is included in Appendix D.

The verification results for fluoride at MW-16-05 was below the prediction limit, therefore no SSI will be recorded for fluoride at MW-16-05 for the second semiannual 2024 event.

4.0 Additional Aquifer Characterization

An Additional Uppermost Aquifer Characterization Study (ACS) (TRC, January 2025) has been performed by TRC, on behalf of DTE Electric, at the RRLF to further assess lines of evidence to substantiate that groundwater in the uppermost aquifer is unimpacted by CCR unit operations. The ACS is included in Appendix E of this report. Using a combination of advanced statistics in addition to analysis of geochemical indicators, stable isotopes, and radiometric isotopes, this characterization study includes analysis of additional groundwater data collected in August 2024 along with supplementary in-depth analyses of existing data to further characterize the uppermost aquifer groundwater encountered at the site and compare it to the properties of water that has been in contact with CCR at the site.

TRC collected groundwater samples from the RRLF CCR unit groundwater monitoring well network (MW-16-01 through MW-16-07), a water sample from the leachate monitoring well (95-W-02) and from the Stormwater Pond that collects water from the RRLF perimeter ditch network from August 27 to 29, 2024.

These samples were analyzed for:

- Geochemical parameters: total organic carbon (TOC), calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), sulfate (SO_4), chloride (Cl), Fluoride (Fl) 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
- Radioactive isotope: Tritium (^{3}H).

The results of the study provide multiple additive lines of evidence that further validate the conceptual site model (CSM) that has previously been established for the RRLF, 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.

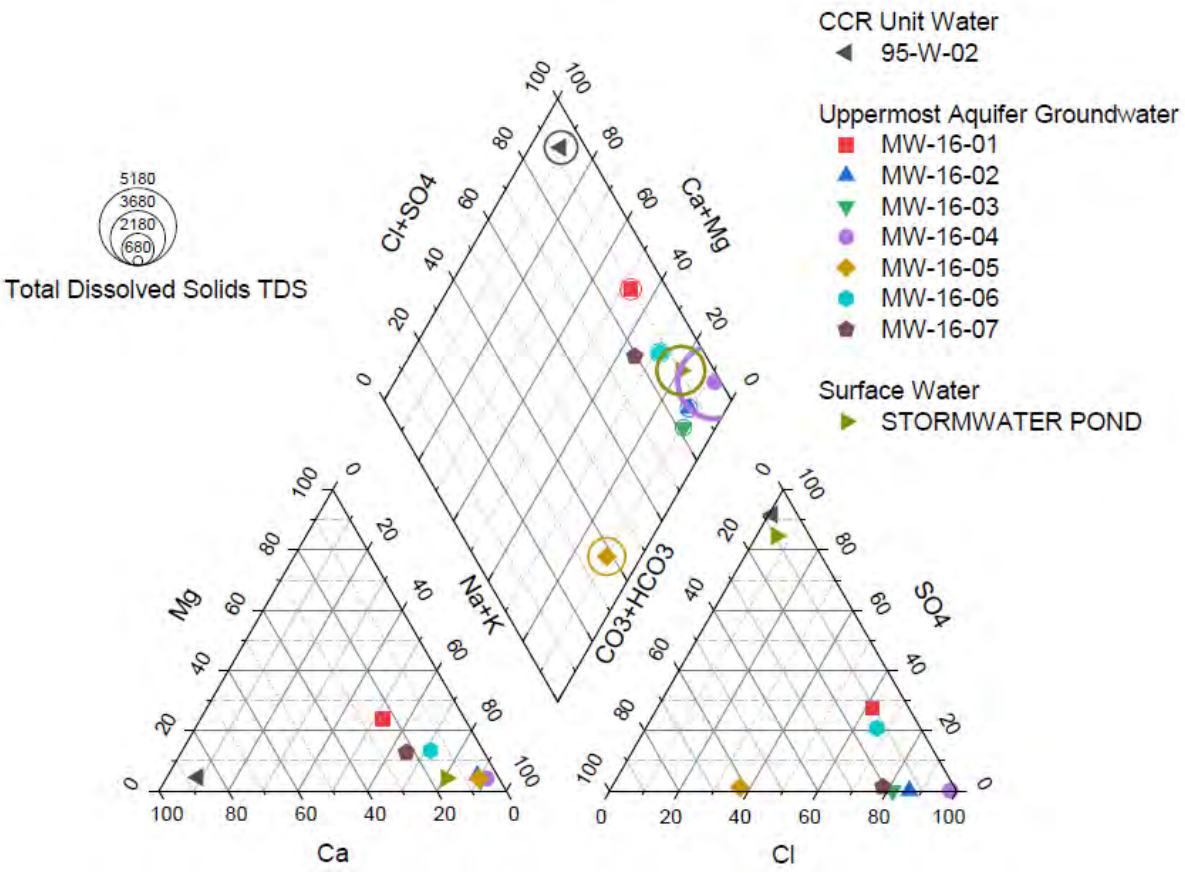
This conclusion is based on the following multiple lines of evidence in this report:

- The geochemical composition of the uppermost aquifer groundwater is independent of and statistically distinct from the CCR unit water;

  For example, the cation and anion data demonstrate that each of the water types are different as illustrated in the following piper diagram figure, in addition to other geochemical properties described in more detail within the study report:

Figure 4.1

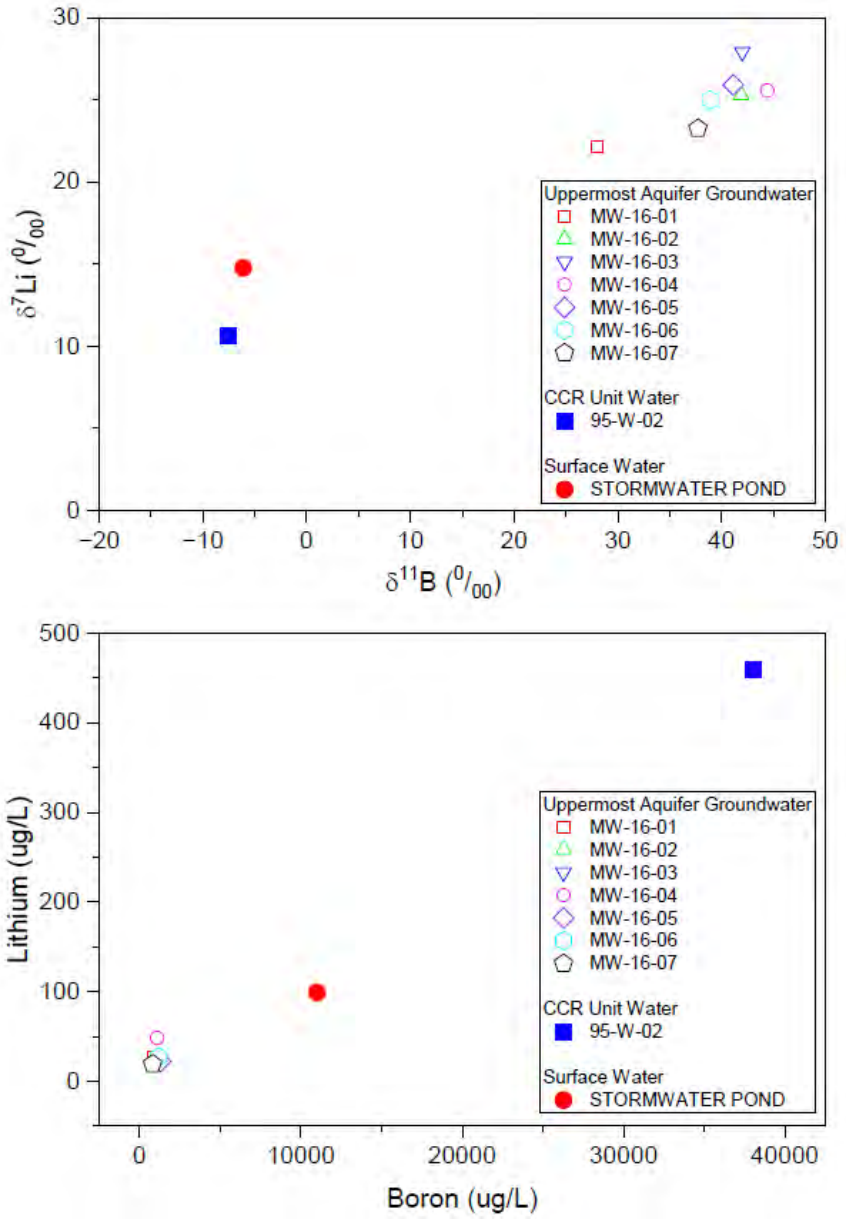
Piper Diagram – August 2024
Range Road Landfill CCR Unit



- The source of lithium, boron, strontium, hydrogen, and oxygen in the uppermost aquifer groundwater is distinct from the CCR unit water, as demonstrated by the stable isotope data that is statistically distinct from the CCR unit water;

  Below is an example of how the stable isotope analysis confirms that none of the samples within the uppermost aquifer have been influenced by CCR management activities. The CCR unit water and the uppermost aquifer groundwater plot in two distinct groups that are statistically different. The CCR unit water lithium and boron isotopic compositions fall within ranges commonly observed of fractionated CCR material while the $\delta^{7}Li$ and $\delta^{11}B$ values of the uppermost aquifer groundwater samples are compositionally distinct from the CCR values and fall within ranges commonly observed in the natural environment. All of the stable isotope analyses ($\delta^{7}Li$, $\delta^{11}B$, $^{87}Sr/^{86}Sr$, $\delta^{2}H$, and $\delta^{18}O$) are presented in the study and 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.

Figure 4.2
Summary of Lithium and Boron Isotopic Concentration Results
August 2024
Range Road Landfill CCR Unit

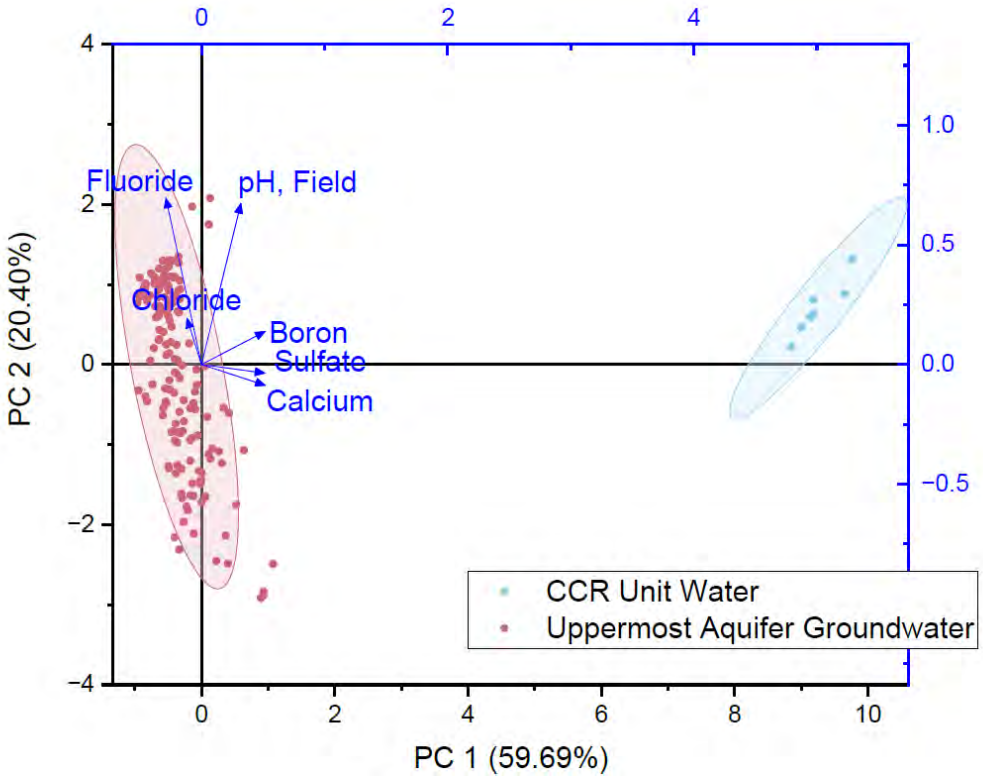


- Age dating with tritium also generally validates that the uppermost aquifer groundwater is not hydraulically connected to the CCR unit – with most of the ages exceeding the number of years the landfill has been in operation; and
- Multivariate statistical analysis, including principal component analysis (PCA), hierarchical clustering, and linear discriminant analysis show the uppermost aquifer groundwater and

the CCR unit water have statistically distinct signatures, as demonstrated by using a subset of the geochemical parameters.

This is highlighted with the following result of the PCA analysis shown below that demonstrates the distinct, statistically significant difference between the leachate and the uppermost aquifer groundwater wells, in addition to other statistical methods presented in detail in the study:

Figure 4.3
Biplot and 95% Confidence Area
Range Road Landfill CCR Unit



These multiple lines of evidence come together in an additive fashion to further validate the conceptual site model in previous studies, and further support the results of the ASDs completed to-date, which holds that the contiguous glacially compacted natural clay-rich soil beneath the RRLF 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.

5.0 Conclusions and Recommendations

No SSIs over background limits were recorded for Appendix III constituents during the 2024 monitoring period. Therefore, detection monitoring will be continued at the RRLF CCR unit in accordance with §257.94. As discussed above, and in the GWMS Report and the Aquifer Characterization Study, with the presence of the vertically and horizontally extensive clay-rich confining till beneath the RRLF CCR unit, groundwater is not in hydraulic communication with the CCR unit and further demonstrates that the uppermost aquifer groundwater is unaffected by the RRLF CCR management activities.

No corrective actions were performed in 2024. The next semiannual monitoring event at the RRLF CCR unit is scheduled for the second calendar quarter of 2025.

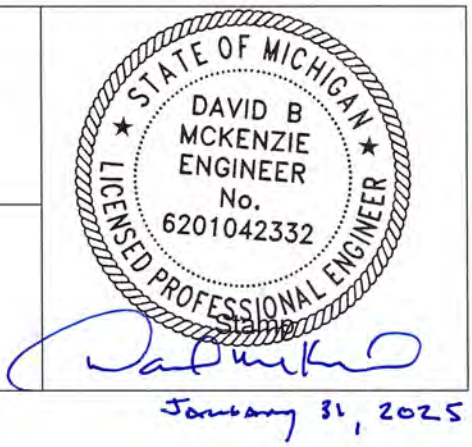
6.0 Groundwater Monitoring Report Certification

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
Range Road Landfill
China Township, Michigan

CERTIFICATION

I hereby certify that the annual groundwater monitoring and corrective action report presented within this document for the RRLF CCR unit and applicable alternative source demonstrations have 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, 2025	

January 31, 2025

7.0 References

TRC. July 2016; Revised March and August 2017. CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Range Road Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. October 2017. Groundwater Monitoring System Summary Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. October 2017. Groundwater Statistical Evaluation Plan – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. January 2018. Annual Groundwater Monitoring Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. August 1, 2018. Alternate Source Demonstration: First 2018 Semiannual Detection Monitoring Sampling Event for the Range Road Coal Combustion Residual Landfill, China Township, Michigan. Prepared for DTE Electric Company.

TRC. August 8, 2019. Alternate Source Demonstration: First 2019 Semiannual Detection Monitoring Sampling Event for the Range Road Coal Combustion Residual Landfill, China Township, Michigan. Prepared for DTE Electric Company.

TRC. August 12, 2020. Alternate Source Demonstration: First Semiannual 2020 Detection Monitoring Sampling Event for the Range Road Coal Combustion Residual Landfill, China Township, Michigan. Prepared for DTE Electric Company.

TRC. February 24, 2022. Alternate Source Demonstration: Fourth Quarter 2021 Semiannual Detection Monitoring Sampling Event Range Road Landfill Coal Combustion Residual Unit, 3600 Range Road, China Township, Michigan.

TRC. January 2023. 2022 Annual Groundwater Monitoring Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. March 1, 2023. Alternate Source Demonstration: Fourth Quarter 2022 Semiannual Detection Monitoring Sampling Event Range Road Landfill Coal Combustion Residual Unit, 3600 Range Road, China Township, Michigan.

TRC. February 29, 2024. Alternate Source Demonstration: Fourth Quarter 2023 Semiannual Detection Monitoring Sampling Event Range Road Landfill Coal Combustion Residual Unit 3600 Range Road, China Township, Michigan.

TRC. January 2025. Additional Uppermost Aquifer Characterization Study, Range Road Landfill CCR Unit, 3600 Range Road, China Township, Michigan

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.

Tables

Table 1

Summary of Groundwater Elevation Data – April and October 2024

Uppermost Usable Aquifer

DTE Electric Company - Range Road Landfill

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	1/13/2016		1/27/2016		2/1/2016		5/24/2016		5/13/2016		5/10/2016		5/13/2016	
TOC Elevation	595.35		598.44		597.69		596.87		601.97		600.68		589.34	
Geologic Unit of Screened interval	Sand with Silt		Silty Sand with Gravel		Silty Gravel with Sand		Silty Sand		Gravel with Sand		Sand		Sand	
Screened Interval Elevation	390.7 to 385.7		393.8 to 388.8		432.1 to 427.1		414.1 to 409.1		476.6 to 471.6		508.0 to 503.0		494.4 to 489.4	
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
04/22/2024	17.77	577.58	20.73	577.71	19.95	577.74	19.25	577.62	27.74	574.23	23.71	576.97	17.16	572.18
10/30/2024	19.04	576.31	20.64	577.80	19.85	577.84	19.27	577.60	27.37	574.60	23.48	577.20	15.76	573.58

Notes:

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 Groundwater Field Parameters – April and October 2024
Range Road Landfill
China Township, 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	4/23/2024	1.44	-73.0	7.3	1,843	10.6	1.41
	6/6/2024(1)	2.83	-39.6	7.3	1,663	12.3	0.92
	10/28/2024	0.05	-128.2	7.6	1,767	11.1	2.79
MW-16-02	4/23/2024	1.51	-81.5	8.1	1,602	10.0	0.48
	10/28/2024	0.67	-262.4	8.3	1,984	11.0	0.10
MW-16-03	4/23/2024	1.36	-159.2	8.0	1,429	11.3	0.18
	10/30/2024	0.01	-168.4	8.1	1,811	11.9	1.70
MW-16-04	4/23/2024	1.57	6.8	8.0	6,671	10.6	12.2
	10/30/2024	0.46	-141.4	7.9	8,388	13.3	29.6
MW-16-05	4/23/2024	1.40	-117.3	8.2	1,547	11.2	0.21
	6/6/2024(1)	3.00	-0.9	8.1	1,406	13.6	0.97
	10/30/2024	0.00	-130.4	8.0	1,802	11.5	0.00
	12/11/2024(2)	0.17	-141.6	8.0	2,106	10.4	0.07
MW-16-06	4/22/2024	1.44	-99.7	7.6	1,562	11.3	0.15
	10/28/2024	0.00	-139.7	7.8	1,600	11.4	1.22
MW-16-07	4/23/2024	1.41	-122.7	7.6	776	11.1	62.5
	10/30/2024	0.06	-147.7	8.0	1,160	12.3	152

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 6/6/2024.

(2) Results shown for verification sampling performed on 12/11/2024.

Table 3
Comparison of Detection Monitoring Parameter Results to Background Limits – April 2024
Range Road Landfill – RCRA CCR Monitoring Program
China Township, 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:		4/23/2024	PL	4/23/2024	PL	4/22/2024	PL	4/23/2024	PL	4/23/2024	6/6/2024[1]	PL	4/22/2024	PL	4/23/2024	PL
Constituent	Unit	Data		Data		Data		Data		Data			Data		Data	
Appendix III																
Boron	ug/L	**1,100**[2]	620	1,100	1,200	1,200	1,300	1,100	1,200	1,300	--	1,400	1,100	1,200	700	980
Calcium	ug/L	**140,000**[3]	87,000	23,000	24,000	20,000	28,000	68,000	68,000	**29,000**[4]	--	19,000	**61,000**[5]	34,000	48,000	59,000
Chloride	mg/L	420	770	690	720	520	580	3,300	3,600	560	--	630	480	580	260	380
Fluoride	mg/L	0.69	0.90	2.0	2.1	2.2	2.2	1.6	1.7	1.8	--	2.0	1.4	1.5	1.1	1.3
pH, Field	su	7.3	7.1 - 8.2	8.1	8.0 - 9.0	8.0	8.0 - 8.8	8.0	7.6 - 8.6	8.2	--	8.0 - 8.9	7.6	7.6 - 8.3	7.6	7.3 - 8.4
Sulfate	mg/L	**630**[6]	45	< 1.0	10	< 1.0	10	< 5.0	50	**78**[4]	--	10	**230**[2]	54	11	74
Total Dissolved Solids	mg/L	**1,700**[4]	1,300	1,100	1,300	1,000	1,100	4,900	5,300	**1,300**	1,000	1,200	**1,200**[7]	1,100	580	760

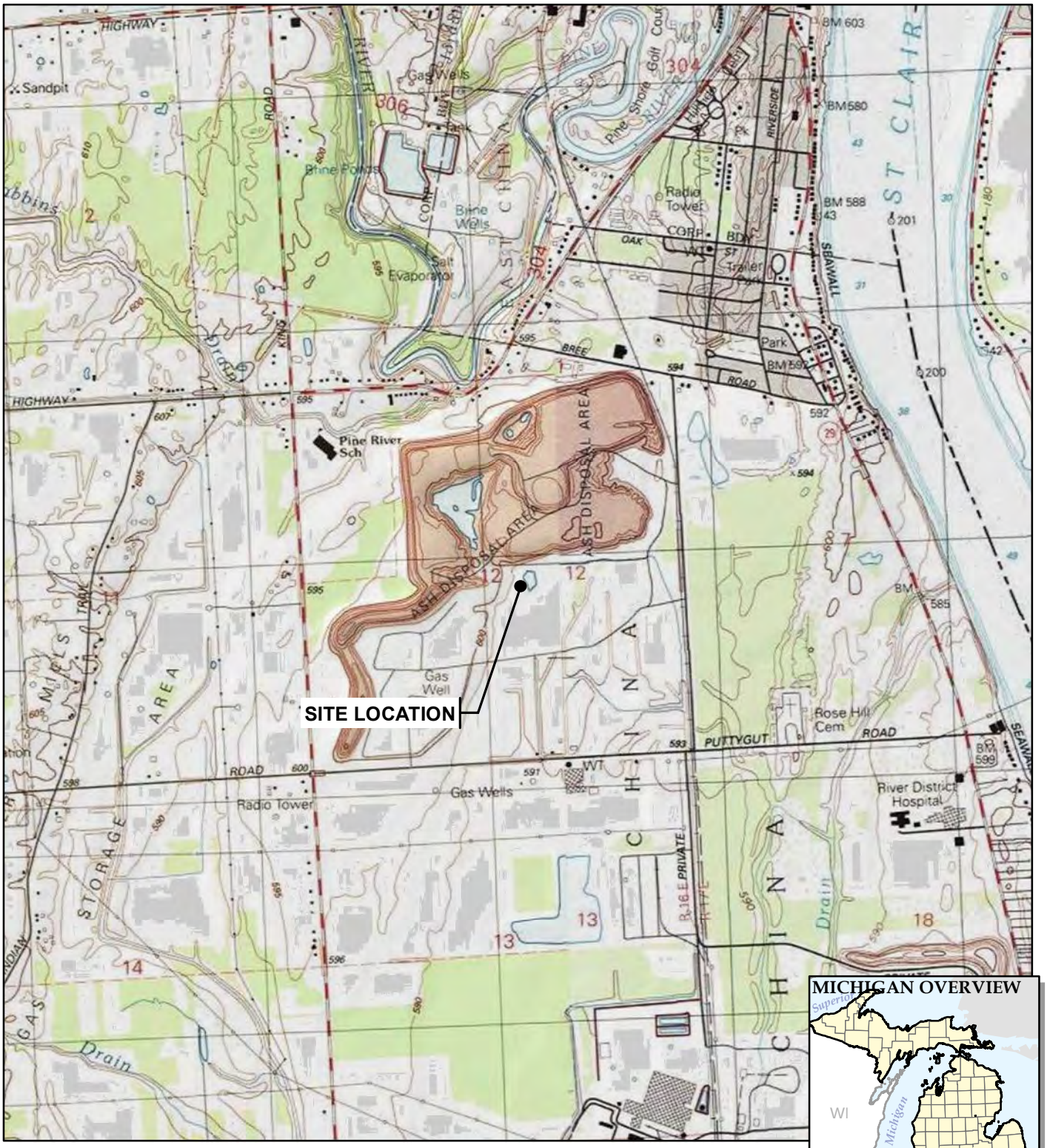
Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
All metals were analyzed as total unless otherwise specified.
Bold font indicates an exceedance of the Prediction Limit (PL).
(1) - Results shown for verification sampling performed on 6/6/2024.
(2) - Exceedance was determined to be from an alternate source in the still applicable First 2018 Semiannual alternative source demonstration dated 8/1/2018.
(3) - Exceedance was determined to be from an alternate source in the still applicable Second 2022 Semiannual alternative source demonstraion dated 3/1/2023.
(4) - Exceedance was determined to be from an alternate source in the still applicable Second 2023 Semiannual alternative source demonstration dated 2/29/2024.
(5) - Exceedance was determined to be from an alternate source in the still applicable First 2019 Seminannual alternative source demonstration dated 8/8/2019.
(6) - Exceedance was determined to be from an alternate source in the still applicable First 2020 Semiannual alternative source demonstration dated 8/12/2020.
(7) - Exceedance was determined to be from an alternate source in the still applicable Second 2021 Semiannual alternative source demonstration dated 2/24/2022.
RESULT Shading and bold font indicates a confirmed exceedance of the Prediction Limit (PL).

Table 4
Comparison of Detection Monitoring Parameter Results to Background Limits – October 2024
Range Road Landfill – RCRA CCR Monitoring Program
China Township, 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:		10/28/2024	PL	10/28/2024	PL	10/30/2024	PL	10/30/2024	PL	10/30/2024	12/11/2024	PL	10/28/2024	PL	10/30/2024	PL
Constituent	Unit	Data		Data		Data		Data		Data			Data		Data	
Appendix III																
Boron	ug/L	**830**[2]	620	1,100	1,200	1,100	1,300	1,100	1,200	1,300	--	1,400	1,100	1,200	800	980
Calcium	ug/L	**110,000**[3]	87,000	24,000	24,000	20,000	28,000	**69,000**[3]	68,000	19,000	--	19,000	**70,000**[4]	34,000	47,000	59,000
Chloride	mg/L	580	770	640	720	550	580	3,300	3,600	520	--	630	460	580	330	380
Fluoride	mg/L	0.78	0.9	2.0	2.1	1.9	2.2	1.5	1.7	**2.2**	1.8	2.0	1.4	1.5	1.2	1.3
pH, Field	su	7.6	7.1 - 8.2	8.3	8.0 - 9.0	8.1	8.0 - 8.8	7.9	7.6 - 8.6	8.0	--	8.0 - 8.9	7.8	7.6 - 8.3	8.0	7.3 - 8.4
Sulfate	mg/L	**280**[5]	45	< 1	10	9.0	10	< 5	50	< 1	--	10	**270**[2]	54	4.9	74
Total Dissolved Solids	mg/L	1,300	1,300	1,100	1,300	930	1,100	5,300	5,300	1,100	--	1,200	1,100	1,100	600	760

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.
Bold font indicates an exceedance of the Prediction Limit (PL).
(1) - Results shown for verification sampling performed on 12/11/2024.
(2) - Exceedance was determined to be from an alternate source in the First 2018 Semiannual alternative source demonstration dated 8/1/2018.
(3) - Exceedance was determined to be from an alternate source in the Second 2022 Semiannual alternative source demonstration dated 3/1/2023.
(4) - Exceedance was determined to be from an alternate source in the First 2019 Semiannual alternative source demonstration dated 8/8/2019.
(5) - Exceedance was determined to be from an alternate source in the First 2020 Semiannual alternative source demonstration dated 8/12/2020.

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
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

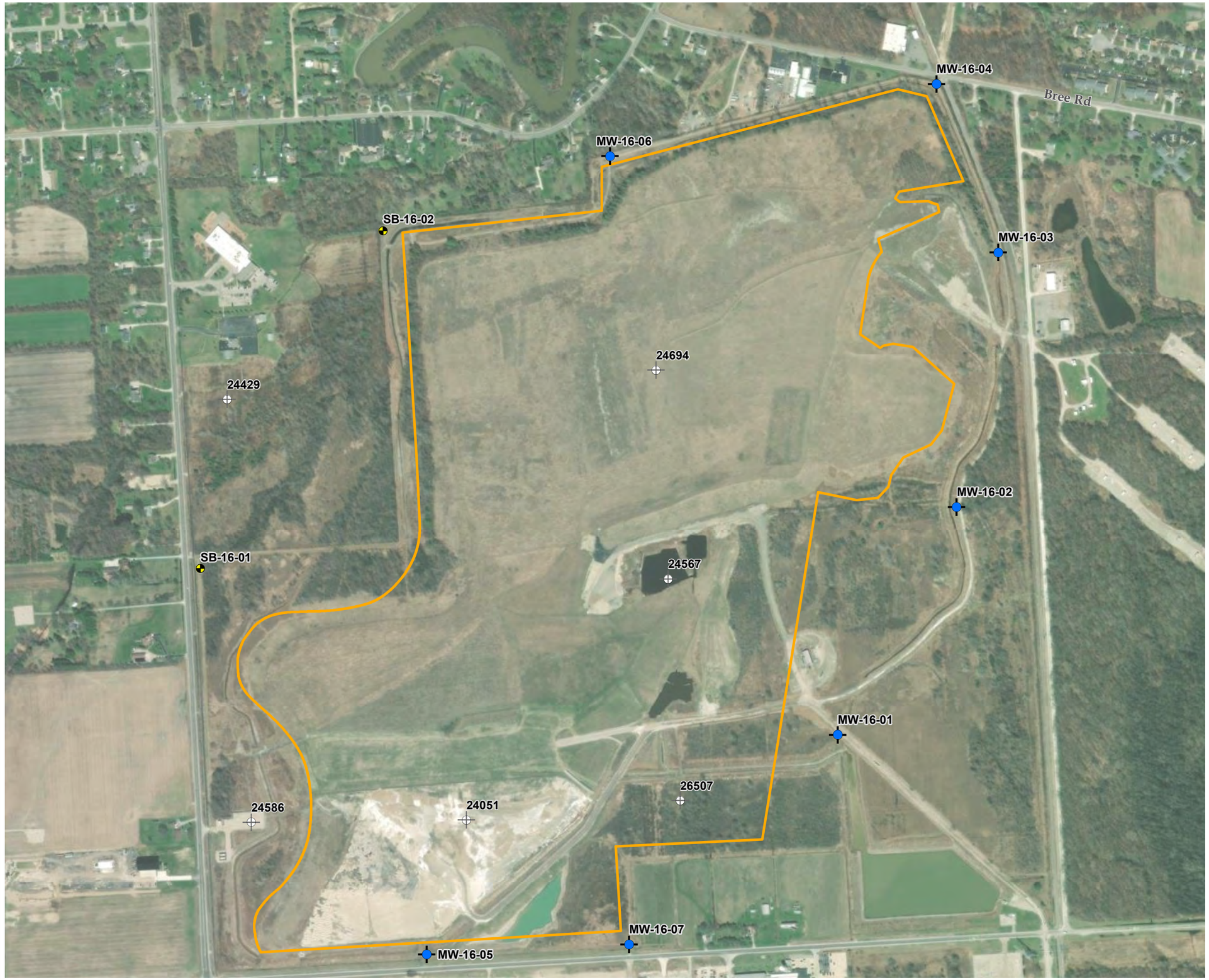
TITLE:

SITE LOCATION MAP

DRAWN BY:	A. FOJTIK
CHECKED BY:	J. KRENZ
APPROVED BY:	V. BUENING
DATE:	JANUARY 2025
PROJ. NO.:	553931.0000.0000
FILE:	553931-0000-001.mxd

FIGURE 1

E:\DTE\CCR_Sites\2024_553931\MXD\553931-0000-001.mxd -- Saved By: AFOJTIK on 12/9/2024, 14:30:45 PM



LEGEND

- MONITORING WELL
- SOIL BORING
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- OIL/GAS WELL LOCATION

NOTES

1. BASE MAP IMAGERY FROM ESRI WORLD IMAGERY,2022.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.
3. OIL AND GAS WELL LOCATIONS FROM MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, GEOWEBFACE.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
MONITORING NETWORK AND SITE PLAN

DRAWN BY:	A. FOJTIK	PROJ NO.:	553931.0000.0000
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		**FIGURE 2**
DATE:	JANUARY 2025		

TRC
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www.trccompanies.com

FILE NO.: 553931-0000-002a.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0
Plot Date: 12/9/2024, 14:30:06 PM by AFOJTIK -- LAYOUT: ANSI B(11"x17")
Path: E:\DTE\CCR_Sites\2024_553931\MXD\553931-0000-002a.mxd

TRC - GIS

Monitoring Well Screen Information			
Monitoring Well ID	Screen Interval Lithology	Screen Interval Depth (ft BGS)	Screen Interval Elevation (ft NAVD 88)
MW-16-01	Sand with Silt	202.0 - 207.0	390.7 - 385.7
MW-16-02	Silty Sand with Gravel, and Silty Sand	201.5 - 206.5	393.8 - 388.8
MW-16-03	Silty Gravel with Sand	163.0 - 168.0	432.1 - 427.1
MW-16-04	Silty Sand	180.0 - 185.0	414.1 - 409.1
MW-16-05	Gravel with Sand	123.0 - 128.0	476.6 - 471.6
MW-16-06	Sand	90.0 - 95.0	508.0 - 503.0
MW-16-07	Sand	95.0 - 100.0	494.4 - 489.4

LEGEND

- MONITORING WELL
- SOIL BORING
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- APPROXIMATE AQUIFER BOUNDARY

MW ID
GROUNDWATER ELEVATION (DATE)

FT BGS
FEET BELOW GROUND SURFACE
FT NAVD 88
FEET RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988

NOTES

1. BASE MAP IMAGERY FROM ESRI WORLD IMAGERY, 2022.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.

N

0 600 1,200 Feet

1 " = 600 '
1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
GROUNDWATER POTENTIOMETRIC ELEVATION SUMMARY APRIL 2024

DRAWN BY:	A. FOJTIK	PROJ NO.:	553931.0000.0000
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		**FIGURE 3**
DATE:	JANUARY 2025		

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

FILE NO.: 553931-0000-004.mxd

Plot Date: 6/4/2024, 18:02:59 PM by AFOJTIK -- LAYOUT: ANSI B (11"x17")
Path: E:\DTE\CCR_Sites\2017_265996\553931-0000-004.mxd
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0

TRC - GIS

Monitoring Well Screen Information

Monitoring Well ID	Screen Interval Lithology	Screen Interval Depth (ft BGS)	Screen Interval Elevation (ft NAVD 88)
MW-16-01	Sand with Silt	202.0 - 207.0	390.7 - 385.7
MW-16-02	Silty Sand with Gravel, and Silty Sand	201.5 - 206.5	393.8 - 388.8
MW-16-03	Silty Gravel with Sand	163.0 - 168.0	432.1 - 427.1
MW-16-04	Silty Sand	180.0 - 185.0	414.1 - 409.1
MW-16-05	Gravel with Sand	123.0 - 128.0	476.6 - 471.6
MW-16-06	Sand	90.0 - 95.0	508.0 - 503.0
MW-16-07	Sand	95.0 - 100.0	494.4 - 489.4

LEGEND

- MONITORING WELL
- SOIL BORING
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- APPROXIMATE AQUIFER BOUNDARY

MW ID
GROUNDWATER ELEVATION (DATE)

FT BGS
FEET BELOW GROUND SURFACE
FT NAVD 88
FEET RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988

NOTES

1. BASE MAP IMAGERY FROM ESRI WORLD IMAGERY, 2022.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.

0 600 1,200 Feet

1 " = 600 '
1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
GROUNDWATER POTENTIOMETRIC ELEVATION SUMMARY OCTOBER 2024

DRAWN BY:	A. FOJTIK	PROJ NO.:	553931.0000.0000
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		**FIGURE 4**
DATE:	JANUARY 2025		

TRC
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FILE NO.: 553931-0000-004.mxd

Plot Date: 12/9/2024, 17:01:34 PM by AFOJTIK -- LAYOUT: ANSI B (11"x17")
Path: E:\DTE\CCR_Sites\2024_553931\MXD\553931-0000-004.mxd
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0

Appendix A
Alternate Source Demonstration: Fourth Quarter 2023 Semiannual Detection Monitoring Sampling Event

1540 Eisenhower Pl.
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T 734.971.7080
TRCcompanies.com

February 29, 2024

Aaron Darling
District Geologist
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy (EGLE)
27700 Donald Court
Warren, MI 48092-2793

Subject: Alternate Source Demonstration: Fourth Quarter 2023 Semiannual Detection Monitoring Sampling Event
Range Road Landfill Coal Combustion Residual Unit
3600 Range Road, China Township, Michigan

Dear Mr. Darling:

TRC was retained by DTE Electric Company (DTE Electric) to conduct routine groundwater monitoring activities for the uppermost usable aquifer at the Range Road Landfill (RRLF) coal combustion residual (CCR) unit, located in St Clair County, Michigan. Routine groundwater monitoring at the RRLF CCR unit is conducted in accordance with the Michigan Department of Environment, Great Lakes, and Energy (EGLE)-approved *Hydrogeologic Monitoring Plan for the DTE Electric Company Range Road Ash Disposal Facility, China Township, St. Clair County, Michigan* (2020 HMP) (TRC, November 2019; Revised May 2020) and the United States Environmental Protection Agency (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule), as amended (USEPA, April 2015).

As discussed in the *Fourth Quarter 2023 Hydrogeological Monitoring and Performance Monitoring Report* (Fourth Quarter 2023 Report) (TRC, January 2024), the statistical evaluation of the October 2023 detection monitoring indicator parameters showed potential statistically significant increases (SSIs) over the prediction limit (PL) for total dissolved solids (TDS) at MW-16-01 and MW-16-02, as well as calcium and sulfate at MW-16-05 (Table 1). Verification resampling for the October 2023 event was conducted on December 7, 2023 and January 8, 2024 by TRC personnel. The verification results for calcium at MW-16-05, sulfate at MW-16-05, and TDS at MW-16-01 were above their respective prediction limits, confirming the initial potential SSIs from the October 2023 sampling event (Table 1).

In accordance with §257.94(e)(2) and the 2020 HMP, DTE Electric may demonstrate that a source other than the CCR unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This Alternate Source Demonstration (ASD) has been prepared to address the SSIs identified in the October 2023 detection monitoring event and demonstrates that the calcium, sulfate, and TDS SSIs are not due to a release of CCR leachate into the uppermost aquifer.

Background

The RRLF is located in Section 12, Township 4 North, Range 16 East, 3600 Range Road, China Township in St. Clair County, Michigan. The site location is shown in Figure 1. The property has been used continuously as a coal ash landfill since Detroit Edison Company (now DTE Electric) began coal ash landfilling operations in the 1950s. The property consists of approximately 514 acres of which approximately 402 acres are designated for CCR landfill development; approximately half of the 402 acres is currently occupied with CCR.

The RRLF CCR unit is immediately underlain by 86 to 188 feet of laterally-extensive, low hydraulic conductivity silty clay-rich deposits. A no flow boundary is formed across the western portion of the RRLF by clay-rich till which is present continuously to the top of bedrock in this area. Beneath the clay rich aquitard, a sand/gravel unit is encountered, which contains the uppermost aquifer present beneath the RRLF. This uppermost usable aquifer is encountered at different elevations beneath the RRLF between 86 and 196 feet below ground surface (ft bgs). As a result of site specific geologic and hydrogeologic conditions, downward migration of CCR leachate is not expected, and it is not appropriate to infer horizontal flow directions across the site. Please refer to the *Uppermost Usable Aquifer Groundwater Monitoring System Summary Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan* (October 2017, Revised April 2020a) (Groundwater Monitoring System Summary Report) (Appendix A of the 2020 HMP) for further details regarding site-specific hydrogeology.

The uppermost usable aquifer monitoring well network for the RRLF currently consists of seven monitoring wells that are screened in the uppermost usable aquifer and are all considered to be downgradient monitoring wells. The monitoring well locations are shown in Figure 2. The Groundwater Monitoring System Summary Report details the groundwater monitoring system.

Alternate Source Demonstration

As discussed above, verification resampling was performed as recommended per the Stats Plan and the Unified Guidance to achieve performance standards as specified by §257.93(g) in the CCR Rule and the 2020 HMP. 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 exceeded their statistical limit (i.e., have no previously recorded SSIs) were analyzed for verification purposes. As such, verification resampling was conducted on December 7, 2023 and January 8, 2024 by TRC personnel for calcium and sulfate at monitoring well MW-16-05 and TDS at monitoring wells MW-16-01 and MW-16-02. Groundwater samples were collected in accordance with the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan* (July 2016, Revised March and August 2017) and the 2020 HMP. A summary of the groundwater data collected during the verification resampling event is provided on Table 1.

The verification resampling confirmed the calcium exceedance at MW-16-05, the sulfate exceedance at MW-16-05, and the TDS exceedance at MW-16-01 as shown in Table 1. The verification result for TDS at MW-16-02 was below the PL and therefore no potential SSI was confirmed. The following discussion presents the ASD for the confirmed PL exceedances for calcium and sulfate at MW-16-05 and TDS at MW-16-01.

TDS at MW-16-01, Calcium and Sulfate at MW-16-05: The SSIs of TDS at MW-16-01, calcium at MW-16-05, and sulfate at MW-16-05 shown graphically as data points greater than the prediction limit in Figures 3 through 5, are the result of natural variability in groundwater quality at the site and not the result of a release from the RRLF CCR unit. Multiple lines of evidence are provided in support of this conclusion as follows:

- **Lack of hydraulic connection/Time of travel analysis** – The clay formation immediately beneath the RRLF CCR unit provides a natural geologic barrier that hydraulically separates the landfill from the underlying uppermost aquifer and prevents downward migration of CCR constituents to the underlying aquifer. The RRLF CCR unit is also constructed with a perimeter slurry wall that prevents any lateral migration of water from the landfill (TRC, November 2019; Revised May 2020). The low hydraulic conductivity of the underlying clay (less than 1×10^{-8} centimeters per second) has been demonstrated through multiple lab tests and the lateral continuity and vertical extent of the clay layer has been confirmed through multiple soil borings (TRC, October 2017; Revised April 2020a). The extent of the clay beneath the CCR unit is shown in Figures 6 through 9 as cross-sections. Figure 6 shows the cross-section locations in plan view. The physical properties of the clay prevent migration of liquids, conservatively calculating a time of travel for liquid from the base of the RRLF through a minimum of 86 feet of clay to the underlying upper aquifer yields over 1,300 years of travel time (TRC, October 2017; Revised April 2020a). The RRLF began accepting coal ash in approximately 1950, therefore, based on this analysis, there is no potential for indicator parameters to have migrated to the uppermost usable aquifer.
- **Laboratory precision and accuracy** – The laboratory-reported TDS and calcium concentrations for the respective MW-16-01 and MW-16-05 groundwater samples collected during the second semiannual 2023 sampling event (October 2023 original sample and the December 2023 confirmation sample) are slightly higher than the PL. However:
  - **TDS**: The laboratory precision and accuracy range for TDS is +/- 20%. The October (1,400 milligrams per liter (mg/L)) and December (1,400 mg/L) 2023 groundwater samples had TDS detected at concentrations that were only slightly above the MW-16-01 PL of 1,300 mg/L. As such, the PL for each of these samples is within the margin of error of the laboratory results.
  - **Calcium**: The laboratory precision and accuracy range for calcium is +/- 20%. The October (21,000 micrograms per liter (µg/L)) and December (20,000 µg/L) 2023 groundwater samples had calcium detected at concentrations that were only slightly above the MW-16-05 PL of 19,000 µg/L. As such, the PL for each of these samples is within the margin of error of the laboratory results.
- **Insufficient background sampling timeline to account for long-term trends** – Temporal variability in TDS and calcium concentrations observed in the groundwater at RRLF during the background sampling events provides evidence of the heterogeneity of this constituent in groundwater (Table 1). Although background concentrations have been updated in 2021 to account for additional temporal variation since the onset of monitoring in 2016, the background dataset still represents a relatively short timeframe considering that the potential horizontal

groundwater flow rate ranges from approximately 0.000062 feet/day (0.023 feet/year) to 0.76 feet/day (~278 feet/year) for the sand-rich uppermost useable aquifer at RRLF (TRC, October 2017; Revised April 2020a). The relatively short duration of the background sampling events limits the ability of the statistical analysis to capture the natural long-term temporal trends in the uppermost aquifer groundwater quality at the RRLF.

- TDS concentrations within the uppermost aquifer groundwater during the second semiannual 2023 sampling event ranged from 520 mg/L (MW-16-07) to 5,000 mg/L (MW-16-04), indicating a wide range of TDS concentrations across the underlying aquifer. The concentration of TDS at MW-16-01 is well within the range of TDS values observed in the uppermost aquifer across the CCR unit, further demonstrating that the concentrations at MW-16-01 are reasonable for naturally occurring concentrations in the uppermost aquifer.
- Calcium concentrations within the uppermost aquifer groundwater during the second semiannual 2023 sampling event ranged from 18,000 µg/L (MW-16-03) to 100,000 µg/L (MW-16-01), indicating a wide range of calcium concentrations across the CCR unit. The concentration of calcium at MW-16-05 is toward the bottom of the range of calcium values observed in the uppermost aquifer across the CCR unit, further demonstrating that the concentrations at MW-16-05 are reasonable for naturally occurring concentrations in the uppermost aquifer.
- Sulfate concentrations during the second semiannual 2023 sampling event ranged from non detect (less than 1 mg/L) to 390 mg/L within the uppermost aquifer groundwater monitoring well network. The sulfate concentrations at MW-16-05 were 30 mg/L (October 2023) and 32 mg/L (December 2023) which is well within the range of observed naturally occurring concentrations in the uppermost aquifer.

- **Natural concentrations in residential drinking water supply wells in China and East China Townships** –
  - TDS: TDS concentrations were estimated using data collected by the public health department (three wells) and DTE Electric Company (one well) from four residential wells in China and East China Townships, Michigan, within approximately 0.4 to 1 mile from the CCR Unit, to represent regional background in the area. TDS is made up of inorganic salts that include calcium, chlorides, magnesium, potassium, sodium, and sulfate. Since TDS data were not available in the collected residential well data, the sum of the available sodium, chloride and sulfate data collected in 2007 were used to estimate the TDS concentrations in the uppermost aquifer ranging from at least 800 to more than 1,400 mg/L (generally higher than 1,200 mg/L). Since the available data does not include all of the potential contributing substances that can make up TDS, the estimate represents the low-end range of TDS concentrations in the uppermost aquifer. Given that the MW-16-01 TDS concentration is consistent with the estimated TDS range in the residential wells, the CCR unit well network is screened in similar substrate (over 100 feet below ground surface), and the CCR unit is located near the boundary of China and East China Townships, this residential data further supports that the TDS concentration within MW-16-01 is from a natural source. The 2007 China and East China Township drinking water well data and a map of the approximate residential well locations are included in Appendix B.
  - Calcium and Sulfate: A study was performed by the USGS on groundwater quality in Michigan aquifers and summarized in *Michigan Ground-Water Quality (USGS, 1986)*. The analysis of 113 samples statewide concluded that 90 percent of the samples had dissolved calcium concentrations of 97,000 µg/L or less and sulfate ranging from less than 10 milligrams per liter

(mg/L) to as high as 1,200 mg/L throughout various aquifers in Michigan. The study also found that saline water was found at varying depths from near surface to around 200 feet below ground surface in southeast Michigan. According to *Gazetteer of Hydrologic Data for the Belle River Basin, Southeastern Michigan* (Knutilla, 1969), water from the glacial deposits in the Belle River Basin are of the sodium bicarbonate type and that water hardness ranges from 68.4 to 342.0 parts per million calcium carbonate. Water from bedrock wells in the area contains large amounts of calcium, bicarbonate, sulfate, and sodium chloride. Knutilla also indicates that in general, mineralization of the water increases with depth, whether in the glacial deposits or bedrock. MW-16-01 is screened at a depth of 202 to 207 ft bgs and MW-16-05 is screened at a depth of 123 to 128 ft bgs. The calcium and sulfate concentrations observed in groundwater at the RRLF are within the range of natural concentrations observed in the studies mentioned above, indicating site concentrations are within natural concentrations as shown in Table 1[1] and in Box and Whisker Plots for data collected since the beginning of monitoring for MW-16-01 and MW-16-05 in Appendix C.

- **Spatial variability in groundwater quality** – After 8 background sampling events and 7 detection monitoring sampling events including verification sampling[1], the prediction limits calculated for each of the 7 monitoring wells range from
  - **Calcium:** 19,000 µg/L to 87,000 µg/L.
  - **Sulfate:** 10 mg/L to 74 mg/L.

  This variability in groundwater quality across the site, which covers over half square mile area, shows that the calcium and sulfate concentrations vary spatially throughout the uppermost aquifer and support that the confirmed calcium and sulfate SSIs at MW-16-05 are attributed to spatial variability, well within the range of concentrations observed throughout the well network.

Conclusions and Recommendations

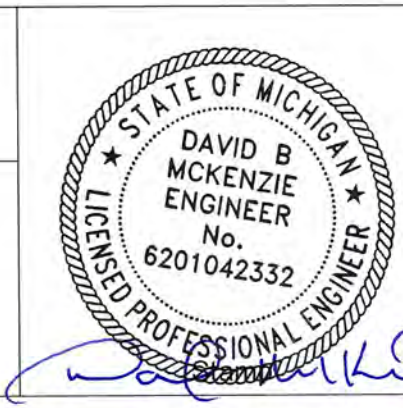
The information provided in this report serves as the ASD for the DTE Electric RRLF; this ASD was prepared in accordance with 40 CFR 257.94(e)(2) of the CCR Rule and the 2020 HMP and demonstrates that the TDS, calcium, and sulfate SSIs determined based on the October 2023 detection monitoring event are due to the natural variability of background groundwater quality within the uppermost aquifer groundwater. Therefore, based on the information provided in this ASD, DTE Electric will continue detection monitoring as per 40 CFR 257.94 at the RRLF CCR unit.

[1] Verification sampling results used to confirm or deny potential SSIs have been averaged with the compliance sample results for statistical limit calculation.

Signatures and Certifications

Engineer Certification Statement

I hereby certify that the alternative source demonstration presented within this document for the RRLF CCR unit has been prepared to meet the requirements of Title 40 CFR §257.94(e)(2) of the Federal CCR Rule and the May 2020 *Hydrogeological Monitoring Plan for the DTE Electric Company Range Road Ash Disposal Facility* (2020 HMP). 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 §257.94(e)(2) and the 2020 HMP.

Name: David B. McKenzie, P.E.	Expiration Date: December 17, 2025	
Company: TRC Engineers Michigan, Inc.	Date: February 29, 2024	

In addition, the signatures below certifies that this letter report was prepared under the direction of a qualified groundwater scientist in accordance with the EGLE-approved HMP and the Stats Plan. A copy of this report will be placed in the facility file.

Sincerely,

TRC

Vincent E. Buening, C.P.G
Sr. Project Manager

Sarah B. Holmstrom, P.G
Senior Hydrogeologist

Attachments

Table 1	Comparison of Appendix III and Part 115 Groundwater Parameter Results to Background Limits – Second 2023 Semiannual Sampling Event
Figure 1	Site Location Map
Figure 2	Uppermost Usable Aquifer Monitoring Well Network and Site Plan
Figure 3	TDS at MW-16-01
Figure 4	Calcium at MW-16-05
Figure 5	Sulfate at MW-16-05
Figure 6	Cross Section Locator Map
Figure 7	Generalized Geologic Cross Section A-A’
Figure 8	Generalized Geologic Cross Section B-B’’
Figure 9	Generalized Geologic Cross Section C-C’
Appendix A	References
Appendix B	2007 Residential Well Data and Location Map
Appendix C	Box and Whisker Plots

cc: Christopher P. Scieszka, DTE Electric Company

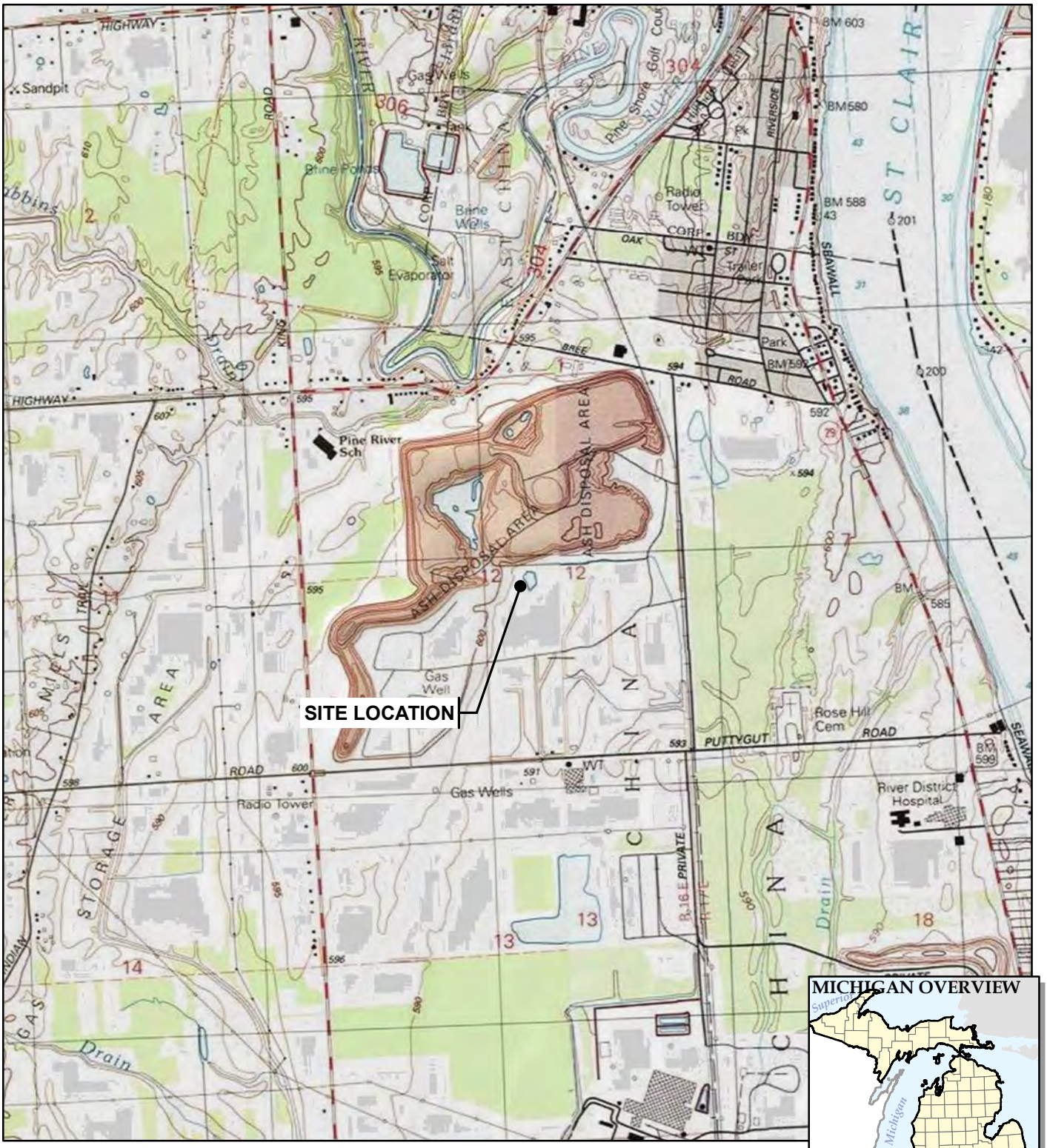
Table

Table 1
Comparison of Appendix III and Part 115 Parameter Results to Background Limits – Second 2023 Semiannual Sampling Event
Uppermost Useable Aquifer
DTE Electric Company - Range Road Landfill

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:		10/16/2023	12/7/2023[1]	PL	10/16/2023	1/8/2024[2]	PL	10/16/2023	PL	10/17/2023	PL	10/17/2023	12/7/2023[1]	PL	10/17/2023	PL	10/17/2023	PL
Constituent	Unit	Data			Data			Data		Data		Data			Data		Data	
Appendix III																		
Boron	ug/L	**710**[3]	--	620	1,000	--	1,200	1,100	1,300	1,000	1,200	1,200	--	1,400	1,000	1,200	630	980
Calcium	ug/L	**100,000**[4]	--	87,000	21,000	--	24,000	18,000	28,000	63,000	68,000	**21,000**	**20,000**	19,000	**78,000**[5]	34,000	51,000	59,000
Chloride	mg/L	590	--	770	670	--	720	530	580	3,300	3,600	520	--	630	420	580	200	380
Fluoride	mg/L	0.78	--	0.9	2.1	--	2.1	2.2	2.2	1.5	1.7	1.8	--	2.0	1.2	1.5	0.99	1.3
pH, Field	su	7.2	--	7.1 - 8.2	8.0	--	8.0 - 9.0	8.0	8.0 - 8.8	8.2	7.6 - 8.6	8.0	--	8.0 - 8.9	7.6	7.6 - 8.3	7.8	7.3 - 8.4
Sulfate	mg/L	**340**[6]	--	45	< 1	--	10	< 1	10	< 5	50	**30**	**32**	**10**	**390**[7]	54	15	74
Total Dissolved Solids	mg/L	**1,400**	**1,400**	1,300	**1,400**	1,100	1,300	970	1,100	5,000	5,300	1,100	--	1,200	**1,300**[8]	1,100	520	760
Part 115 Parameters																		
Iron	ug/L	1,500	--	n<8	720	--	n<8	520	n<8	1,400	n<8	190	--	n<8	720	n<8	5,500	n<8

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.
Bold font indicates an exceedance of the Prediction Limit (PL).
RESULT Shading and bold font indicates a confirmed exceedance of the Prediction Limit (PL).
(1) - Results Shown for verification sampling performed on 12/7/2023.
(2) - Results Shown for verification sampling performed on 1/8/2024.
(3) - Exceedance was determined to be from an alternate source in the First 2018 Semiannual Alternate Source Demonstration dated 8/1/2018.
(4) - Exceedance was determined to be from an alternate source in the Second 2022 Semiannual Aleternate Source Demonstration dated 3/1/2023.
(5) - Exceedance was determined to be from an alternate source in the First 2019 Semiannual Alternate Source Demonstration dated 8/8/2019.
(6) - Exceedance was determined to be from an alternate source in the First 2020 Semiannual Alternate Source Demonstration dated 8/12/2020.
(7) - Exceedance was determined to be from an alternate source in the First 2018 Semiannual Alternate Source Demonstration dated 8/1/2018.
(8) - Exceedance was determined to be from an alternate source in the Second 2021 Semiannual Alternate Source Demonstration dated 2/24/2022.

Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

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

0 2,000 4,000
FEET

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PROJECT:

DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:

SITE LOCATION MAP

DRAWN BY:	A. FOJTIK
CHECKED BY:	J. KRENZ
APPROVED BY:	V. BUENING
DATE:	FEBRUARY 2024
PROJ. NO.:	413591.0000
FILE:	413591-0000-001SLM.mxd

FIGURE 1

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TRC - GIS

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Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0

LEGEND

- MONITORING WELL
- SOIL BORING
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- OIL/GAS WELL LOCATION

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO,2019.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.
3. OIL AND GAS WELL LOCATIONS FROM MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, GEOWEBFACE.

N

0 600 1,200 Feet

1 " = 600 '
1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
MONITORING NETWORK AND SITE PLAN

DRAWN BY:	A. FOJTIK	PROJ NO.:	413591.0000
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		**FIGURE 2**
DATE:	FEBRUARY 2024		

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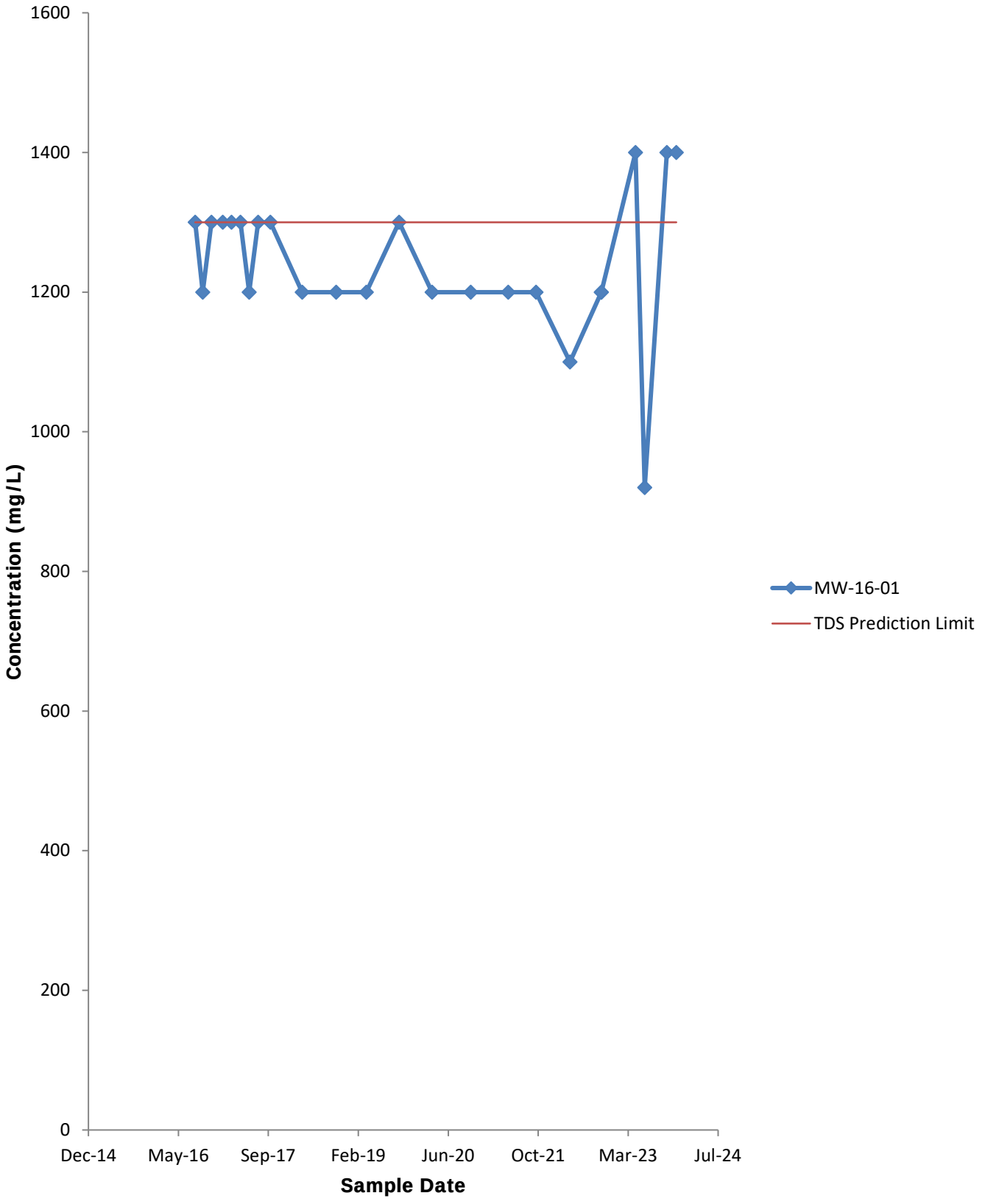
FILE NO.: 413591-0000-002.mxd

Time-Series Plots
Range Road Landfill
China Township, Michigan
Total Dissolved Solids

Figure 3
Total Dissolved Solids at MW-16-01

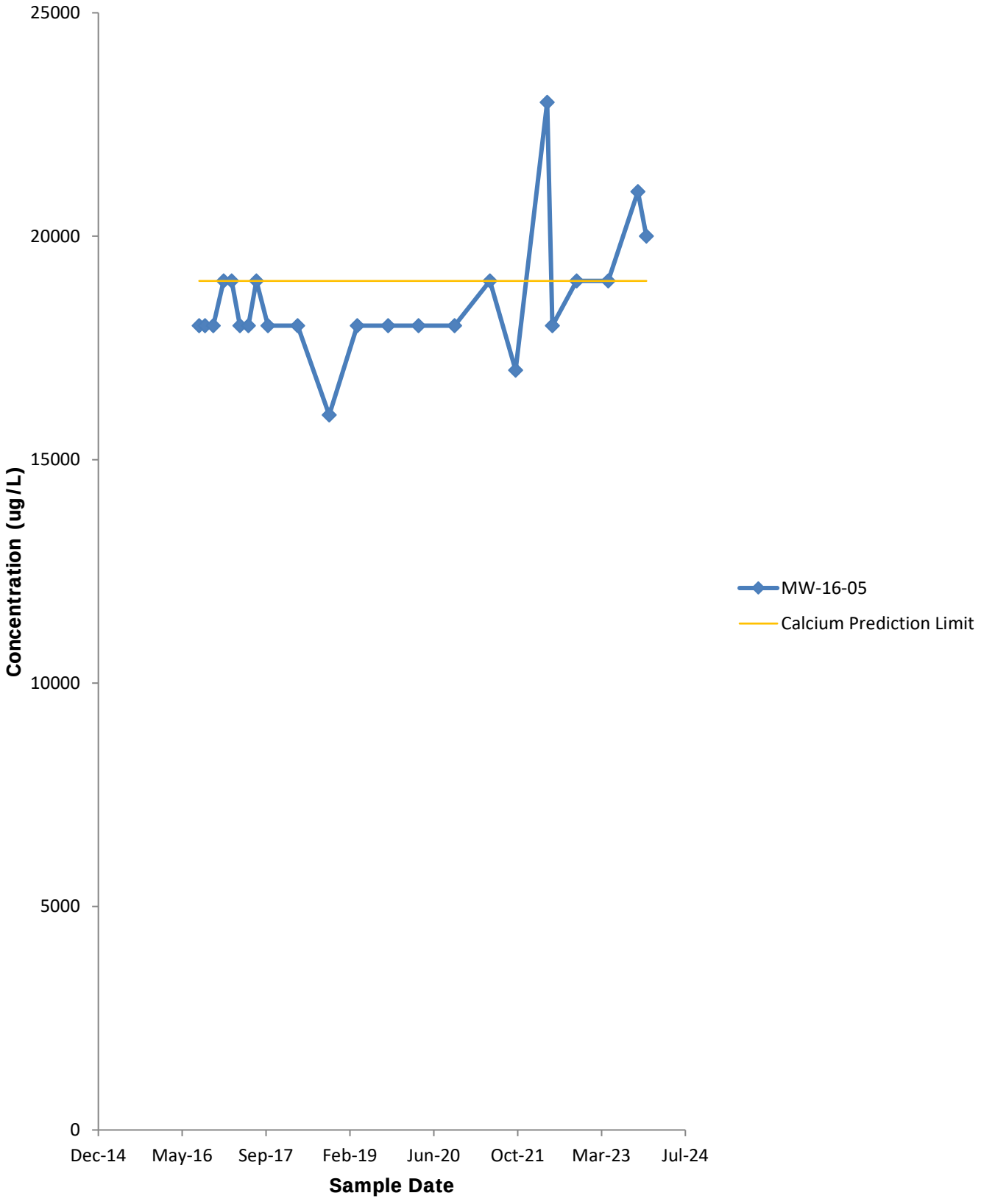


TRC Environmental Corporation | DTE Electric Company
X:\WPAAM\PJT2\518728\0000 CCR RRLF\ASD 2023SA2\Figures\Figure 3

February 2024

Time-Series Plots
Range Road Landfill
China Township, Michigan
Calcium

Figure 4
Calcium at MW-16-05



TRC | DTE Electric Company
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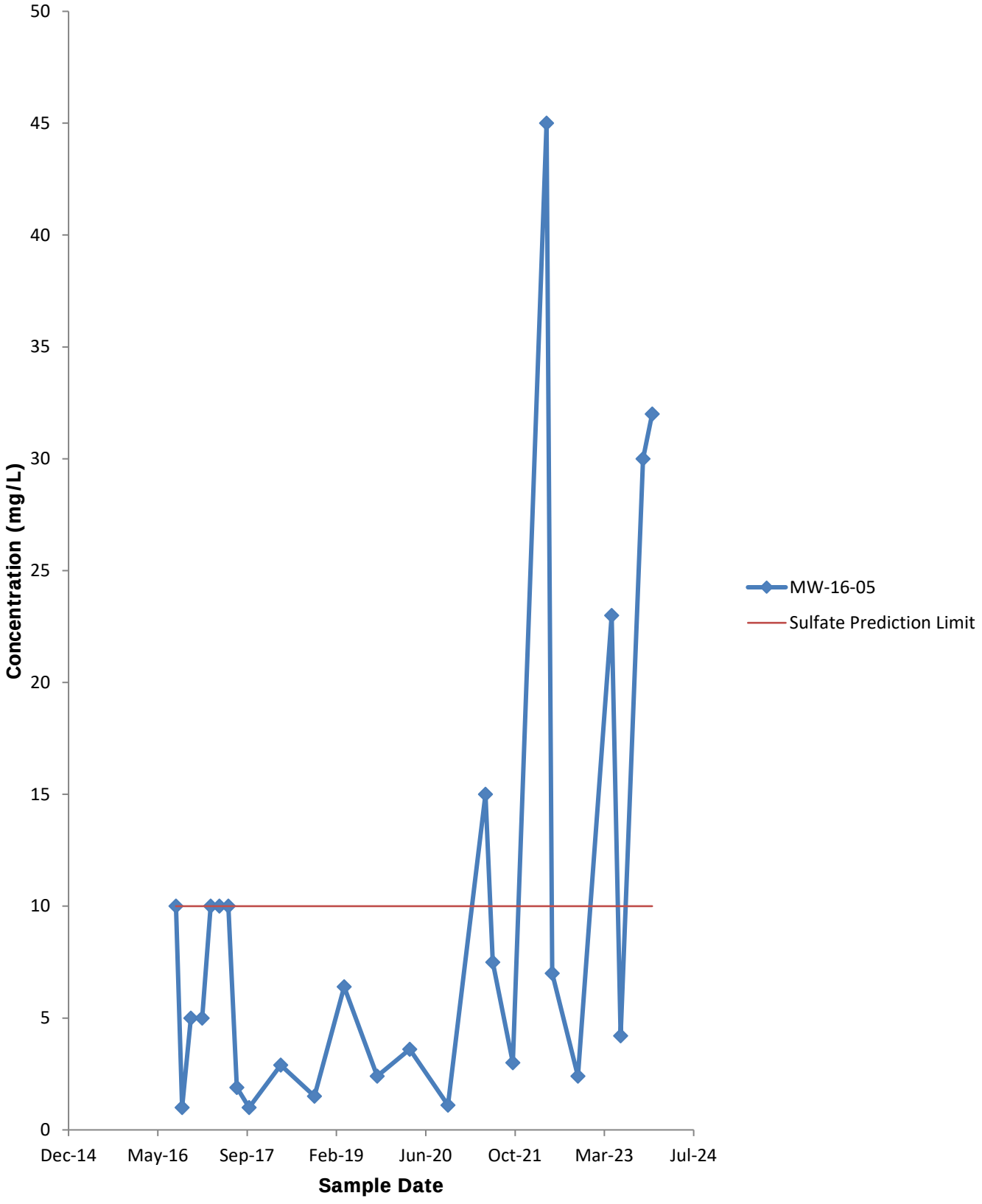
February 2024

Time-Series Plots
Range Road Landfill
China Township, Michigan
Sulfate

Figure 5
Sulfate at MW-16-05



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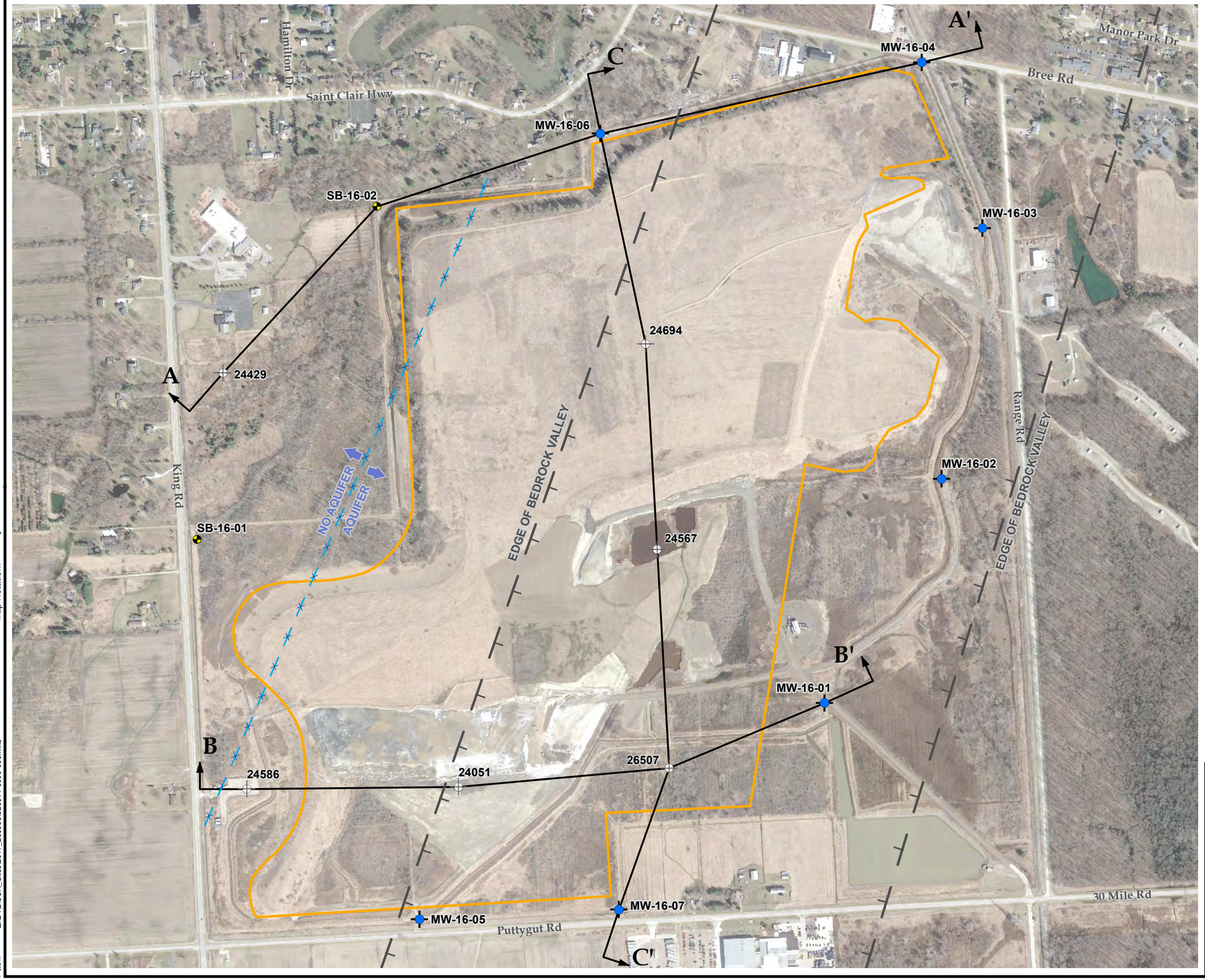
February 2024



LEGEND

- MONITORING WELL
- SOIL BORING
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- OIL/GAS WELL LOCATION
- CROSS SECTION LINES
- APPROXIMATE AQUIFER BOUNDARY
- APPROXIMATE EDGE OF BEDROCK VALLEY

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2019.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.
3. OIL AND GAS WELL LOCATIONS FROM MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, GEOWEBFACE.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
CROSS SECTION LOCATOR MAP

DRAWN BY:	S. MAJOR	PROJ NO.:	265996.0000
CHECKED BY:	S HOLMSTROM		
APPROVED BY:	V BUENING		**FIGURE 6**
DATE:	NOVEMBER 2019		

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FILE NO.: 320511-0000-008.mxd

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Map Rotation: 0

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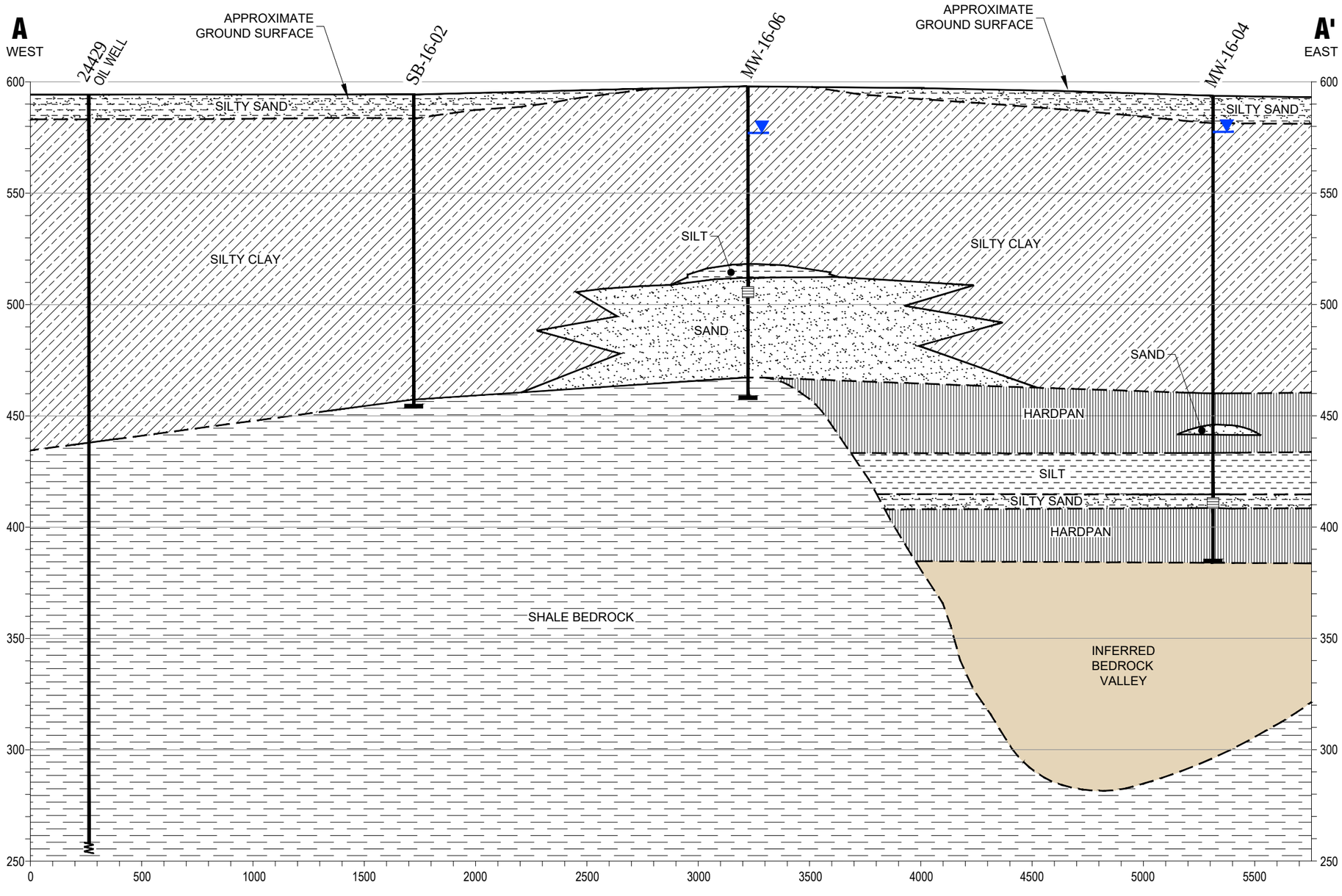
GENERALIZED GEOLOGIC CROSS-SECTION A-A'



LEGEND

- STRATEGRAPHIC BOUNDARY (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION
- SOIL BORING
- WELL SCREEN INTERVAL
- END OF BORING

Lithology Key

- SILT
- HARDPAN
- SILTY SAND
- SILTY CLAY
- SAND
- SHALE BEDROCK
- UNCONSOLIDATED BEDROCK VALLEY FILL

SCALE IN FEET
VERTICAL: 50 to 0
HORIZONTAL: 0 to 500

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
CHINA TOWNSHIP, MICHIGAN

TITLE:
GENERALIZED GEOLOGIC CROSS-SECTION A-A'

DRAWN BY:	D.STEHLE	PROJ NO.:	265996.0000
CHECKED BY:	S.HOLMSTROM		
APPROVED BY:	V.BUENING		**FIGURE 7**
DATE:	SEPTEMBER 2017		

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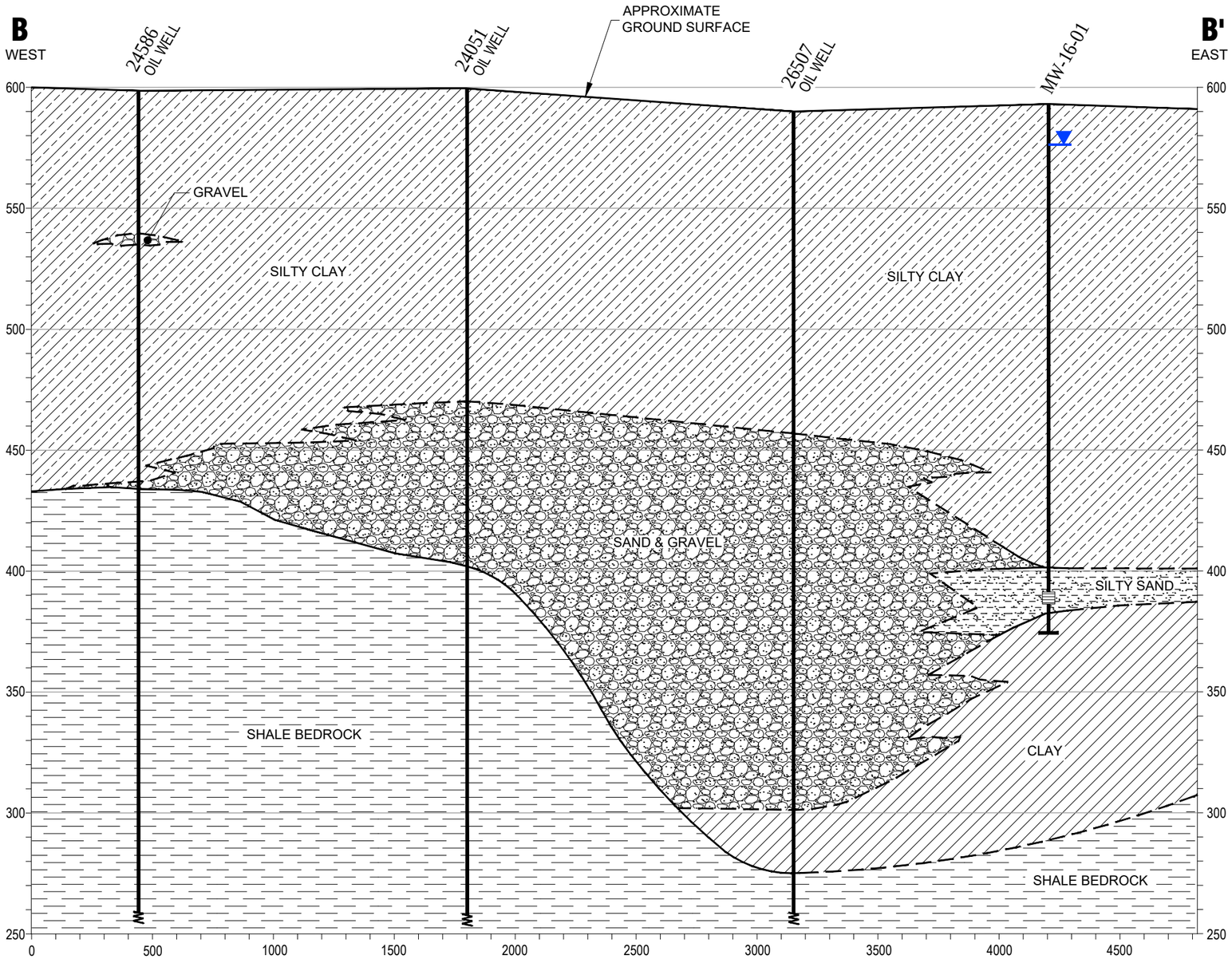
FILE NO.: 265996.0000.04-06.dwg

GENERALIZED GEOLOGIC CROSS-SECTION B-B'



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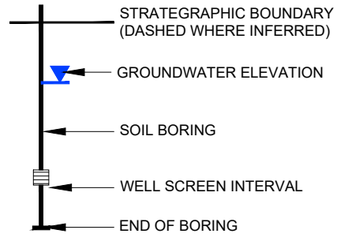
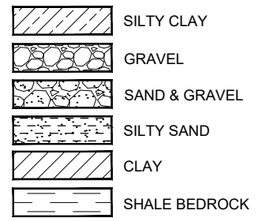
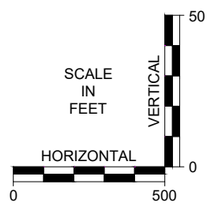


Lithology Key





PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
CHINA TOWNSHIP, MICHIGAN

TITLE:
GENERALIZED GEOLOGIC CROSS-SECTION B-B'

DRAWN BY:	D.STEHLE	PROJ NO.:	265996.0000
CHECKED BY:	S.HOLMSTROM		**FIGURE 8**
APPROVED BY:	V.BUENING		
DATE:	SEPTEMBER 2017		

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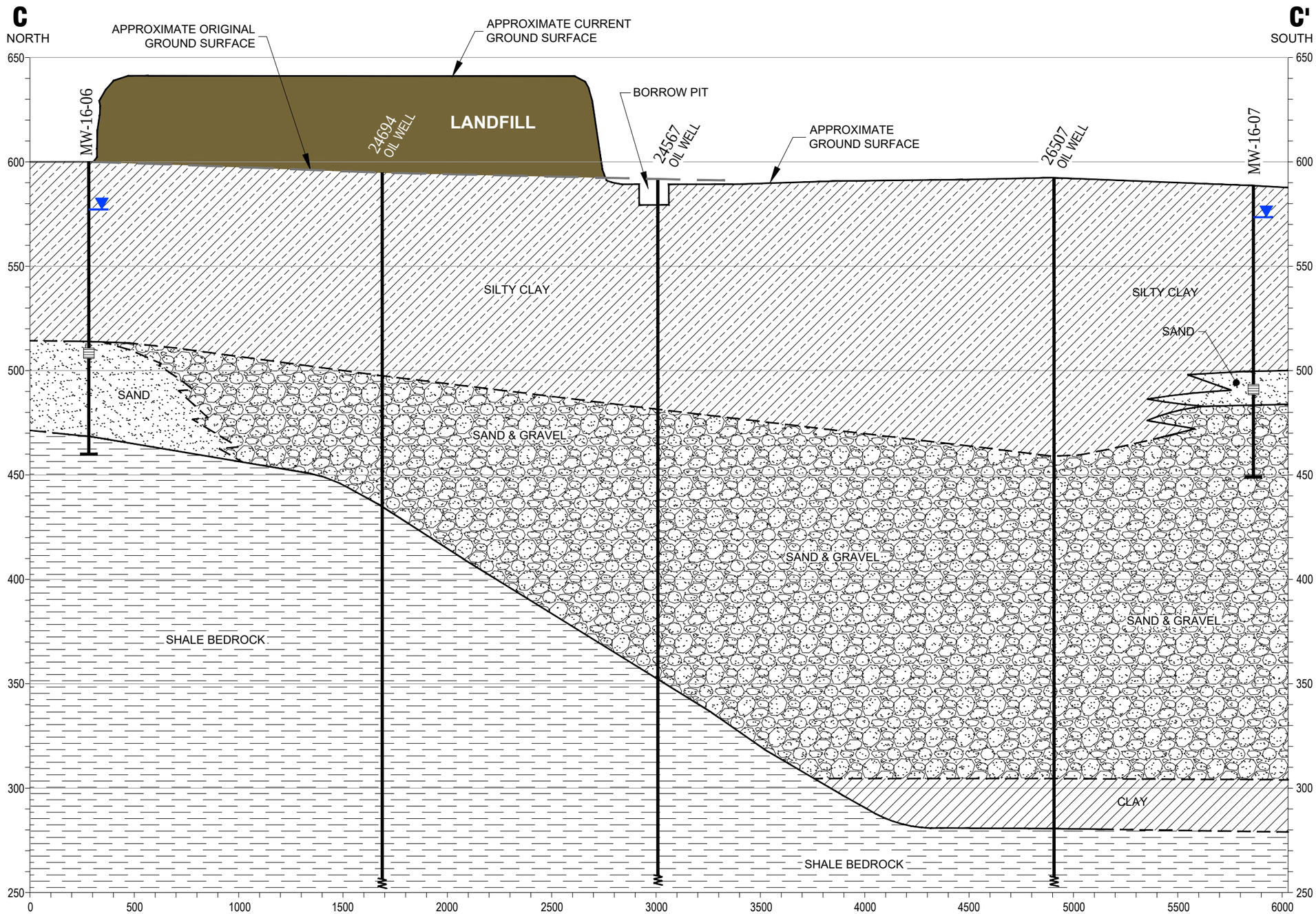
FILE NO.: 265996.0000.04-06.dwg

GENERALIZED GEOLOGIC CROSS-SECTION C-C'



LEGEND

- STRATEGRAPHIC BOUNDARY (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION
- SOIL BORING
- WELL SCREEN INTERVAL
- END OF BORING

Lithology Key

- SILTY CLAY
- SAND
- SAND & GRAVEL
- SILTY SAND
- CLAY
- SHALE BEDROCK

SCALE IN FEET
VERTICAL: 50 / 0
HORIZONTAL: 0 / 500

PROJECT:	DTE ELECTRIC COMPANY RANGE ROAD LANDFILL CHINA TOWNSHIP, MICHIGAN
TITLE:	GENERALIZED GEOLOGIC CROSS-SECTION C-C'
DRAWN BY:	D.STEHLE
CHECKED BY:	S.HOLMSTROM
APPROVED BY:	V.BUENING
DATE:	SEPTEMBER 2017
PROJ NO.:	265996.0000
	FIGURE 9

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FILE NO.: 265996.0000.04-06.dwg

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: J:_TRC\DTE\East China\Range Road LF\265996\0000\ 265996.0000.04-06.dwg --- PLOT DATE: November 08, 2019 - 5:56AM --- LAYOUT: FIG06 XS CC

Appendix A
References

References

R.L. Knutilla. 1969. Gazetteer of Hydrologic Data for the Belle River Basin, Southeastern Michigan. Southeastern Michigan Water Resources Study, Technical Paper No. 2, U.S. Geological Survey, Water Resources Division.

USGS and MDNR. 1987. Michigan Ground-Water Quality.

Beth A. Apple and Howard W. Reeves. 2007. Summary of Hydrogeologic Conditions by County for the State of Michigan. U.S. Geologic Survey Open-File Report. pg. 66.

RMT, Inc. Michigan. November 26, 2008. Remedial Action Plan for Off-Site Groundwater (Revision 4), The Detroit Edison Company Range Road Ash Disposal Facility, China Township, Michigan. Prepared for The Detroit Edison Company.

RMT, Inc. Michigan. November 2008. Performance Monitoring Plan for Off-Site Shallow Groundwater Remedial Action, The Detroit Edison Company Range Road Ash Disposal Facility, China Township, Michigan. Prepared for The Detroit Edison Company.

TRC. July 2016, Revised March and August 2017. CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC Environmental Corporation. October 2017. Groundwater Monitoring System Summary Report – DTE Electric Company Range Road Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. October 2017, Revised April 2020a. Uppermost Usable Aquifer Groundwater Monitoring System Summary Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. October 2017, Revised April 2020b. Uppermost Usable Aquifer Groundwater Statistical Evaluation Plan – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. November 2019, Revised May 2020. Hydrogeologic Monitoring Plan for the DTE Electric Company Range Road Ash Disposal Facility, China Township, St. Clair County, Michigan. Prepared for DTE Electric Company.

TRC. January 2024. Fourth Quarter 2023 Hydrogeologic Monitoring and Performance Monitoring Report. Prepared for DTE Electric Company.

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.

USEPA. April 2015. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 80 Federal Register 74 (April 17, 2015), pp. 21301-21501 (80 FR 21301).

USEPA. July 2018. 40 CFR Part 257. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One); Final Rule. 83 Federal Register 146 (July 30, 2018), pp. 36435-36456 (83 FR 36435).

USEPA. April 2018. Barnes Johnson (Office of Resource Conservation and Recovery) to James Roewer (c/o Edison Electric Institute) and Douglas Green, Margaret Fawal (Venable LLP). Re: Coal Combustion Residuals Rule Groundwater Monitoring Requirements. April 30, 2018. United States Environmental Protection Agency, Washington, D.C. 20460. Office of Solid Waste and Emergency Response, now the Office of Land and Emergency Management.

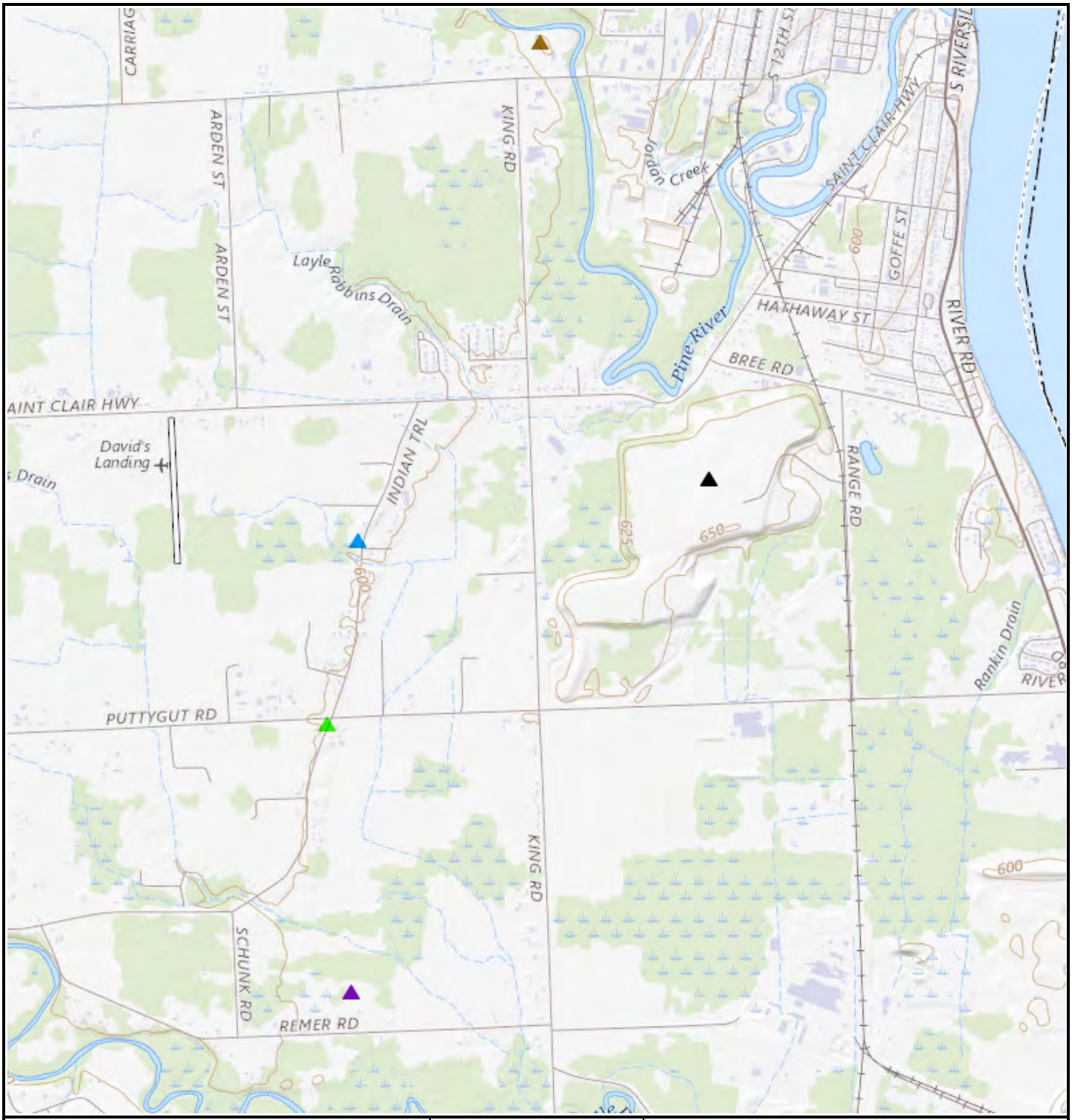
Appendix B
2007 Residential Well Data and Location Map

Table 1
Analytical Data Summary for Drinking Water Wells
China and East China Townships, Michigan

Sample Number	System Name	Collection Address	City/Township	Sample Point	Distance From Range Rd. Landfill	Water System	Well Depth	Source Type	Collection Date	Boron	Chloride	Iron	Lithium	Manganese	Sodium	Sulfate
							ft			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LB74888	RESIDENT	3725 Indian Trail	China	Outside Tap	< 0.4 mile west	Untreated Private Well	130	Single Family Dwelling	08/28/2007	--	--	--	0.036	--	--	--
LB74437	RESIDENT	3725 Indian Trail	China	Outside Tap	< 0.4 mile west	Untreated Private Well	130	Single Family Dwelling	08/28/2007	--	962	0.2	--	--	538	ND
LB74442	RESIDENT	3725 Indian Trail	China	Outside Tap	< 0.4 mile west	Untreated Private Well	130	Single Family Dwelling	08/28/2007	0.895	--	--	--	--	--	--
LB78915	RESIDENT	3725 Indian Trail	China	Outside Tap	< 0.4 mile west	Untreated Private Well	130	Single Family Dwelling	09/18/2007	--	1,085	0.2	--	--	544	ND
LB78972	RESIDENT	3725 Indian Trail	China	Outside Tap	< 0.4 mile west	Untreated Private Well	130	Single Family Dwelling	09/18/2007	--	--	--	0.035	--	--	--
LB78969	RESIDENT	3725 Indian Trail	China	Outside Tap	< 0.4 mile west	Untreated Private Well	130	Single Family Dwelling	09/18/2007	0.944	--	--	--	--	--	--
LB74890	RESIDENT	4017 Indian Trail	China	Outside Tap	<0.5 mile southwest	Untreated Private Well	123	Single Family Dwelling	08/28/2007	--	--	--	0.024	--	--	--
LB74436	RESIDENT	4017 Indian Trail	China	Outside Tap	<0.5 mile southwest	Untreated Private Well	123	Single Family Dwelling	08/28/2007	--	844	0.6	--	--	443	ND
LB74443	RESIDENT	4017 Indian Trail	China	Outside Tap	<0.5 mile southwest	Untreated Private Well	123	Single Family Dwelling	08/28/2007	0.602	--	--	--	--	--	--
LB78914	RESIDENT	4017 Indian Trail	China	Outside Tap	<0.5 mile southwest	Untreated Private Well	123	Single Family Dwelling	09/18/2007	--	935	0.6	--	--	420	ND
LB78973	RESIDENT	4017 Indian Trail	China	Outside Tap	<0.5 mile southwest	Untreated Private Well	123	Single Family Dwelling	09/18/2007	--	--	--	0.018	--	--	--
LB78970	RESIDENT	4017 Indian Trail	China	Outside Tap	<0.5 mile southwest	Untreated Private Well	123	Single Family Dwelling	09/18/2007	0.654	--	--	--	--	--	--
07E016-0002	RESIDENT	5300 Remer Road	China	Outside Tap	<0.7 mile SSW	Untreated Private Well	NA	Single Family Dwelling	01/04/2007	0.75	800	0.277	0.025	0.014	487	ND
LB74889	RESIDENT	2062 Fred Moore Hwy	East China	Outside Tap	< 1 mile north	Untreated Private Well	115	Single Family Dwelling	08/28/2007	--	--	--	0.019	--	--	--
LB74438	RESIDENT	2062 Fred Moore Hwy	East China	Outside Tap	< 1 mile north	Untreated Private Well	115	Single Family Dwelling	08/28/2007	--	497	0.3	--	--	331	ND
LB74441	RESIDENT	2062 Fred Moore Hwy	East China	Outside Tap	< 1 mile north	Untreated Private Well	115	Single Family Dwelling	08/28/2007	0.767	--	--	--	--	--	--
LB78916	RESIDENT	2062 Fred Moore Hwy	East China	Outside Tap	< 1 mile north	Untreated Private Well	115	Single Family Dwelling	09/18/2007	--	1,085	0.3	--	--	328	ND
LB78971	RESIDENT	2062 Fred Moore Hwy	East China	Outside Tap	< 1 mile north	Untreated Private Well	115	Single Family Dwelling	09/18/2007	--	--	--	0.011	--	--	--
LB78968	RESIDENT	2062 Fred Moore Hwy	East China	Outside Tap	< 1 mile north	Untreated Private Well	115	Single Family Dwelling	09/18/2007	0.787	--	--	--	--	--	--

NOTES:

NA = Not Available
ND = Not Detected
-- = Not Analyzed



- ▲ RANGE ROAD LANDFILL
- ▲ 2062 FRED MOORE HWY
- ▲ 3725 INDIAN TRAIL
- ▲ 4017 INDIAN TRAIL
- ▲ 5300 REMER ROAD

Base Map: USGS/TNM Topo
Data Sources: TRC, Fulcrum

N

0 0.5
mile

42.7945, -82.5133

DTE ENERGY COMPANY
RANGE ROAD LANDFILL

RESIDENTIAL WELL LOCATIONS

DRAWN BY:	K. AMONETTE	PROJ. NO.:	413591.0000.0000
CHECKED BY:			
APPROVED BY:			
DATE:	FEB. 2022		

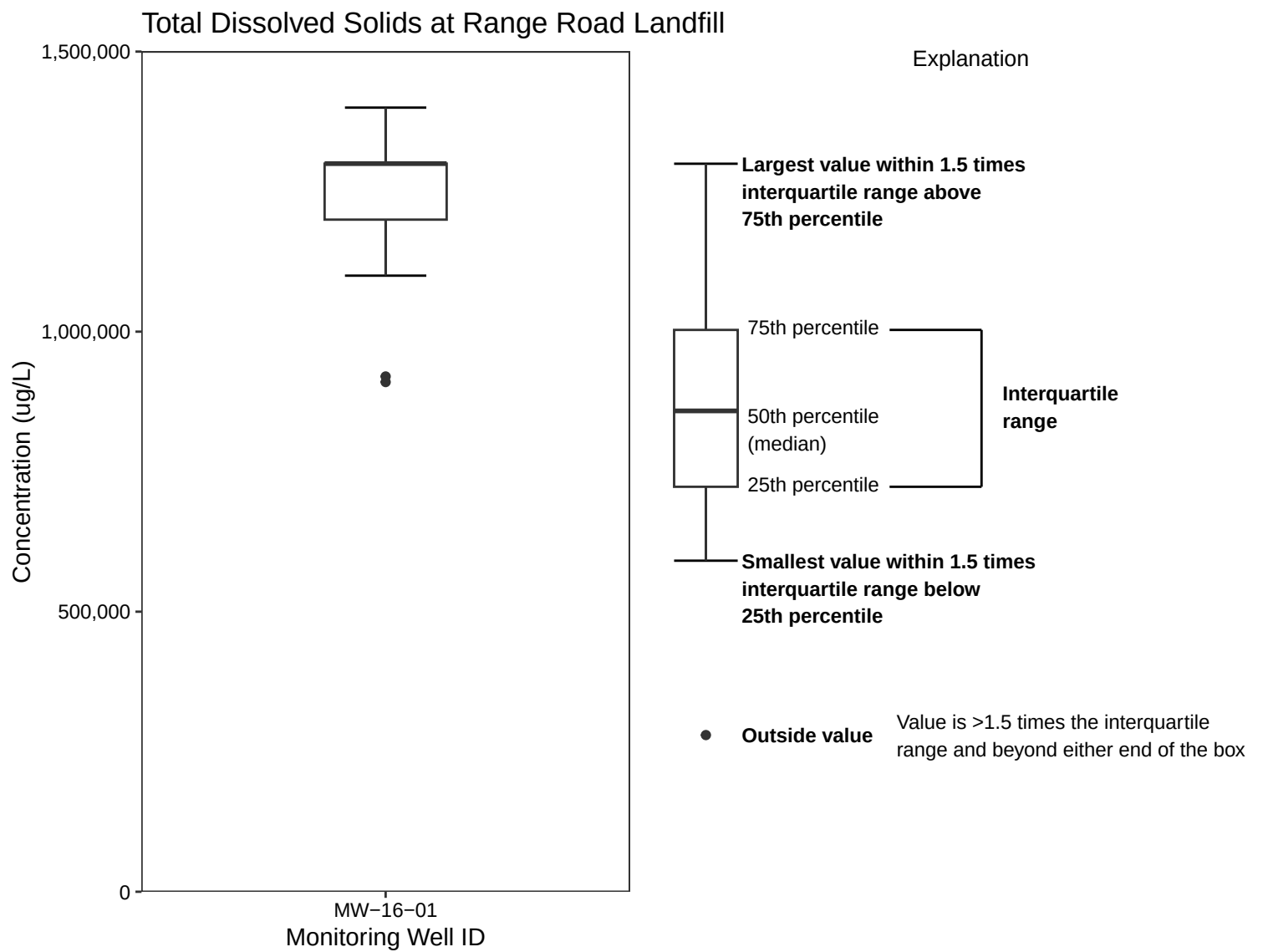
FIGURE 1

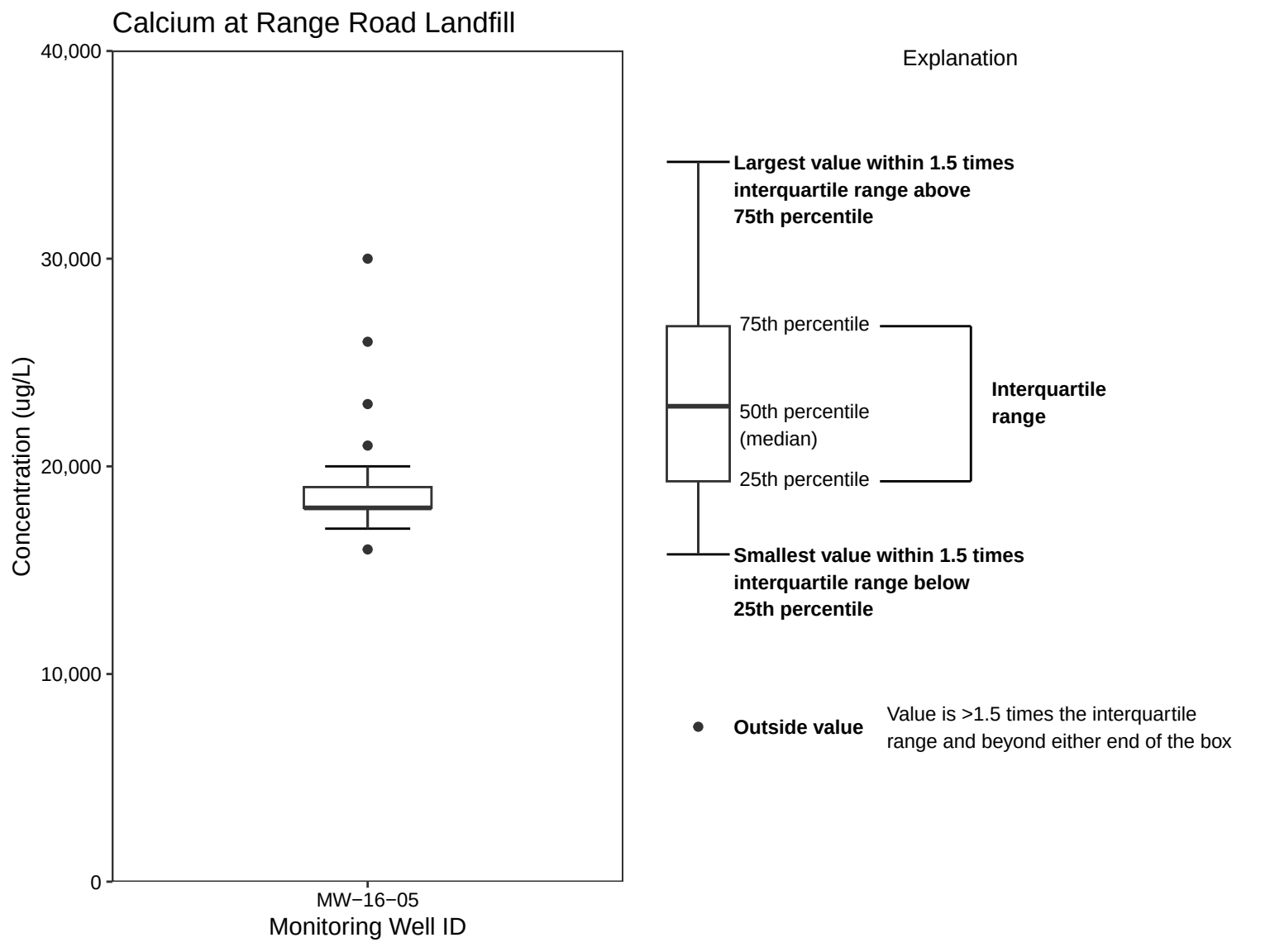
TRC

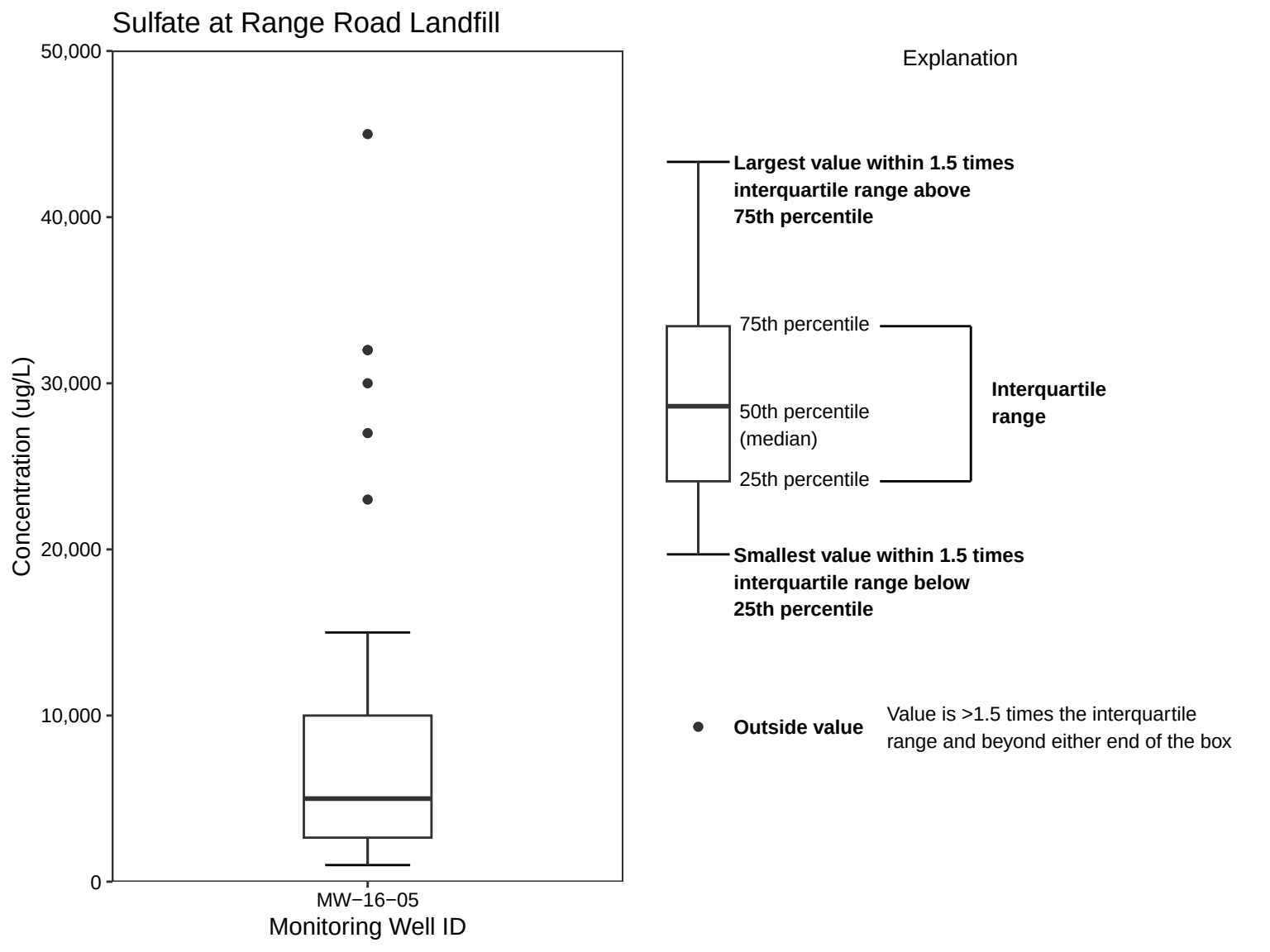
1540 EISENHOWER PLACE
ANN ARBOR, MI 48108

FILE: 37F62AEF-3AFA-4976-8976-CF91C844983F

Appendix C
Box and Whisker Plots


Total Dissolved Solids at Range Road Landfill
1,500,000
1,000,000
500,000
0
Concentration (ug/L)
MW−16−01
Monitoring Well ID
Explanation
Largest value within 1.5 times interquartile range above 75th percentile
75th percentile
50th percentile (median)
25th percentile
Interquartile range
Smallest value within 1.5 times interquartile range below 25th percentile
Outside value
Value is >1.5 times the interquartile range and beyond either end of the box


Calcium at Range Road Landfill
40,000
30,000
20,000
10,000
0
Concentration (ug/L)
MW−16−05
Monitoring Well ID
Explanation
Largest value within 1.5 times interquartile range above 75th percentile
75th percentile
50th percentile (median)
25th percentile
Interquartile range
Smallest value within 1.5 times interquartile range below 25th percentile
Outside value
Value is >1.5 times the interquartile range and beyond either end of the box


Sulfate at Range Road Landfill
50,000
40,000
30,000
20,000
10,000
0
Concentration (ug/L)
MW−16−05
Monitoring Well ID
Explanation
Largest value within 1.5 times interquartile range above 75th percentile
75th percentile
50th percentile (median)
25th percentile
Interquartile range
Smallest value within 1.5 times interquartile range below 25th percentile
Outside value
Value is >1.5 times the interquartile range and beyond either end of the box

Appendix B
Additional Uppermost Aquifer Characterization Study, Range Road Landfill CCR Unit

Additional Uppermost Aquifer Characterization Study

Range Road Coal Combustion Residual Landfill
3600 Range Road, China Township, Michigan

January 2025

Prepared For:

DTE Electric Company

Prepared By:

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Senior Project Manager

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Executive Summary

An Additional Aquifer Characterization Study has been performed by TRC, on behalf of DTE Electric Company, at the Range Road Landfill (RRLF) located in China Township in St Clair County, Michigan to further assess lines of evidence to substantiate that groundwater in the uppermost aquifer is unimpacted by CCR unit operations. Using a combination of advanced statistics in addition to analysis of geochemical indicators, stable isotopes, and radiometric isotopes, this characterization study includes analysis of additional groundwater data collected in August 2024 along with supplementary in-depth analyses of existing data to further characterize the uppermost aquifer groundwater encountered at the site and compare it to the properties of water that has been in contact with CCR at the site.

The results of the study provide multiple additive lines of evidence that further validate the conceptual site model (CSM) that has previously been established for the RRLF, 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.

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 source of lithium, boron, strontium, hydrogen, and oxygen in the uppermost aquifer groundwater is not from the CCR unit water and, as demonstrated by the stable isotope data that is statistically distinct from the CCR unit water; and
- Age dating with tritium also generally validates that the uppermost aquifer groundwater is not hydraulically connected to the CCR unit.

1.0 Introduction

1.1 Purpose and Objectives

The objective of this report is to document an additional Aquifer Characterization Study performed by TRC, on behalf of DTE Electric Company (DTE Electric), at the Range Road Landfill (RRLF) Coal Combustion Residual unit (hereinafter "the CCR unit"), which is located in China Township in St Clair County, Michigan (Figure 1). This study was performed to determine if additional data, collected in August 2024, provide further lines of evidence to substantiate that groundwater in the uppermost aquifer is unimpacted by CCR unit operations. This additional uppermost aquifer characterization study is in support of groundwater monitoring conducted under §257.94 of the United States Environmental Protection Agency (USEPA) published Subpart D of part 257 of Title 40 for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA), referred to herein as the CCR Rule, as amended, and the Michigan Part 115 Solid Waste Management Act of the Natural Resources and Environmental Protection Act (NREPA) PA 451 of 1994 (Part 115), as amended. This analysis is complementary to the alternate source demonstrations (ASDs) prepared in accordance with 40 CFR §257.94(e)(2) and Part 115 that have been included in the annual and quarterly groundwater monitoring reports completed between 2018 and 2024.

Previous studies performed at the site have demonstrated and verified that the site is underlain by 86 to as much as 188 feet of laterally extensive low hydraulic conductivity silty clay-rich deposits. 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 site geology has been used as a key line of evidence in the ASDs, which hold that the contiguous glacially compacted natural clay-rich soil beneath the RRLF serves as a natural confining hydraulic barrier isolating the underlying uppermost aquifer from the CCR unit and maintain that the uppermost aquifer groundwater is unaffected by the CCR unit water.

This characterization study includes additional groundwater data collected in August 2024, along with supplementary in-depth analyses of existing data to further characterize the uppermost aquifer groundwater encountered at the site. Aqueous samples were collected from the CCR unit groundwater monitoring well network, a leachate monitoring well within the RRLF, and from an on-site Stormwater Pond. Laboratory analyses performed include additional geochemical indicators, stable isotopes, and radiometric isotopes. Additionally, data collected as part of monitoring under the state and federal programs (2015-2024) were used as described and presented within this report.

In summary, the data collected in this characterization study affirms 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 RRLF is located in Section 12, Township 4 North, Range 16 East, 3600 Range Road, China Township in St. Clair County, Michigan. The site occupies approximately 514 acres and is located one-half mile west of the St. Clair River and one mile north of the Belle River Power Plant. Prior to Detroit Edison's operations commencing in the 1950s, the RRLF property was used as farmland. The property has been used continuously as a coal ash landfill since Detroit Edison Company (now DTE Electric) began coal ash landfilling operations at the RRLF in the 1950s and is constructed over a natural confining, low permeability clay-rich soil base that serves as an underlying soil barrier. Of the approximately 514 acres that make up the RRLF site, approximately 402 acres are designated for landfill development, of which CCR currently occupies approximately 200 acres.

The RRLF is a coal ash landfill licensed in accordance with Michigan's regulations and is owned and operated by DTE Electric. The disposal facility currently accepts coal ash from DTE Electric's Belle River power plant, from the now inactive DTE Electric St. Clair power plant, and has historically accepted coal ash from the former DTE Electric Marysville and Harbor Beach power plants. The RRLF is operated under the current operating license number 9395 in accordance with Michigan Part 115 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended.

1.3 Geology/Hydrogeology

The RRLF CCR unit is located approximately one-half mile west of the St. Clair River. Generalized geologic cross-sections are provided in Figures 3 through 6. In general, the RRLF is underlain by 86 to as much as 188 feet of laterally extensive low hydraulic conductivity silty clay-rich deposits. Below a significant portion of the RRLF, there is a bedrock valley that trends from the northeast corner to the south-central area of the site. The valley is incised in the Bedford and/or Antrim Shale bedrock and filled with unconsolidated glacial deposits consisting of clay, silt, sand and/or gravel. Based on historical oil well logs from the RRLF area, the bedrock valley extends to depths of up to 303 feet below ground surface (ft bgs). Along the western portion of the RRLF, clay-rich till is present continuously to the top of the underlying Bedford or Antrim Shale bedrock in the area of SB-16-01 and SB-16-02 (Figure 2), creating a no flow boundary.

Groundwater within the uppermost aquifer sand/gravel is confined and protected from the CCR unit by the overlying clay-rich aquitard. The top of the sand/gravel uppermost aquifer encountered at each of the CCR monitoring wells and soil borings is at significantly different elevations across the RRLF that, where present, is first encountered at depths ranging from 86 to 196 ft bgs, immediately beneath the overlying clay-rich aquitard. The variability in boring/well depths is a consequence of the heterogeneity of the glacial deposits and is driven by the limited continuity of the coarse-grained sand and gravel outwash within the overlying/encapsulating fine-grained, silty clay till that confines the uppermost aquifer. In addition, there is an apparent lack of interconnection and/or significant vertical variation between the various uppermost aquifer sand and/or gravel units encountered across the RRLF CCR unit based on the elevation differences.

Given the horizontally expansive clay with substantial vertical thickness, the heterogeneity of the glacial deposits (with the top of the uppermost aquifer elevation across the RRLF CCR unit varying up to 100 feet vertically), the no-flow boundary to the west, and the lack of hydraulic interconnectedness of the uppermost aquifers encountered at the site in some areas, it is not appropriate to infer horizontal flow direction or gradients across the site. With the presence of the vertically and horizontally extensive clay-rich confining till beneath the RRLF CCR unit, there is no reasonable probability for the uppermost aquifer to have been affected by CCR from operations that began in the 1950s.

2.0 Additional Data Collection

The additional groundwater, CCR unit water, and surface water sample collection was performed from August 27 through 29, 2024 to provide data to further characterize the uppermost aquifer at the CCR unit. These samples were collected using low-flow methodologies in general accordance with the procedures outlined in the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Range Road Landfill* (QAPP) (TRC, July 2016; revised August 2017).

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). An aqueous sample from within the CCR unit was collected at monitoring well 95-W-2, which is screened in coal ash material within the CCR unit and provides water that is representative of leachate from the landfill (Figure 2). In addition, a surface water sample was collected from the Stormwater Pond from the location shown on Figure 2. The Stormwater Pond is part of a National Pollutant Discharge Elimination System (NPDES) used to manage stormwater and leachate from the landfill, which is pumped to the Belle River Power Plant for subsequent discharge under a NPDES permit.

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), fluoride (F), total organic carbon (TOC), and alkalinity (bicarbonate (HCO_3), carbonate (CO_3) and total alkalinity), boron (B), lithium (Li) and strontium (Sr);
- ALS Scandinavia for analysis of stable metal isotopes $\delta^{11}B$, $\delta^{87}Sr$ and $\delta^{7}Li$;
- Waterloo Environmental Isotope Laboratory for analysis of stable isotopes $\delta^{2}H$ and $\delta^{18}O$; and
- Miami Tritium Laboratory for analysis of tritium (^{3}H).

Note that isotopes are commonly expressed with the delta notation (δ) to express the 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. Stable isotopes do not decay, but preferentially fractionate under physical, chemical and or environmental conditions. Radiometric isotopes, i.e., tritium are unstable and do decay over time; decay is at a constant rate, and therefore can be useful for age-dating different water sources.

The data are summarized in Tables 1 through 3 and the 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, all of the existing Appendix III and Appendix IV data from groundwater samples collected from 2016 through 2024, as provided in the 2017 to 2024 Annual Reports (TRC, January 2018 through January 2025) 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 August 2024 field data are summarized in Table 1, and analytical data are summarized in Table 2.

Analyte concentrations were compared to their historical values to verify consistency with past data (when possible). Samples of leachate (CCR unit water) collected from monitoring well 95-W-2 screened within the CCR material were compared to groundwater samples collected from the uppermost aquifer (MW-16-01 to MW-16-07). In addition, a surface water sample was collected from the Stormwater Pond in the southeast corner of RRLF to provide analytical data for comparison that represents water at the surface that is a mixture of precipitation, stormwater runoff, and leachate and is associated with CCR management activities at the site. 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

As described below in this section, the August 2024 sampling results are generally consistent with historical data, and the results were within typical ranges of previously analyzed samples. .

The data show that the geochemistry conditions of uppermost aquifer groundwater and CCR unit water are distinctly differentiated from each other as evidenced by anion/cation evaluation using piper diagrams, molar ratios, and comparisons of average concentrations.

The August 2024 anion and cation data were evaluated using a trilinear diagram that shows that the CCR unit water, the Stormwater Pond, and the uppermost aquifer water are distinctly different. Figure 7 provides a Piper Diagram, which plots the concentrations into groups or facies commonly recognized for comparison of major ions. The uppermost aquifer generally falls into the sodium and potassium and chloride dominant facies, while the CCR unit water is calcium and sulfate dominant. As shown on Figure 7, the CCR unit water is the only sample that corresponds with the calcium cation type (lower left cation triangle) *and* the sulfate dominant anion type (upper anion triangle), resulting in the CCR unit water falling in the calcium sulfate hydro chemical facies (upper diamond portion of the diagram). The Stormwater Pond sample falls in a similar hydro chemical facie as the uppermost aquifer groundwater (both plot in the sodium chloride facies in the right corner of the diamond) due to both showing a similar sodium/potassium dominant cation composition , yet the Stormwater Pond is very distinct from

both the uppermost aquifer groundwater and CCR unit water in anions as it is sulfate dominant, similar to the CCR unit water, as shown in the lower right anion portion of the diagram (Figure 7).

Sulfate concentrations within the uppermost aquifer groundwater ranged from non-detect (< 1 milligrams per liter (mg/L)) to 330 mg/L and the sulfate concentration in the CCR unit water was 1,600 mg/L, between 5 to more than 1,000 times higher than the groundwater (Figure 8). This further indicates the distinctness of the stormwater compared to the other samples with its sulfate dominant composition. Chloride concentrations in the uppermost aquifer ranged from 310 mg/L to 3,200 mg/L, whereas the CCR unit water chloride concentration was 14 mg/L, 22 to 230 times lower than the uppermost aquifer. Although the total alkalinity was similar in the CCR unit water and uppermost aquifer, the composition of the alkalinity is distinct, with the uppermost aquifer dominated by bicarbonate alkalinity and the CCR unit water dominated by carbonate alkalinity. Note that although one uppermost aquifer location, MW-16-05, plotted separately from the other uppermost aquifer samples in the anion facie in Figure 7 (alkalinity dominant), this is still distinctly different from the CCR unit water (sulfate dominant).

Non-redox sensitive metal concentrations also show a distinction between the CCR unit water and the uppermost aquifer groundwater. Historical results for detected Appendix III and IV parameters are included in Table 4. Boron concentrations in the CCR unit water (37-41 mg/L) were, on average 35 times higher than the uppermost aquifer groundwater (0.82 to 1.3 mg/L in August 2024) and the Stormwater Pond boron concentrations were approximately an order of magnitude higher than in the uppermost aquifer groundwater (Table 2). Historical concentrations of barium and lithium (Table 4) in the CCR unit water were an average of an order of magnitude lower and higher, respectively, than the uppermost aquifer groundwater.

Sodium was considerably more concentrated in the uppermost aquifer groundwater than the CCR unit water (average 17 times higher), but calcium and potassium were more concentrated in the CCR unit water than in the uppermost aquifer groundwater (average 12 times and 14 times higher, respectively) (Table 2).

Groundwater in the uppermost aquifer was close to neutral (mean of pH 7.78, ranging from 7.25 to 8.02 standard units (SU)) while the CCR unit water was alkaline (pH 9.33 SU) (Table 1). Note that although the numerical difference in pH is approximately 1.5 SU, pH is measured on a logarithmic scale, meaning the CCR unit water is more than 10 times more alkaline than the uppermost aquifer. The uppermost aquifer ORP was primarily negative (-158.3 to 22.0 millivolts [mV]) indicating reducing conditions while the CCR unit water was positive (76.9 mV), indicating oxidating conditions (Table 1). Table 3.1.1 below provides a summary of general chemistry data, which is discussed more fully in Section 3.1.2.

Table 3.1.1 Summary of General Chemistry Data, August 2024

Parameter	Units	Uppermost Aquifer Groundwater Avg	CCR unit Water	Stormwater Pond Water
Na^{+}+ K^{+}+ Li^{+}	mg/L	503	88	862
Ca^{2+}+ Mg^{2}	mg/L	69.5	547	164
B^{3+}	mg/L	1.1	38	11
HCO_3^{-}+ CO_3^{2-} + SO_4^{2-}+ Cl^{-}+ F^{-}	mg/L	1,263	1,689	109
pH	SU	7.78	9.33	8.43
Eh	mV	-70.8	76.9	44.2

3.1.2 Ionic Speciation

Using the measured data, the dominant dissolved species of each measured element was determined. The cationic monovalent species Na+ and K+ were dominant for the uppermost aquifer groundwater and divalent species Ca^{2}+ and Mg^{2} were dominant for the CCR unit water, with additional mass of $CaCO_3$ in the CCR unit water. 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^{-}, Cl^{-}, and F^{-} were the dominant anions in the uppermost aquifer groundwater, and HCO_3^{-} and SO_4^{-} were dominant anions in the CCR unit water.

Geochemical parameters for the CCR unit water and the uppermost aquifer groundwater were calculated from the measured data using Geochemist's Workbench® (GWB). The average of the chemical parameters for each water are presented below in Table 3.1.2.

Table 3.1.2 Summary of Geochemical Parameters

Parameter	Units	Uppermost Aquifer Groundwater Average	CCR Unit Water
f O2(g)	fugacity	3.52E-51	2.61E-41
pe	pe	-1.2	1.3
Eh	mV	-70.8	76.9
Ionic strength	molal	0.01894	0.04261
Chlorinity	molal	0.01259	0.000397
Electrical conductivity	Micromhos/centimeter	1,780	2,293
Hardness	Milligrams/Liter (as $CaCO_3$)	234	1,392

Table 3.1.2 Summary of Geochemical Parameters

Parameter	Units	Uppermost Aquifer Groundwater Average	CCR Unit Water
Hardness (carbonate)	Micrograms/Liter (as $CaCO_3$)	99.89	4.65
Hardness (non-carbonate)	Micrograms/Liter (as $CaCO_3$)	158	1,387

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. Positive pe and Eh values correspond to oxidizing environments 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. Clearly the uppermost aquifer groundwater is reducing and the CCR unit water is oxidizing, indicating a significantly different environment.

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 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. There are approximately 30 times differences in chlorinity between the uppermost aquifer groundwater and the CCR unit water.

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 and/or have been subjected to different geochemical processes. The differences of 95.24 µg/L (as $CaCO_3$) carbonate hardness and 1,229 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.

3.2 Stable Isotopes

While chemical concentration and speciation data provide useful geochemical information to characterize water types and can be useful to determine if one body of water is in hydraulic connection with another, stable isotope analyses can provide unique "signatures" to differentiate and evaluate source waters. In order to build on the information presented above, isotopic evaluations of lithium, boron, strontium, hydrogen, and oxygen were performed to determine the sources of various analytes and to build a CSM of the hydrogeologic and geochemical conditions. The stable isotope water data 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 (δ^7Li) and Boron (δ^{11}B)

Lithium (δ^7Li) and boron (δ^{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. 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 (δ^7Li) relative to a standard reference material (LSVEC NIST 8545 RM). The δ^7Li value can be used to track changes in the isotopic composition of lithium during coal formation (Teichert, 2022). The δ^7Li 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 increases in δ^7Li in the coal. The exact extent to which the δ^7Li 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 δ^7Li value than coal formed from marine organisms that have a higher δ^7Li 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 (δ^{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 δ^7Li and δ^{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 CCR water can be used as a tracer for comparison of potential sources of lithium and boron. Therefore, this additional uppermost aquifer characterization utilized the measurement of δ^7Li and δ^{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.

The δ^7Li and δ^{11}B of the CCR unit water were 10.65 per mil (‰) and -7.56 ‰, respectively, and the uppermost aquifer groundwater ranged from 22.15 to 27.92 ‰ and 28.04 to 44.4 ‰, respectively. The Stormwater Pond was comparable to the CCR unit water in δ^{11}B (-6.09 $^0/_{00}$) while δ^7Li (14.76 $^0/_{00}$) fell between the uppermost aquifer and CCR unit water. As observed in Figure 9, the CCR unit water and the uppermost aquifer groundwater plot in two distinct groups that are statistically different (p = 3E-08 for boron and p = 2E-08 for a two-sided t-test at 99% confidence). The CCR unit water lithium and boron isotopic compositions fall within ranges commonly observed of fractionated CCR material (Davidson, 1993; Teichert, 2022). The δ^7Li and δ^{11}B vales of the uppermost aquifer groundwater samples are compositionally distinct from the CCR values and fall within ranges commonly observed in the natural environment (Ruhl, 2014; Owen, 2015). 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.

The $^{87}Sr/^{86}Sr$ ratios of the uppermost aquifer groundwater ranged from 0.709104 to 0.710317 while the CCR unit water had a ratio of 0.711132. The Stormwater Pond had a ratio (0.710185 $^{0}/_{00}$) between the uppermost aquifer and CCR unit water. The average $^{87}Sr/^{86}Sr$ ratio of the CCR unit water was approximately 0.0017 higher than the uppermost aquifer groundwater. As observed in Figure 10, the CCR unit water and the aquifer water plot in two distinct groups that are statistically different (p = 5E-06 for a two-sided t-test at 99% 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 sample compositions 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-affected 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 samples to determine if the unique CCR unit isotopic composition is observed in the uppermost aquifer groundwater.

The δ^2H and $\delta^{18}O$ compositions of the CCR unit water were -68.25 ‰ and -10.45 ‰, respectively, and the uppermost aquifer groundwater compositions ranged from -100.56 to -121.63 ‰ and -14.51 to -16.96 ‰, respectively. The uppermost aquifer groundwater samples all plot above the global meteoric water line[1], and the CCR unit water and Stormwater Pond samples straddle the line (Craig, 1961). The CCR unit water δ^2H, on average was 40 ‰ lighter than the uppermost aquifer groundwater, and the $\delta^{18}O$ was 5 ‰ lighter. The Stormwater Pond is lighter than both the uppermost aquifer and CCR unit water, with δ^2H measured at -46.00 ‰ and $\delta^{18}O$ measured at -6.74 ‰. As observed in Figure 11, the CCR unit water and the uppermost aquifer groundwater plot in two distinct groups that are statistically different. 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

[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).

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; therefore, water infiltration is the only source of tritium in groundwater. 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 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:

$$Age = \frac{\ln {}^{A}/_{A_0}}{\lambda}$$

Where: A is the measured tritium in the water sample in tritium units (TU)
A_0 is the tritium concentration in precipitation
λ is the decay constant, which is -0.693 (ln2) divided by the half-life

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 assess if water from the CCR unit was impacting the uppermost aquifer groundwater. This was accomplished by collecting a water sample from within the CCR unit water, uppermost aquifer groundwater samples, and a surface water sample from the stormwater pond. The tritium water data is summarized below.

Table 3.3 Approximate Water Ages

Sample	Tritium (TU)	Approximate Water Age Greater Than (yr)
MW-16-01	0.73	50
MW-16-02	0.08	90
MW-16-03	0.15	79

Table 3.3 Approximate Water Ages

Sample	Tritium (TU)	Approximate Water Age Greater Than (yr)
MW-16-04	0.12	82
MW-16-05	0.03	107
MW-16-06	0.14	80
MW-16-07	2.13	31
95-W-2 (CCR unit water)	7.2	10
Stormwater Pond	12.5	0

As a conservative approach, the Stormwater Pond sample can be used to represent A_0, i.e., the tritium concentration in contact with the atmosphere. Using this estimate, the CCR Unit water is approximately 10 years old. Groundwater in the uppermost aquifer wells ranged from greater than 31 to 107 years old. Operation of the RRLF began in the 1950s; water from MW-16-02, MW-16-03, MW-16-04, MW-16-05, and MW-16-06 predates the operation of the RRLF. The age of the water in these samples indicates that the water in the uppermost aquifer has not been in contact with the atmosphere at any point during the active life of the RRLF, i.e., this water could not have originated as leachate. The tritium data from the other two wells (MW-16-01 and MW-16-07) falls within a slightly shorter timeframe (31 to 50 years), however, that does not mean that the aquifer is impacted by CCR management activities rather, it suggests that the tritium data is not as conclusive of a line of evidence for these areas of the RRLF.

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 RRLF is underlain by 86 to as much as 188 feet of laterally extensive low hydraulic conductivity silty clay-rich deposits. Previous testing reported that this clay layer has a permeability ranging from 2.2×10^{-8} to 8.7×10^{-8} centimeters per second. This low conductivity unit inhibits the diffusion of tritium from the surface to the uppermost aquifer.

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 (assume a conservative value of 10^{-7} square meters per second). 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 to the monitoring wells (86 ft or 26 m minimum vertical separation from CCR to monitoring well screen) and an assumed seepage velocity of approximately 1 x 10^{-11} m/s (measured between 95-W-2 and MW-16-05), at standard temperature and pressure the Peclet number for tritium is estimated to be less than 1. Therefore, diffusion is assumed to be influencing the measured tritium concentrations in the monitoring wells. As such, diffusion can have an effect on the tritium age by causing dispersal of tritium atoms into the clay, leading to a dilution of the concentration and potentially underestimating the age of the sample. In this application, where the tritium is used to estimate the time since recharge, as the tritium diffuses away from its source, the measured concentration decreases, which could result in seemingly younger age than the actual recharge time. Thus, the ages presented above represent a conservatively low age estimate for each sample.

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 water vs uppermost aquifer groundwater) to each other in a holistic manner, principal component analysis (PCA), K-Means Clustering, and Hierarchical Clustering were selected as appropriate data analysis tools. These are statistical techniques that analyze large data sets containing a high number of dimensions per observation, allowing for visualization of multidimensional data. PCA is a well-established statistical method for evaluating data and has been in use for over 100 years. K-Means and Hierarchical Clustering are more recently developed approaches from the second half the 20th century. All three of these methods are unsupervised methods, meaning that whether a given sample is from the CCR unit water or the uppermost aquifer groundwater is not taken into account when the analysis is performed. Instead, these methods take the raw, unlabeled data and classify them into groups. If the group membership predicted by these methods matches the actual membership of the samples, then it has demonstrated that there are distinct differences between the populations.

The data used for this analysis consists of samples collected from the uppermost aquifer monitoring well network collected from August 2016 through October 2024 and leachate well data collected from October 2020 through December 2024. Based on the recommendations regarding the ratio of number of data points to number of features (i.e., analytes) from the Electric Power Research Institute (EPRI) New Techniques in Alternative Source Demonstrations (EPRI, October 2022) guidance and the minimum requirements of PCA, only the Appendix III analytes (boron, calcium, chloride, fluoride, sulfate, pH, and total dissolved solids (TDS)) were retained for analysis. TDS is a composite analyte containing other analytes that are already included in the dataset. Therefore, TDS was removed from the analyte suite to increase the number of available samples and decrease redundant information leaving the boron, calcium, chloride, fluoride, sulfate, and pH data retained for all further statistical analysis. Non-detects were substituted with a value of half the reporting limit; this has been found to produce the most accurate results for PCA (Farnham et al, 2002).

Note that data from the Stormwater Pond is not incorporated into the statistical analysis. The Stormwater Pond sample is intended to represent water at the surface that is a mixture of precipitation, stormwater runoff, and leachate and is associated with CCR management activities at the site. However, since the Stormwater Pond includes a mixture of both unaffected and CCR-affected water, the results cannot be confidently assigned as either CCR unit water or water unaffected by CCR. As noted in Section 3 above, geochemical data from the Stormwater Pond shares similarities as well as differences with both the CCR unit water and the uppermost aquifer water, but is not consistent with either type of sample (i.e. it is generally distinctly different from the CCR unit water and the uppermost aquifer groundwater). Incorporating this sample into the statistical evaluation would incorporate excessive variability that is not representative of the two primary data populations (i.e. CCR-affected water and groundwater) being considered.

4.1 Principal Component Analysis

The objective 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 transformed from *n* original dimensions to *n* linearly transformed dimensions or principal components (PCs). This transformation process maximizes the variance retained while minimizing the importance of features with low variability across the dataset. These resulting PCs are ordered in terms of which components contain the most variation of the original dataset with PC1 having the most variation and 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 loadings and the original data points projected by the PCs in what is known as a biplot. The loadings indicate how much each analyte affects the position of the projected points.

Figure 12, called a Scree plot, shows the eigenvalues for the six PCs created from the original data. PC1 and PC2 are 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. PC1 contains 59.69% of the variation of the original dataset, meaning that most of the variation of the data can be seen along the horizontal axis. PC2 contains 20.40% of the variation of the original dataset. Together, PC1 and PC2 account for 80.09% of the variation of the original data, showing that the data has been reduced from six dimensions to two dimensions while only losing 19.91% of the variation. There is no established criterion for how much variation is required to be explained by the PCs but at least 70% is a common target (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, boron, calcium and sulfate point towards the right, meaning that higher than average concentrations of boron, calcium, or sulfate in a sample would project that sample further to the right on the biplot. Conversely, if a sample has lower than average concentrations of boron, calcium, or sulfate it would be projected more to the left. From the loading scores we can see that PC1 is strongly influenced by boron, calcium, and sulfate and weakly influenced by chloride, fluoride, and pH. PC2 is strongly influenced by fluoride and pH and weakly influenced by boron and chloride; PC2 is not significantly influenced by calcium and sulfate. The standardized data points are projected using the loading scores and are displayed as the color-coded points on the biplot. 95% confidence areas were calculated to demonstrate the separation between the groups and are plotted as shaded polygons on Figure 9. The 95% confidence areas for the CCR unit water and the uppermost aquifer do not overlap and are in fact separated, indicating that the analytical composition of the two groups are significantly different from each other.

4.2 K-Means Clustering

In addition to the 95% confidence intervals calculated on the PCA-transformed data, K-Means Clustering (K-Means) was performed to provide further evidence of separation between the groups. K-Means is an approach that attempts to classify individual data points into one of *k* number of groups by minimizing the variance between data points within the group. While the algorithm for K-Means can be performed on any number of dimensions, two dimensions were used to allow results to be represented graphically. The input parameters are the PCs determined through the PCA transformation, as that transformation has already reduced the six original dimensions to two. Therefore, raw sample data was transformed using PCA to reduce data to two dimensions prior to the K-means clustering.

A *k* value of 2 is used in this evaluation to classify data into two groups; conceptually, these groups should represent CCR unit water and uppermost aquifer samples in a system without connection between the CCR unit and the aquifer. The output of the K-Means analysis is shown in Figure 14. The two groups are determined to be a large one on the left side of the plot comprising of most of the data points and a small group on the right side of the graph comprising of a handful of data points. The plotted data in the two groups can be compared to the transformed data on Figure 13. Comparison of these plots shows that the Group 1 samples correspond to the samples from the uppermost aquifer and Group 2 samples correspond to the CCR unit water samples. This supports the hypothesis that there is no overlap to the CCR unit and uppermost aquifer samples.

4.3 Hierarchical Clustering

Another unsupervised clustering method is Hierarchical Clustering (HC). HC calculates the difference between data points to determine which points are similar to each other and which ones are further apart. Data is first standardized to z-scores to normalize the magnitude of results and the differences between points. The function used to calculate the difference can be any distance function; however, the Origin user manual recommends that city block distance, also known as Manhattan distance, is used when data is standardized. The HC algorithm calculates the distance between each sample to every other sample to find the two samples with the shortest distance between them. The two samples with the least distance between them are grouped together and their values averaged to create one entry that replaces the two existing entries.

This process is repeated until there is only one point remaining. This process can be plotted in a graph called a dendrogram where the individual samples are plotted as individual lines along the vertical axis. The averaging of the closest samples is shown with a vertical connection line, with the calculated distance between entries plotting on the horizontal axis. As the distance along the horizontal axis increases, the individual samples are merged together into larger groups which themselves will also be merged. The distance value of when the merge occurs shows the similarity of the points that are grouped; merges that occur at small distance values indicates samples that are similar. As the distance increases, the groups being combined are becoming less similar until the last combination occurs at the maximum distance for the two groupings that are least similar to each other. A number of clusters can be supplied to the algorithm to assign group membership after the clustering process is complete. This evaluation

used two clusters, conceptually representing the CCR unit water and uppermost aquifer groundwater. With two clusters, the data are grouped based on the last combination performed, meaning that the individual samples in the two groups that are least similar to each other are assigned a different group membership.

The dendrogram shown in Figure 15 demonstrates that leachate samples are similar to each other with the maximum distance between leachate samples being around 2.5. The uppermost aquifer samples are more varied between themselves with a maximum distance of around 6[2]. However, the distance between the CCR unit water and the uppermost aquifer is around 22. The HC evaluation supports that the CCR unit water and uppermost aquifer groups are generally consistent within the groups and the largest distinction (i.e., distance) is between the two groups.

[2] Site characterization efforts have indicated that the uppermost aquifer is not continuous across the site. The uppermost aquifer monitoring wells are installed into separate saturated zones and there is assumed to be minimal connection between these zones. The distance between the uppermost aquifer samples is indicative of heterogeneity in the sub-surface conditions.

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 groundwater and therefore has not impacted the uppermost aquifer groundwater. Each of the individual analyses provides a line of evidence in support of this conclusion.

5.1 Geochemistry

The geochemistry data provides multiple 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 two water groups (uppermost aquifer groundwater and CCR unit water). The second is the geochemical conditions of each water group (pH, ORP, electronic conductivity, hardness, etc.). 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, there is an order of magnitude difference between barium and lithium concentrations in the CCR unit water and in the underlying uppermost aquifer groundwater. Boron is 35 times more concentrated in the CCR unit water, whereas chloride is 22 to 230 times more concentrated in the uppermost aquifer groundwater.

Indeed, these differences are typically statistically significant to a 99% confidence level. 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 9 SU, but the uppermost aquifer groundwater is only approximately pH 7-8 SU. This means that there are approximately 10 to 100 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 and concentrations of other parameters would be much closer.

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 $\delta^{18}O$) that 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 a 99% confidence level. 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

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 0.01 TU. Therefore, groundwater ages up to 126 years in age from recharge should be observable. If a significant amount of CCR-impacted water were entering the groundwater, there should be an observable impact on the tritium concentration.

Five of the seven monitoring wells (MW-16-02, MW-16-03, MW-16-04, MW-16-05, and MW-16-06) located downgradient of the CCR unit had tritium detections of 0.15 TU or below, indicating that the water in these wells is at least 79 years old or older. Therefore, the groundwater within these wells were each last recharged prior to when the RRLF entered service in the 1950s (about 74 years ago). The tritium data from the other two wells (MW-16-01 and MW-16-07) falls within a slightly shorter timeframe (31 to 50 years), however, that does not mean that the aquifer is impacted by CCR management activities rather, it suggests that the tritium data is not a conclusive line of evidence that it has not been. As such, the tritium data conclusively supports that the downgradient uppermost aquifer groundwater has not been affected by the CCR unit operation at the five aforementioned wells, and other lines of evidence are relied upon at the other two wells.

5.4 Statistical Analysis

Statistical analysis using several advanced methods provide a strong line of evidence that the CCR unit water and the groundwater are not in communication:

- PCA was performed on RRLF samples for Appendix III analytes to compare the uppermost aquifer groundwater 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 groundwater has not been affected.
- K-Means clustering analysis was performed to further validate that samples from CCR unit water and samples from the uppermost aquifer fall into distinct groupings with minimal similarities. K-Means clustering grouped data into two groups with minimal variance within the group; these groups align perfectly with the designation of the sample source (CCR unit water or uppermost aquifer).
- Hierarchical clustering analysis was also used, which groups data in order from most to least similar. This analysis was performed to divide the sample data into two groups, with the largest difference being between the groups. This grouping also perfectly separated CCR unit water samples from the uppermost aquifer samples. Within these two groups, there was relatively small differences among the samples, with a maximum distance of 2 for the CCR unit samples and 6 for the uppermost aquifer samples. Whereas a larger distance, 23, is observed between the CCR unit water and uppermost aquifer groundwater groups.

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 source of lithium, boron, strontium, hydrogen, and oxygen in the uppermost aquifer groundwater is not from the CCR unit water and, as demonstrated by the stable isotope data that is statistically distinct from the CCR unit water; and
- Age dating with tritium also generally 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 ASDs prepared to date, 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.

6.0 Reference

Brandt, J. E., Lauer, N. E., Vengosh, A., Bernhardt, E. S., & Di Giulio, R. T. (2018). Strontium isotope ratios in fish otoliths as biogenic tracers of coal combustion residual inputs to freshwater ecosystems. Environmental Science & Technology Letters, 5(12), 718-723.

Craig, H. (1961). Isotopic variations in meteoric waters. Science, 133(3465), 1702-1703.

Davidson, G. R., & Bassett, R. L. (1993). Application of boron isotopes for identifying contaminants such as fly ash leachate in groundwater. Environmental science & technology, 27(1), 172-176.

Dove, A., Backus, S. M., & King-Sharp, K. (2021). Tritium in Laurentian Great Lakes surface waters. Journal of Great Lakes Research, 47(5), 1458-1463.

Detroit Edison, Design Engineering, Power Generation Organization. March 1995. Effectiveness of the Underlying Clay Soil as a Natural Barrier On-Site, Ash Disposal Basin, Monroe Power Plant.

Electric Power Research Institute (EPRI) (October 2022). New Techniques in Alternative Source Demonstrations., EPRI, Palo Alto, CA: 2022 3002023683

Farnham, I. M., Singh, A. K., Stetzenbach, K. J., & Johannesson, K. H. (2002). Treatment of nondetects in multivariate analysis of groundwater geochemistry data. Chemometrics and Intelligent Laboratory Systems, 60(1-2), 265–281.

Geosyntec Consultants (Geosyntec). November 2021. Preliminary Alternative Liner Demonstration Fly Ash Basin Monroe Power Plant, DTE Electric Company Monroe Power Plant Fly Ash Basin and vertical Extension Landfill Coal Combustion Residuals Unit, 7955 East Dunbar Road, Monroe, Michigan.

Gonfiantini, R., & Pennisi, M. (2006). The behavior of boron isotopes in natural waters and in water–rock interactions. Journal of Geochemical Exploration, 88(1-3), 114-117.

Hurst, R. W., & Davis, T. E. (1981). Strontium isotopes as tracers of airborne fly ash from coal-fired power plants. Environmental Geology, 3(6), 363-367.

Huang, X., Wang, G., Liang, X., Cui, L., Ma, L., & Xu, Q. (2017). Hydrochemical and stable isotope (δD and δ18O) characteristics of groundwater and hydrogeochemical processes in the Ningtiaota Coalfield, Northwest China. Mine Water and the Environment, 1(37), 119-136.

Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: a review and recent developments. Philosophical transactions. Series A, Mathematical, physical, and engineering sciences, 374(2065), 20150202.

Jouzel, J., & Merlivat, L. (1984). Deuterium and oxygen 18 in precipitation: Modeling of the isotopic effects during snow formation. Journal of Geophysical Research: Atmospheres, 89(D7), 11749-11757.

Korte, C., Kozur, H. W., Bruckschen, P., & Veizer, J. (2003). Strontium isotope evolution of Late Permian and Triassic seawater. Geochimica et Cosmochimica Acta, 67(1), 47-62.

Liu, C. Q., Li, S. L., Lang, Y. C., & Xiao, H. Y. (2006). Using δ15N-and δ18O-values to identify nitrate sources in karst ground water, Guiyang, Southwest China. Environmental science & technology, 40(22), 6928-6933.

Owen, D. D. R., Millot, R., Négrel, P., Meredith, K., & Cox, M. E. (2015). Stable isotopes of lithium as indicators of coal seam gas-bearing aquifers. Procedia Earth and Planetary Science, 13, 278-281.

Nicholas, J. R. (1996). Hydrology, Water Quality, and Effects of Drought in Monroe County, Michigan: JR Nicholas, Gary L. Rowe, and JR Brannen; Prepared by Monroe County…[et Al.] (Vol. 94, No. 4161). Department of the Interior, US Geological Survey.

Rice, Cynthia A., Timothy T. Bartos, and Margaret S. Ellis. 2002. Chemical and isotopic composition of water in the Fort Union and Wasatch formations of the Powder River Basin, Wyoming and Montana: Implications for coalbed methane development.

Ruhl, L. S., Dwyer, G. S., Hsu-Kim, H., Hower, J. C., & Vengosh, A. (2014). Boron and strontium isotopic characterization of coal combustion residuals: validation of new environmental tracers. Environmental science & technology, 48(24), 14790-14798.

Schlesinger, W. H., Klein, E. M., Wang, Z., & Vengosh, A. (2021). Global biogeochemical cycle of lithium.

Schlosser, P., Stute, M., Dörr, H., Sonntag, C., & Münnich, K. O. (1988). Tritium/3He dating of shallow groundwater. Earth and Planetary Science Letters, 89(3-4), 353-362.

Shand, P., Darbyshire, D. F., Love, A. J., & Edmunds, W. M. (2009). Sr isotopes in natural waters: Applications to source characterization and water–rock interaction in contrasting landscapes. Applied Geochemistry, 24(4), 574-586.

Spivak-Birndorf, L. J., & Stewart, B. W. (2006, October). Use of boron isotopes to track the interaction of coal utilization byproducts with water in the environment. In The Geological Society of America, 2006 Philadelphia Annual Meeting (pp. 22-25).

Spivak-Birndorf, L. J., Stewart, B. W., Capo, R. C., Chapman, E. C., Schroeder, K. T., & Brubaker, T. M. (2012). Strontium Isotope Study of Coal Utilization By-Products Interacting with Environmental Waters. Journal of environmental quality, 41(1), 144-154.

Teichert, Z., Eble, C. F., Bose, M., & Williams, L. B. (2022). Effects of contact metamorphism on the lithium content and isotopic composition of kerogen in coal. Chemical Geology, 602, 120885.

Telloli, C., Rizzo, A., Salvi, S., Pozzobon, A., Marrocchino, E., & Vaccaro, C. (2022). Characterization of groundwater recharge through tritium measurements. Advances in Geosciences, 57, 21-36.

TRC. July 2016; Revised March and August 2017. CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Range Road Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. October 2017. Groundwater Monitoring System Summary Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. January 2018. Annual Groundwater Monitoring Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. August 1, 2018. Alternate Source Demonstration: First 2018 Semiannual Detection Monitoring Sampling Event for the Range Road Coal Combustion Residual Landfill, China Township, Michigan. Prepared for DTE Electric Company.

TRC. August 8, 2019. Alternate Source Demonstration: First 2019 Semiannual Detection Monitoring Sampling Event for the Range Road Coal Combustion Residual Landfill, China Township, Michigan. Prepared for DTE Electric Company.

TRC. August 12, 2020. Alternate Source Demonstration: First Semiannual 2020 Detection Monitoring Sampling Event for the Range Road Coal Combustion Residual Landfill, China Township, Michigan. Prepared for DTE Electric Company.

TRC. February 24, 2022. Alternate Source Demonstration: Fourth Quarter 2021 Semiannual Detection Monitoring Sampling Event Range Road Landfill Coal Combustion Residual Unit, 3600 Range Road, China Township, Michigan.

TRC. January 2023. 2022 Annual Groundwater Monitoring Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

TRC. March 1, 2023. Alternate Source Demonstration: Fourth Quarter 2022 Semiannual Detection Monitoring Sampling Event Range Road Landfill Coal Combustion Residual Unit, 3600 Range Road, China Township, Michigan.

TRC. February 29, 2024. Alternate Source Demonstration: Fourth Quarter 2023 Semiannual Detection Monitoring Sampling Event Range Road Landfill Coal Combustion Residual Unit 3600 Range Road, China Township, Michigan.

TRC. January 2024. 2023 Annual Groundwater Monitoring Report – DTE Electric Company Range Road Coal Combustion Residual Landfill, 3600 Range Road, China Township, Michigan. Prepared for DTE Electric Company.

Wang, Z., Coyte, R. M., Dwyer, G. S., Ruhl, L. S., Hsu-Kim, H., Hower, J. C., & Vengosh, A. (2020). Distinction of strontium isotope ratios between water-soluble and bulk coal fly ash from the United States. International Journal of Coal Geology, 222, 103464.

Williams, L. B., & Hervig, R. L. (2004). Boron isotope composition of coals: a potential tracer of organic contaminated fluids. Applied Geochemistry, 19(10), 1625-1636.

Xiao, Y. K., Li, S. Z., Wei, H. Z., Sun, A. D., Liu, W. G., Zhou, W. J., … & Swihart, G. H. (2007). Boron isotopic fractionation during seawater evaporation. Marine chemistry, 103(3-4), 382-392.

Xiao, J., Vogl, J., Rosner, M., & Jin, Z. (2022). Boron isotope fractionation in soil-plant systems and its influence on biogeochemical cycling. Chemical Geology, 606, 120972.

Tables

Table 1
Summary of Field Parameters
Range Road Landfill
China Township, Michigan

Constituent:		pH	Specific Conductivity	Dissolved Oxygen	DO	Turbidity	Temperature
Unit:		SU	umhos/cm	mV	mg/L	NTU	°C
Sample Location	Sample Date						
Monitoring Wells/Uppermost Aquifer							
MW-16-01	8/27/2024	7.25	1,635	-70.1	1.30	0.85	13.7
MW-16-02	8/28/2024	8.02	1,576	-23.6	1.38	0.80	11.7
MW-16-03	8/28/2024	7.95	1,417	-158.3	1.28	0.82	13.2
MW-16-04	8/28/2024	8.01	6,724	-47.0	1.38	8.87	13.2
MW-16-05	8/28/2024	8.00	1,429	22.1	1.20	0.92	12.1
MW-16-06	8/28/2024	7.73	1,488	-114.5	1.29	1.16	11.9
MW-16-07	8/28/2024	7.53	864	-104.5	1.25	62.9	13.6
CCR Unit Water/Leachate							
95-W-02	8/29/2024	9.33	1,719	76.9	2.46	31.5	12.5
Surface Water/Mix Leachate and Stormwater							
Stormwater Pond	8/29/2024	8.43	3,870	44.2	1.78	21.8	23.2

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

Table 2
Summary of Analytical Results
Range Road Landfill
China Township, Michigan

Constituent:		Alkalinity, bicarbonate	Alkalinity, carbonate	Alkalinity, total	Boron	Calcium	Chloride	Fluoride	Lithium	Magnesium	Potassium	Sodium	Strontium	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
Sample Location	Sample Date														
Monitoring Wells/Uppermost Aquifer															
MW-16-01	8/27/2024	**150**	< 5	**150**	**0.88**	**110**	**550**	**0.67**	**0.026**	**68**	**4.7**	**280**	**3.9**	**330**	**2.6**
MW-16-02	8/28/2024	**160**	< 5	**160**	**1.1**	**22**	**630**	**1.8**	**0.021**	**12**	**4.2**	**390**	**1.1**	< 1	**1.1**
MW-16-03	8/28/2024	**200**	< 5	**200**	**1.2**	**20**	**540**	**2.2**	**0.024**	**8**	**3.3**	**370**	**0.74**	< 1	**1.7**
MW-16-03 (Dup-01)	8/29/2024	**190**	< 5	**190**	**1.2**	**16**	**520**	**2.0**	**0.019**	**6.5**	**2.8**	**290**	**0.59**	< 1	**1.5**
MW-16-04	8/28/2024	**91**	< 5	**91**	**1.1**	**63**	**3,200**	**1.2**	**0.048**	**43**	**8**	**1,800**	**2.7**	< 5	**1.2**
MW-16-05	8/28/2024	**1,600**	< 5	**1,600**	**1.3**	**21**	**560**	**1.7**	**0.022**	**9.5**	**3.2**	**380**	**0.78**	**26**	**1**
MW-16-06	8/28/2024	**160**	< 5	**160**	**1.2**	**59**	**520**	**1.5**	**0.027**	**32**	**2.8**	**320**	**2.1**	**220**	< 1
MW-16-07	8/28/2024	**130**	< 5	**130**	**0.82**	**49**	**310**	**1.2**	**0.019**	**17**	**5.2**	**160**	**1.1**	**7.3**	**2**
Shallow Well/Leachate															
95-W-02	8/29/2024	< 5	**75**	**120**	**38**	**530**	**14**	**0.34**	**0.46**	**17**	**60**	**28**	**7.1**	**1,600**	< 1
Surface Water/Mix Leachate and Stormwater															
Stormwater Pond	8/29/2024	**270**	**9.3**	**280**	**11**	**140**	**100**	**0.55**	**0.099**	**24**	**22**	**840**	**1.4**	**2,000**	**11**

Notes:
mg/L = milligram per liter
Bold font denotes concentrations detected above laboratory reporting limits.

Table 3
Summary of Stable Isotope and Tritium Results
Range Road Landfill
China Township, Michigan

Constituent:		$^{87}Sr/^{86}Sr$	$\delta^{11}B$	$\delta^{7}Li$	$\delta^{2}H$	$\delta^{18}O$	Tritium
Units:		‰	‰	‰	‰	‰	TU
Sample Location	Sample Date						
Monitoring Wells/Uppermost Aquifer							
MW-16-01	8/27/2024	**0.709257**	**28.04**	**22.15**	**-109.86**	**-15.55**	**0.73**
MW-16-02	8/28/2024	**0.709405**	**41.90**	**25.30**	**-113.09**	**-15.98**	**0.08**
MW-16-03	8/28/2024	**0.709324**	**42.00**	**27.92**	**-105.41**	**-14.96**	**0.15**
MW-16-03 (Dup-01)	8/29/2024	**0.709411**	**41.93**	**26.95**	**-104.46**	**-14.96**	**0.04**
MW-16-04	8/28/2024	**0.710317**	**44.40**	**25.58**	**-121.63**	**-16.96**	**0.12**
MW-16-05	8/28/2024	**0.709312**	**41.13**	**25.92**	**-105.81**	**-15.17**	**0.03**
MW-16-06	8/28/2024	**0.709104**	**38.91**	**25.00**	**-101.16**	**-14.62**	**0.14**
MW-16-07	8/28/2024	**0.709658**	**37.73**	**23.26**	**-100.56**	**-14.51**	**2.13**
Shallow Well/Leachate							
95-W-02	8/29/2024	**0.711132**	**-7.56**	**10.65**	**-68.25**	**-10.45**	**7.2**
Surface Water/Mix Leachate and Stormwater							
Stormwater Pond	8/29/2024	**0.710185**	**-6.09**	**14.76**	**-46.00**	**-6.74**	**12.5**

Notes:

‰ = per mil

TU = Tritium Units

Bold font denotes concentrations detected above laboratory reporting limits.

Table 4
Summary of Historical Analytical Results
Range Road Landfill
China Township, Michigan

Constituent:		Alkalinity, bicarbonate	Alkalinity, carbonate	Alkalinity, total	Antimony	Arsenic	Barium	Boron	Calcium	Chloride	Chromium	Cobalt	Fluoride	Lead	Lithium	Magnesium	Molybdenum	pH	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Dissolved Solids
Unit:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	su	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L
Sample Location	Sample Date																							
Monitoring Wells/Uppermost Aquifer																								
MW-16-01	8/11/2016	--	--	--	2.1	< 5	430	520	78,000	710	< 2	< 1	0.81	< 1	8.2	--	23	7.4	--	< 5	--	25	< 1	1,300
	9/22/2016	--	--	--	< 2	< 5	430	560	82,000	730	2.5	< 1	0.81	< 1	10	--	21	8.25	--	5.8	--	31	< 1	1,200
	11/9/2016	--	--	--	< 2	< 5	410	520	85,000	730	< 2	< 1	0.85	< 1	< 8	--	19	7.94	--	< 5	--	26	< 1	1,300
	1/11/2017	--	--	--	2.8	< 5	430	520	84,000	740	< 2	< 1	0.69	< 1	11	--	23	7.7	--	< 5	--	26	< 1	1,300
	3/1/2017	--	--	--	2	< 5	430	510	87,000	670	< 2	< 1	0.89	< 1	10	--	19	7.87	--	< 5	--	32	< 1	1,300
	4/19/2017	--	--	--	< 2	< 5	420	520	82,000	650	< 2	< 1	0.83	< 1	11	--	18	7.69	--	< 5	--	34	< 1	1,300
	6/7/2017	--	--	--	< 2	< 5	420	540	85,000	720	< 2	< 1	0.86	< 1	12	--	18	7.68	--	< 5	--	41	< 1	1,200
	7/26/2017	97,000	< 5,000	97,000	< 2	< 5	440	540	79,000	710	< 2	< 1	0.88	< 1	13	57,000	19	7.55	5,400	< 5	300,000	37	< 1	1,300
MW-16-02	8/11/2016	--	--	--	< 2	< 5	210	1,000	19,000	650	< 2	< 1	2	< 1	19	--	78	8.39	--	< 5	--	< 1	< 1	1,200
	9/22/2016	--	--	--	< 2	< 5	210	1,100	20,000	690	4.8	< 1	1.8	< 1	21	--	80	9.04	--	< 5	--	< 1	< 1	1,200
	11/9/2016	--	--	--	< 2	< 5	230	1,100	18,000	670	< 2	< 1	1.9	< 1	18	--	95	8.5	--	< 5	--	< 5	< 1	1,200
	1/11/2017	--	--	--	< 2	< 5	230	1,100	21,000	670	< 2	< 1	1.8	< 1	24	--	82	8.21	--	< 5	--	< 5	< 1	1,200
	3/2/2017	--	--	--	< 2	< 5	270	1,100	22,000	620	< 2	< 1	1.9	< 1	23	--	83	8.46	--	< 5	--	< 10	< 1	1,200
	4/19/2017	--	--	--	< 2	< 5	260	1,100	21,000	580	< 2	< 1	1.8	< 1	27	--	81	8.41	--	< 5	--	< 10	< 1	1,100
	6/7/2017	--	--	--	< 2	< 5	260	1,100	22,000	670	< 2	< 1	2	< 1	24	--	83	8.36	--	< 5	--	< 10	< 1	1,100
	7/26/2017	160,000	< 5,000	160,000	< 2	< 5	280	1,100	22,000	650	< 2	< 1	2	< 1	26	14,000	88	8.23	4,200	< 5	440,000	< 1	< 1	1,200
MW-16-03	8/11/2016	--	--	--	< 2	< 5	600	1,100	19,000	540	< 2	< 1	1.8	< 1	20	--	73	8.29	--	< 5	--	< 1	< 1	1,100
	9/22/2016	--	--	--	< 2	< 5	600	1,100	19,000	540	2.2	< 1	2	< 1	22	--	72	8.82	--	< 5	--	< 1	< 1	1,000
	11/10/2016	--	--	--	< 2	< 5	730	1,200	18,000	540	< 2	< 1	2.1	< 1	20	--	72	8.31	--	< 5	--	< 5	< 1	1,100
	1/11/2017	--	--	--	< 2	< 5	620	1,100	20,000	540	< 2	< 1	1.9	< 1	25	--	73	8.05	--	< 5	--	< 5	< 1	1,100
	3/2/2017	--	--	--	< 2	< 5	670	1,100	19,000	500	< 2	< 1	2.1	< 1	24	--	74	8.15	--	< 5	--	< 5	< 1	1,100
	4/19/2017	--	--	--	< 2	< 5	650	1,100	20,000	490	< 2	< 1	2	< 1	27	--	75	8.12	--	< 5	--	< 10	< 1	1,000
	6/7/2017	--	--	--	< 2	< 5	640	1,200	20,000	550	< 2	< 1	2.1	< 1	26	--	73	8.13	--	< 5	--	< 10	< 1	1,000
	7/26/2017	190,000	< 5,000	190,000	< 2	< 5	690	1,200	21,000	530	< 2	< 1	2.2	< 1	29	9,600	79	8.01	3,400	< 5	410,000	< 1	< 1	1,100
MW-16-04	8/19/2016	--	--	--	< 2	< 5	360	920	57,000	3,200	< 2	< 1	< 2.5	< 1	37	--	73	7.97	--	< 5	--	< 50	< 1	4,500
	9/23/2016	--	--	--	< 2	< 5	400	1,000	67,000	3,400	3.8	< 1	1.5	< 1	47	--	120	7.72	--	< 5	--	24	< 1	4,300
	11/10/2016	--	--	--	< 2	< 5	410	1,100	62,000	3,200	< 2	< 1	1.4	< 1	40	--	99	8.21	--	< 5	--	< 20	< 1	5,000
	1/12/2017	--	--	--	< 2	< 5	380	1,000	62,000	3,500	< 2	< 1	1.3	< 1	39	--	100	7.69	--	< 5	--	< 20	< 1	5,000
	3/2/2017	--	--	--	< 2	< 5	420	1,000	62,000	2,900	< 2	< 1	1.5	< 1	40	--	100	8.09	--	< 5	--	< 20	< 1	4,900
	4/19/2017	--	--	--	< 2	< 5	380	1,000	61,000	2,800	< 2	< 1	1.4	< 1	45	--	89	8.02	--	< 5	--	< 20	< 1	4,600
	6/7/2017	--	--	--	< 2	< 5	380	1,000	62,000	3,200	< 2	< 1	1.5	< 1	39	--	78	7.91	--	< 5	--	17	< 1	4,800
	7/26/2017	100,000	< 5,000	100,000	< 10	< 25	440	1,100	61,000	3,200	< 10	< 5	1.5	< 1	56	51,000	120	8.25	9,200	< 25	2,100,000	< 10	< 1	5,100
	9/12/2017	--	--	--	< 2	< 5	460	1,100	65,000	3,200	< 2	< 1	1.7	< 1	46	--	110	8.19	--	< 5	--	< 5	< 1	5,100

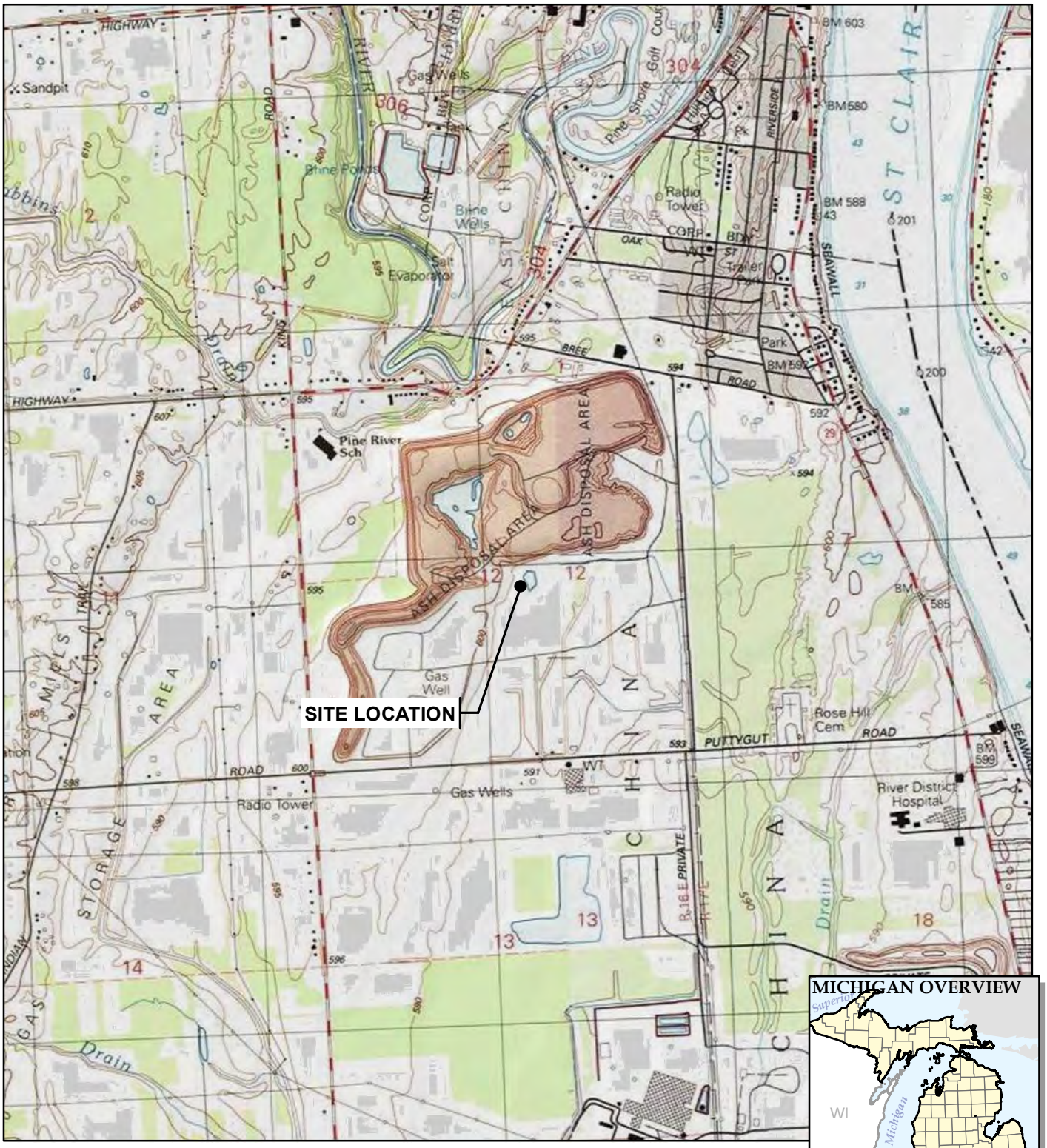
Notes:
Analytes with one or more detection are shown.
ug/L = microgram per liter
SU = Standard Units
-- = not analyzed
J = concentration is below the laboratory reporting limit but about the method detection limit. Sample concentration is estimated.
Bold font denotes concentrations detected above laboratory reporting limits.

Table 4
Summary of Historical Analytical Results
Range Road Landfill
China Township, Michigan

Constituent:		Alkalinity, bicarbonate	Alkalinity, carbonate	Alkalinity, total	Antimony	Arsenic	Barium	Boron	Calcium	Chloride	Chromium	Cobalt	Fluoride	Lead	Lithium	Magnesium	Molybdenum	pH	Potassium	Selenium	Sodium	Sulfate	Thallium	Total Dissolved Solids
Unit:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	su	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L
Sample Location	Sample Date																							
Monitoring Wells/Uppermost Aquifer																								
MW-16-05	8/19/2016	--	--	--	< 2	< 5	320	1,100	18,000	590	< 2	< 1	1.7	< 1	19	--	60	8.19	--	< 5	--	< 10	< 1	1,100
	9/22/2016	--	--	--	< 2	< 5	330	1,200	18,000	590	< 2	< 1	1.7	< 1	21	--	55	8.93	--	< 5	--	< 1	< 1	1,100
	11/10/2016	--	--	--	< 2	< 5	340	1,200	18,000	580	< 2	< 1	1.7	< 1	19	--	63	8.35	--	< 5	--	< 5	< 1	1,100
	1/12/2017	--	--	--	< 2	< 5	330	1,300	19,000	580	< 2	< 1	1.6	< 1	23	--	67	8	--	< 5	--	< 5	< 1	1,200
	3/1/2017	--	--	--	< 2	< 5	350	1,200	19,000	540	< 2	< 1	1.8	< 1	22	--	67	8.29	--	< 5	--	< 10	< 1	1,100
	4/19/2017	--	--	--	< 2	< 5	330	1,200	18,000	520	< 2	< 1	1.7	< 1	26	--	66	8.2	--	< 5	--	< 10	< 1	1,000
	6/8/2017	--	--	--	< 2	< 5	330	1,300	18,000	580	< 2	< 1	1.8	< 1	23	--	65	8.16	--	< 5	--	< 10	< 1	1,100
	7/26/2017	170,000	< 5,000	170,000	< 2	< 5	350	1,300	19,000	560	< 2	< 1	1.9	< 1	26	7,900	71	8.09	3,100	< 5	410,000	1.9	< 1	1,100
MW-16-06	8/11/2016	--	--	--	< 2	< 5	320	1,000	28,000	560	2.4	< 1	1.2	< 1	< 8	--	60	8	--	< 5	--	< 10	< 1	1,000
	9/23/2016	--	--	--	< 2	< 5	310	1,000	27,000	560	< 2	< 1	1.4	< 1	8	--	55	8.27	--	< 5	--	2.6	< 1	970
	11/10/2016	--	--	--	< 2	< 5	330	1,100	28,000	560	< 2	< 1	1.4	< 1	< 8	--	54	8.1	--	< 5	--	7.9	< 1	1,000
	1/12/2017	--	--	--	< 2	< 5	310	1,100	29,000	550	< 2	< 1	1.2	< 1	< 8	--	56	7.76	--	< 5	--	11	< 1	1,100
	3/2/2017	--	--	--	< 2	< 5	340	1,000	30,000	510	< 2	< 1	1.5	< 1	< 8	--	57	8.06	--	< 5	--	16	< 1	1,000
	4/19/2017	--	--	--	< 2	< 5	310	1,100	29,000	490	< 2	< 1	1.4	< 1	8.4	--	54	8.01	--	< 5	--	22	< 1	970
	6/7/2017	--	--	--	< 2	< 5	320	1,100	30,000	540	< 2	< 1	1.4	< 1	9	--	54	7.89	--	< 5	--	27	< 1	1,100
	7/26/2017	140,000	< 5,000	140,000	< 2	< 5	310	1,100	28,000	540	< 2	< 1	1.5	< 1	10	11,000	54	7.9	2,600	< 5	340,000	19	< 1	1,000
MW-16-07	8/19/2016	--	--	--	< 2	6	390	760	56,000	320	24	6.4	1.3	6.3	26	--	82	8.03	--	< 5	--	34	< 1	770
	9/23/2016	--	--	--	< 2	< 5	350	880	47,000	320	12	3	1.2	3	19	--	71	8.02	--	< 5	--	12	< 1	680
	11/10/2016	--	--	--	< 2	< 5	330	850	38,000	330	3	< 1	1.1	< 1	10	--	59	8.05	--	< 5	--	9.6	< 1	720
	1/12/2017	--	--	--	< 2	< 5	320	830	39,000	330	2.2	< 1	0.98	< 1	12	--	57	7.69	--	< 5	--	8.9	< 1	730
	3/2/2017	--	--	--	< 2	< 5	150	230	160,000	41	2.5	< 1	0.33	1.2	8.5	--	25	7.37	--	< 5	--	290	< 1	910
	4/19/2017	--	--	--	< 2	< 5	100	120 J	170,000	40	2.1	< 1	0.31	< 1	8.1	--	15	7.41	--	< 5	--	260	< 1	720
	6/8/2017	--	--	--	< 2	< 5	99	190 J	150,000	64	< 2	< 1	< 0.5	< 1	< 8	--	13	7.48	--	< 5	--	270	< 1	760
	7/10/2017	--	--	--	< 2	< 5	85	680	58,000	230	4.4	1.2	0.91	1.2	12	--	30	7.74	--	< 5	--	93	< 1	690
	7/25/2017	140,000	< 5,000	140,000	< 2	< 5	140	810	56,000	270	18	2.4	1	2.4	23	21,000	42	7.5	9,700	< 5	170,000	46	< 1	680
Shallow Well/Leachate																								
95-W-02	10/20/2020	--	--	--	5.8	28	30	40,000	520,000	8	< 2	< 1	0.38	< 1	680	28,000	440	--	59,000	22	27,000	1,600	< 1	2,400
	5/18/2021	--	--	--	--	--	--	40,000	540,000	8.6	--	--	0.4	--	670	--	350	9.37	--	--	--	1,600	--	2,500
	10/21/2021	< 5,000	77,000	110,000	6.2	36	38	40,000	540,000	9.5	< 5	1.4	0.56	< 1	680	28,000	410	--	61,000	21	27,000	1,700	1.7	2,400
	10/19/2022	< 5,000	75,000	110,000	5.3	34	40	37,000	560,000	12	2.8 J	0.65 J	0.45	1.3	670	21,000	580	9.11	58,000	27	27,000	1,600	1.1	2,200
	10/25/2023	< 5,000	84,000	110,000	5.7	37	37	40,000	600,000	12	< 5	< 1	0.52	< 1	580	19,000	580	9.46	62,000	53	28,000	1,700	1.5	2,400
	8/29/2024	< 5,000	75,000	120,000	--	--	--	38,000	530,000	14	--	--	0.34	--	460	17,000	--	9.33	60,000	--	28,000	1,600	--	--
	10/29/2024	< 5,000	86,000	120,000	4.6	36	34	41,000	560,000	13	< 5	< 1	0.33	< 1	500	17,000	590	9.85	62,000	29	28,000	1,600	1.2	2,300

Notes:
Analytes with one or more detection are shown.
ug/L = microgram per liter
SU = Standard Units
-- = not analyzed
J = concentration is below the laboratory reporting limit but about the method detection limit. Sample concentration is estimated.
Bold font denotes concentrations detected above laboratory reporting limits.

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
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TRC - GIS

PROJECT:

DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:

SITE LOCATION MAP

DRAWN BY:	A. FOJTIK
CHECKED BY:	J. KRENZ
APPROVED BY:	V. BUENING
DATE:	JANUARY 2025
PROJ. NO.:	553931.0000.0000
FILE:	553931-0000-001.mxd

FIGURE 1

E:\DTE\CCR_Sites\2024_553931\MXD\553931-0000-001.mxd -- Saved By: AFOJTIK on 12/9/2024, 14:30:45 PM

LEGEND

- CCR UNIT WATER SAMPLE LOCATION
- SURFACE WATER SAMPLING LOCATION
- MONITORING WELL
- SOIL BORING
- OIL/GAS WELL LOCATION
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- STORMWATER POND

NOTES

1. BASE MAP IMAGERY FROM ESRI WORLD IMAGERY, 04/2023.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.
3. OIL AND GAS WELL LOCATIONS FROM MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, GEOWEBFACE.

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
SITE PLAN

DRAWN BY:	A. FOJTIK	PROJ NO.:	623789
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		
DATE:	JANUARY 2025		

FIGURE 2

TRC
1540 Eisenhower Place
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FILE NO.: 623789-0000-002a.mxd

Plot Date: 1/23/2025, 12:33:42 PM by AFOJTIK -- LAYOUT: ANSI B(11"x17")
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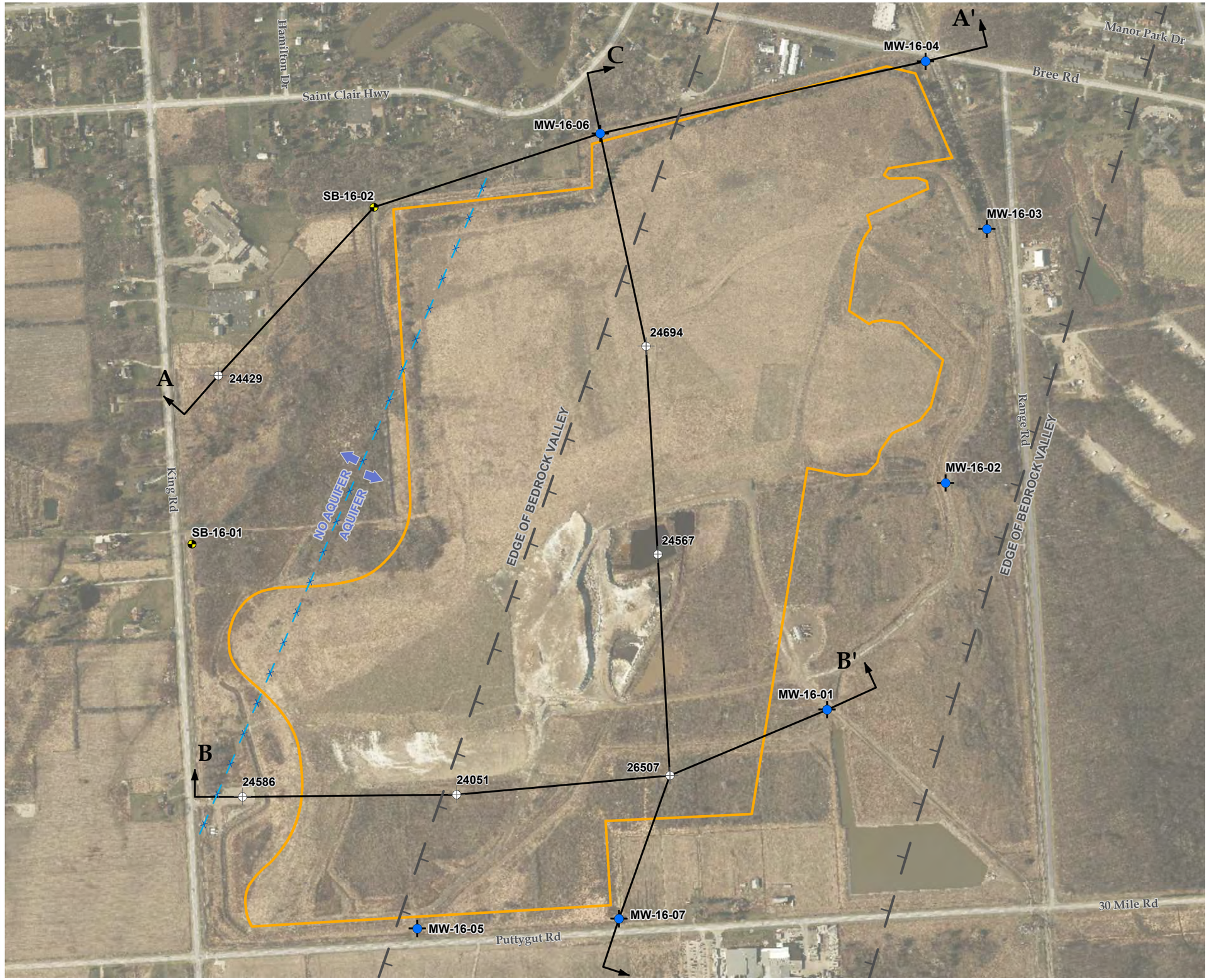
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0

TRC - GIS



LEGEND

- MONITORING WELL
- SOIL BORING
- APPROXIMATE ANTICIPATED MAXIMUM LIMIT OF ASH FILL
- OIL/GAS WELL LOCATION
- CROSS SECTION LINES
- APPROXIMATE AQUIFER BOUNDARY
- APPROXIMATE EDGE OF BEDROCK VALLEY

NOTES

1. BASE MAP IMAGERY FROM ST. CLAIR COUNTY INFORMATION TECHNOLOGY DEPARTMENT WEBMAP, 2015.
2. WELL LOCATIONS SURVEYED IN MARCH AND MAY 2016 BY BMJ ENGINEERS & SURVEYORS, INC.
3. OIL AND GAS WELL LOCATIONS FROM MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, GEOWEBFACE.

N

0 600 1,200 Feet

1 " = 600 '
1:7,200

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
3600 RANGE ROAD
CHINA TOWNSHIP, MICHIGAN

TITLE:
CROSS SECTION LOCATOR MAP

DRAWN BY:	J. PAPEZ	PROJ NO.:	265996.0000
CHECKED BY:	S HOLMSTROM		
APPROVED BY:	V BUENING		**FIGURE 3**
DATE:	OCTOBER 2017		

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FILE NO.: 265996-0000-003.mxd

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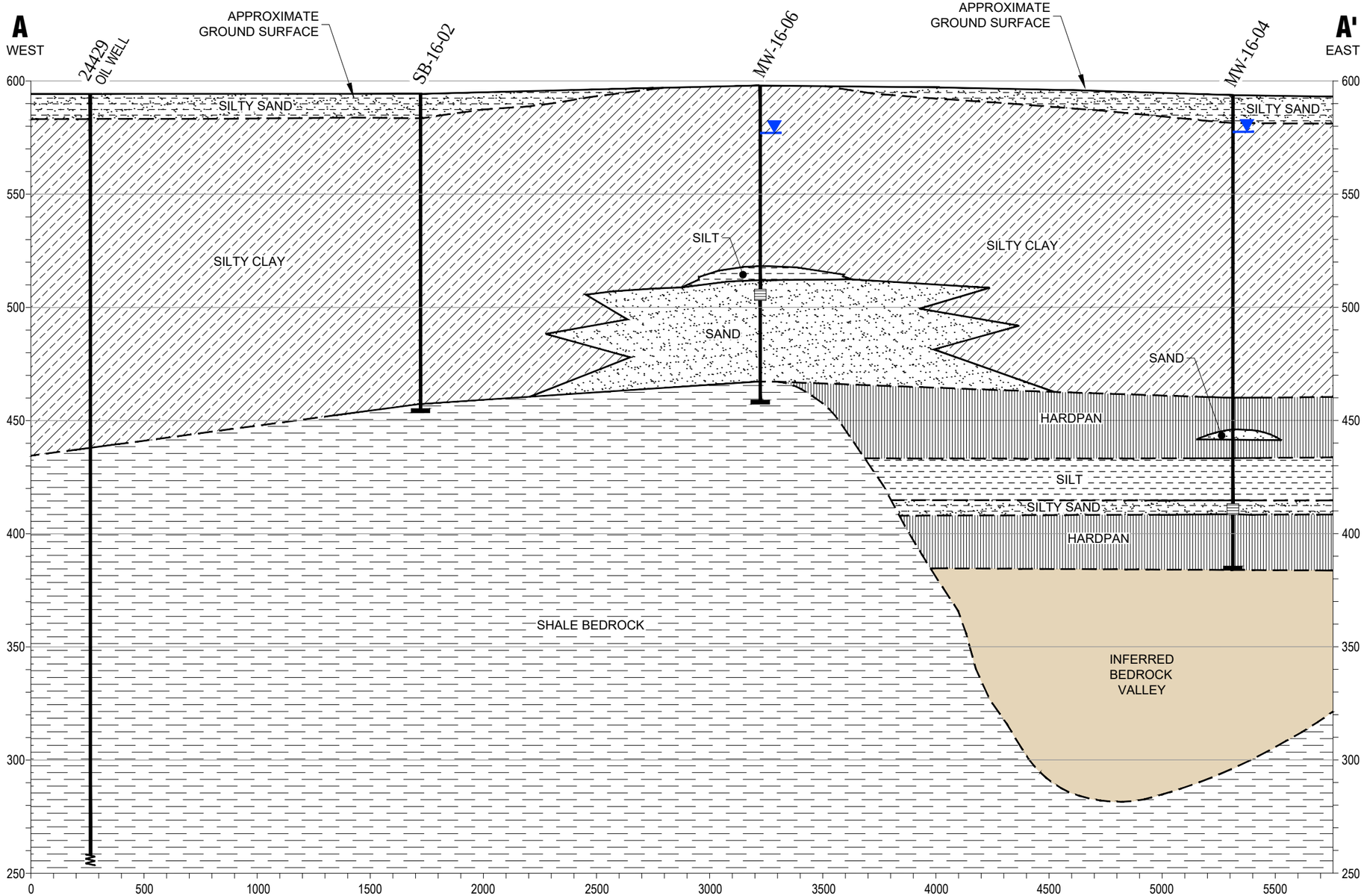
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0

GENERALIZED GEOLOGIC CROSS-SECTION A-A'



LEGEND

- STRATEGRAPHIC BOUNDARY (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION
- SOIL BORING
- WELL SCREEN INTERVAL
- END OF BORING

Lithology Key

- SILT
- HARDPAN
- SILTY SAND
- SILTY CLAY
- SAND
- SHALE BEDROCK
- UNCONSOLIDATED BEDROCK VALLEY FILL

SCALE IN FEET
VERTICAL: 50 to 0
HORIZONTAL: 0 to 500

PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
CHINA TOWNSHIP, MICHIGAN

TITLE:
GENERALIZED GEOLOGIC CROSS-SECTION A-A'

DRAWN BY:	D.STEHLE	PROJ NO.:	265996.0000
CHECKED BY:	S.HOLMSTROM		
APPROVED BY:	V.BUENING		**FIGURE 4**
DATE:	SEPTEMBER 2017		

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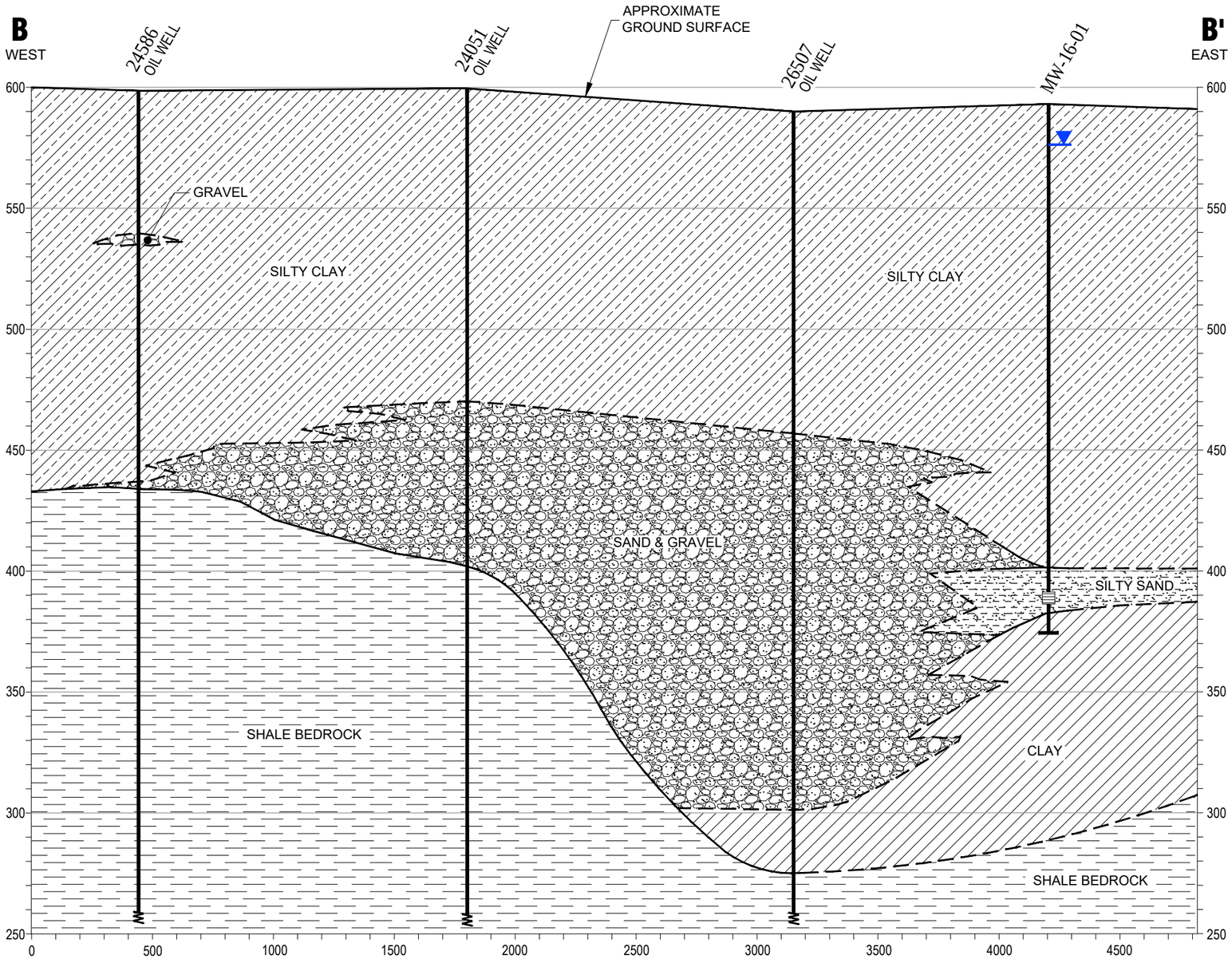
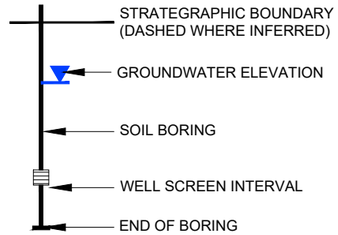
FILE NO.: 265996.0000.04-06.dwg

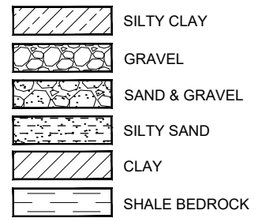
GENERALIZED GEOLOGIC CROSS-SECTION B-B'

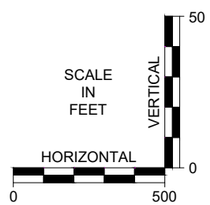


LEGEND



Lithology Key





PROJECT:
DTE ELECTRIC COMPANY
RANGE ROAD LANDFILL
CHINA TOWNSHIP, MICHIGAN

TITLE:
GENERALIZED GEOLOGIC CROSS-SECTION B-B'

DRAWN BY:	D.STEHLE	PROJ NO.:	265996.0000
CHECKED BY:	S.HOLMSTROM		**FIGURE 5**
APPROVED BY:	V.BUENING		
DATE:	SEPTEMBER 2017		

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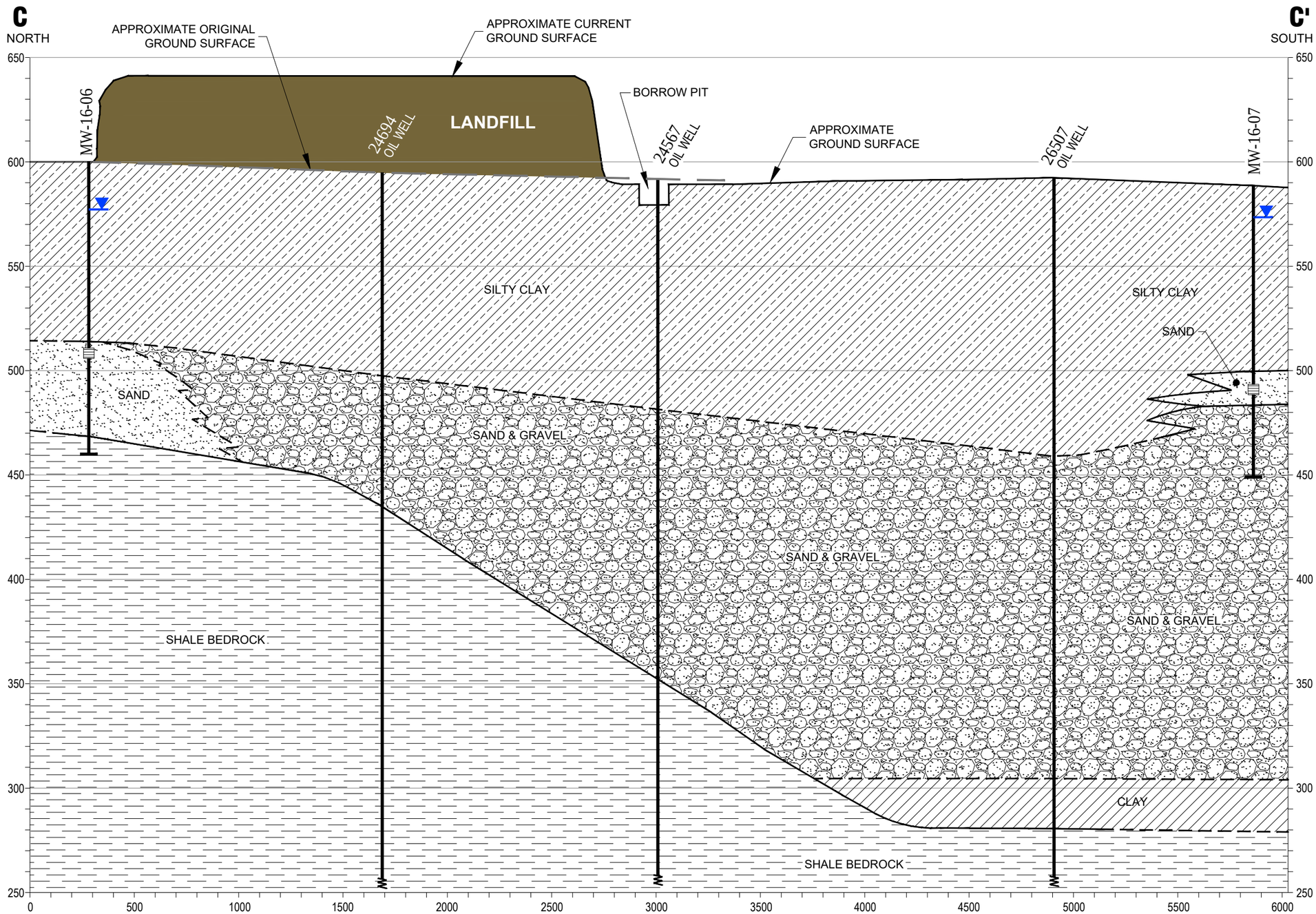
FILE NO.: 265996.0000.04-06.dwg

GENERALIZED GEOLOGIC CROSS-SECTION C-C'



LEGEND

- STRATEGRAPHIC BOUNDARY (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION
- SOIL BORING
- WELL SCREEN INTERVAL
- END OF BORING

Lithology Key

- SILTY CLAY
- SAND
- SAND & GRAVEL
- SILTY SAND
- CLAY
- SHALE BEDROCK

SCALE IN FEET
VERTICAL: 50 / 0
HORIZONTAL: 0 / 500

PROJECT:	DTE ELECTRIC COMPANY RANGE ROAD LANDFILL CHINA TOWNSHIP, MICHIGAN
TITLE:	GENERALIZED GEOLOGIC CROSS-SECTION C-C'
DRAWN BY:	D.STEHLE
CHECKED BY:	S.HOLMSTROM
APPROVED BY:	V.BUENING
DATE:	SEPTEMBER 2017
PROJ NO.:	265996.0000
	FIGURE 6

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Phone: 734.971.7080
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FILE NO.: 265996.0000.04-06.dwg

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: \\ntapa-annarbor\aam-vol2\CADD\PJT\00_TRC\DTE\East China\Range Road LF\265996\0000\ 265996.0000.04-06.dwg --- PLOT DATE: October 12, 2017 - 5:28AM --- LAYOUT: FIG06 XS CC

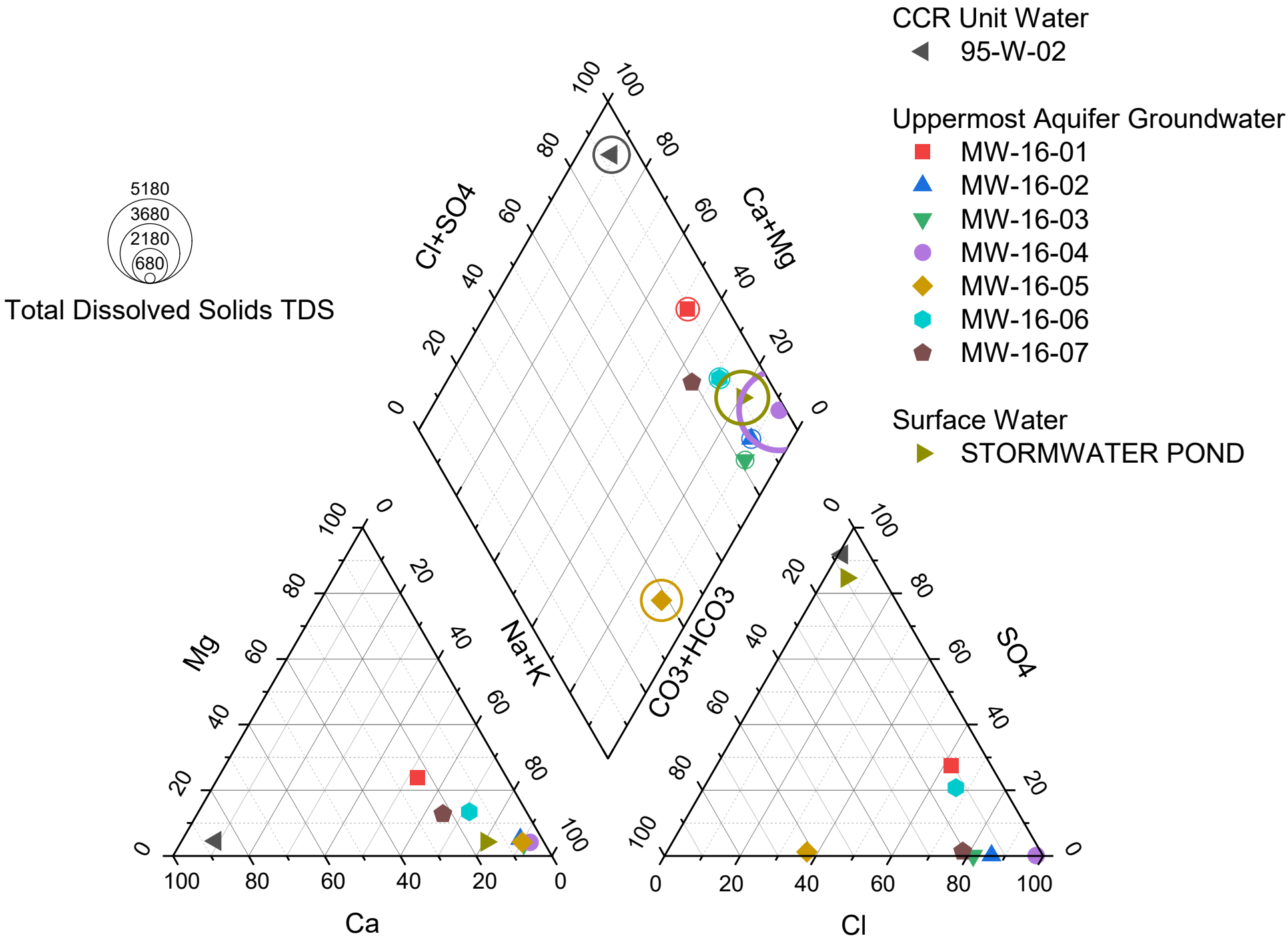


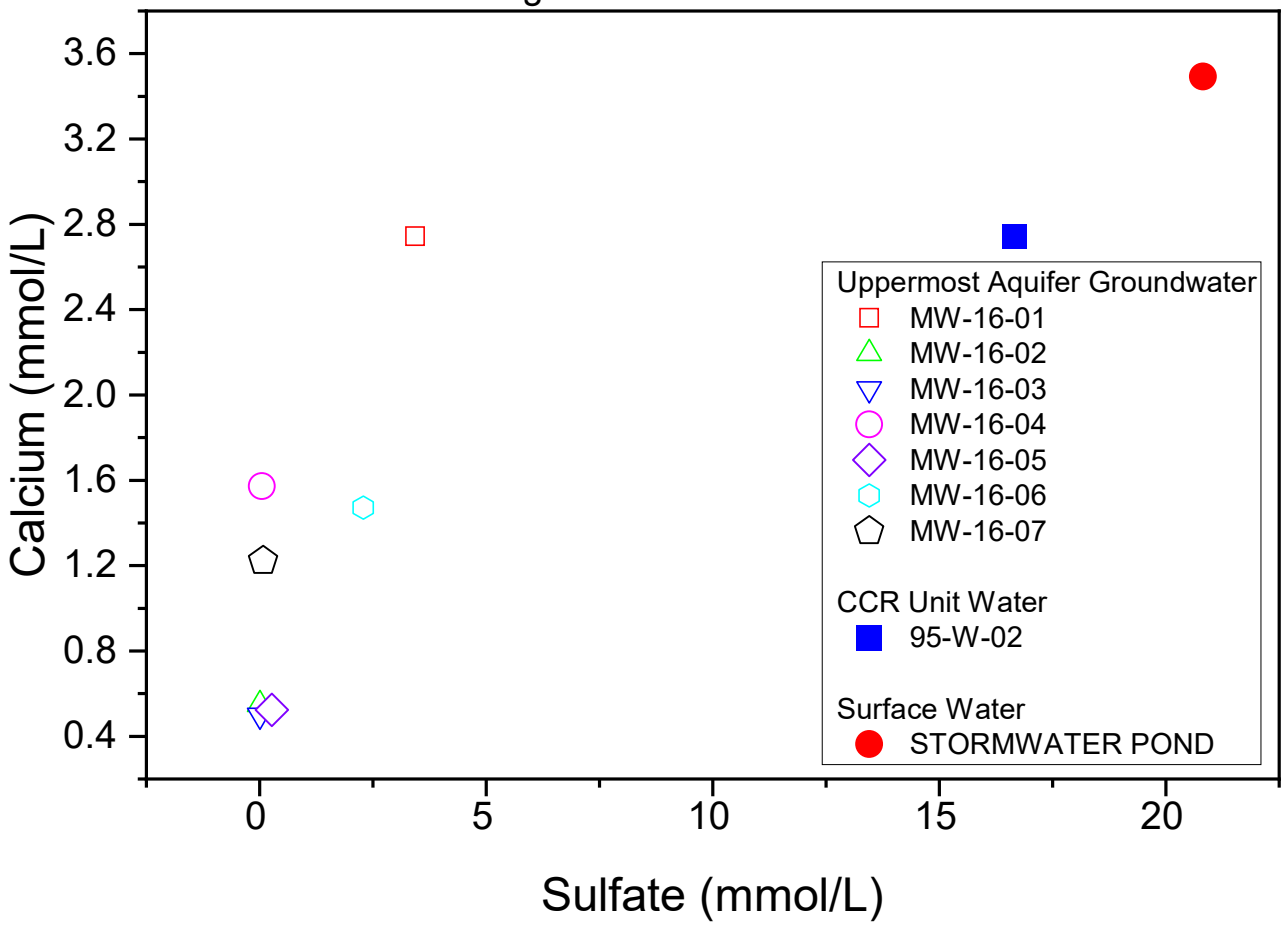
Figure 7
Piper Diagram - August 2024
Range Road Landfill CCR Unit

Figure 8

Summary of Calcium and Sulfate Saturation with Chloride and Sulfate Concentration

Augsut 2024

Range Road Landfill CCR Unit



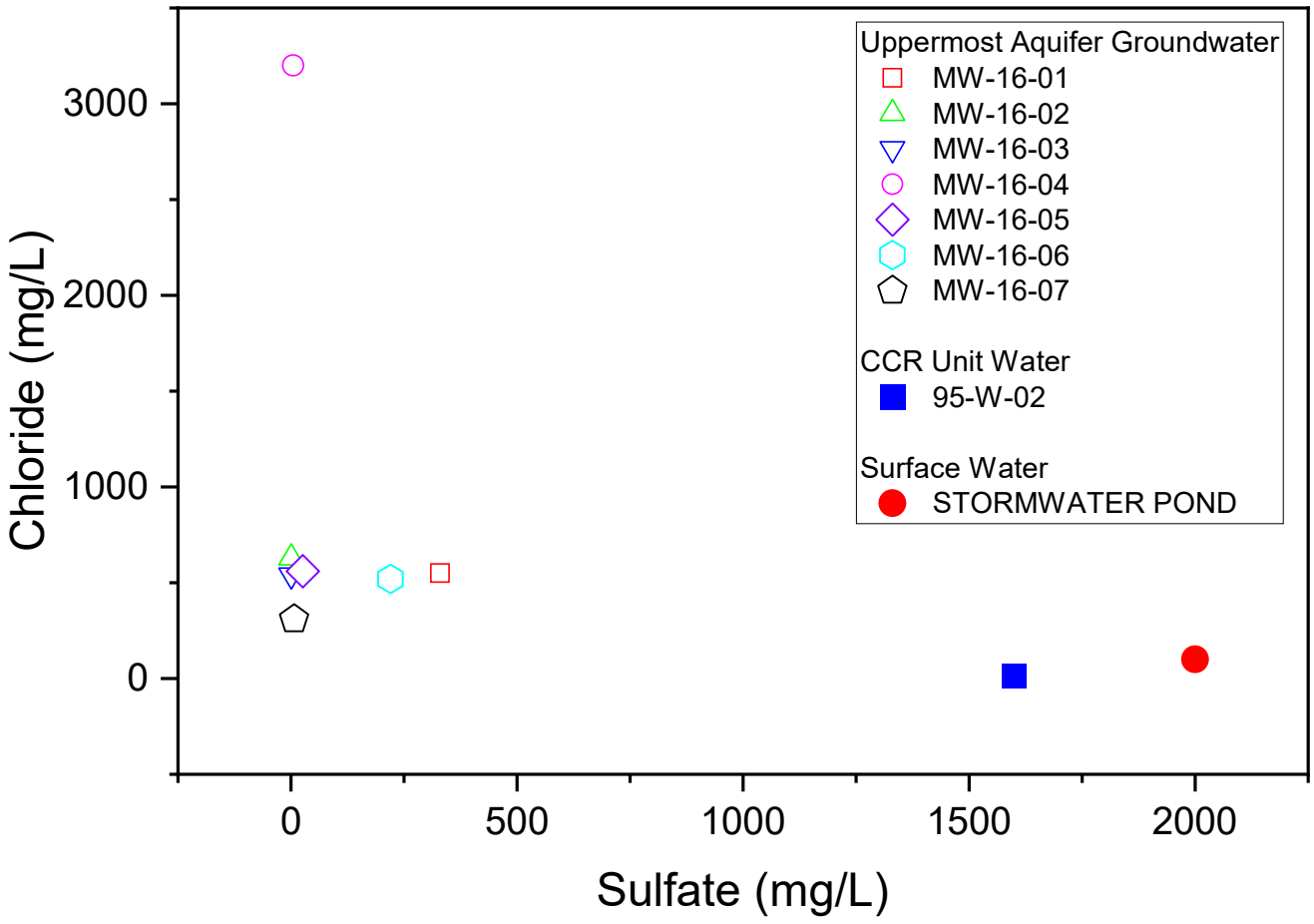
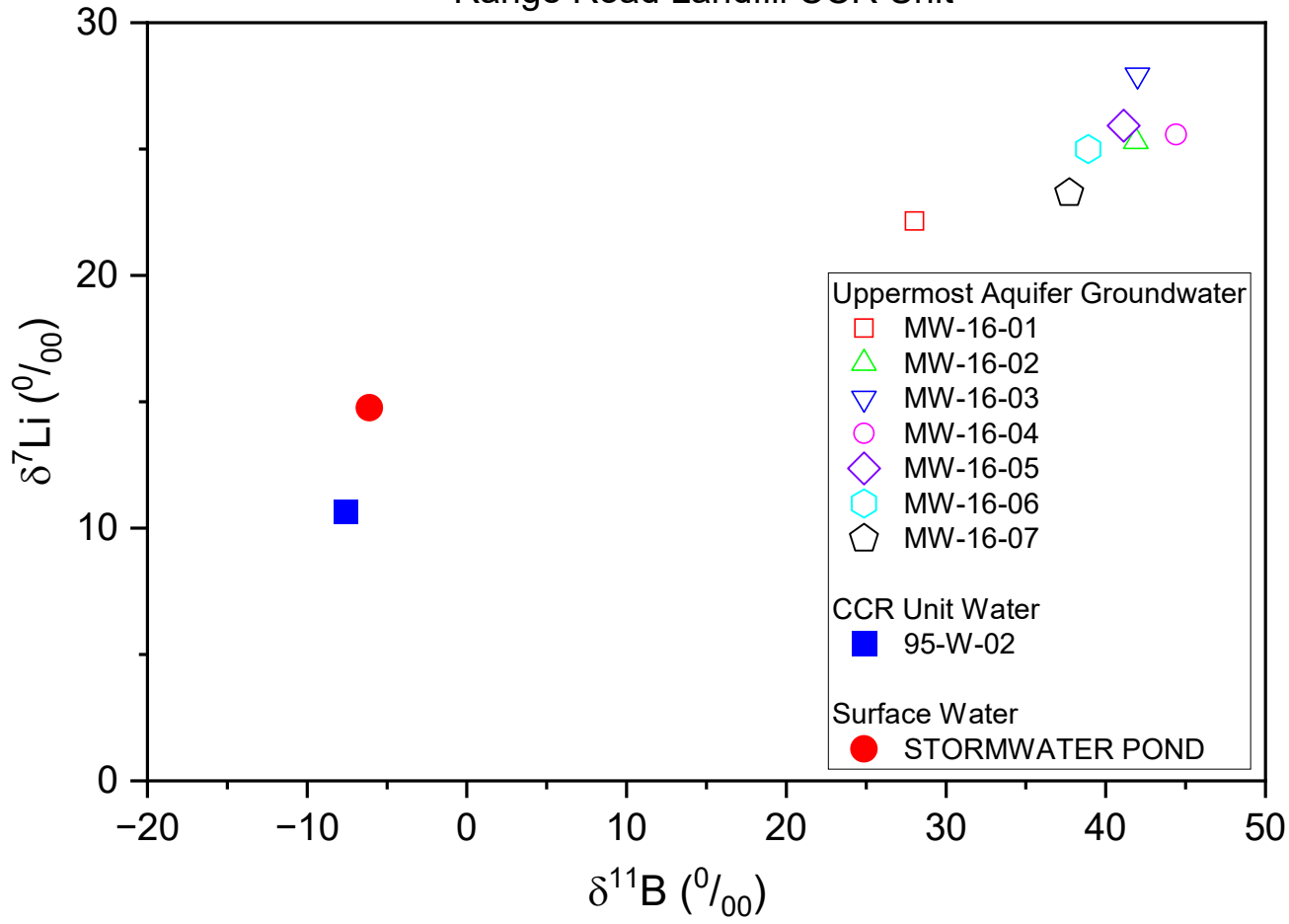


Figure 9

Summary of Lithium and Boron Isotopic and Concentration Results

August 2024

Range Road Landfill CCR Unit



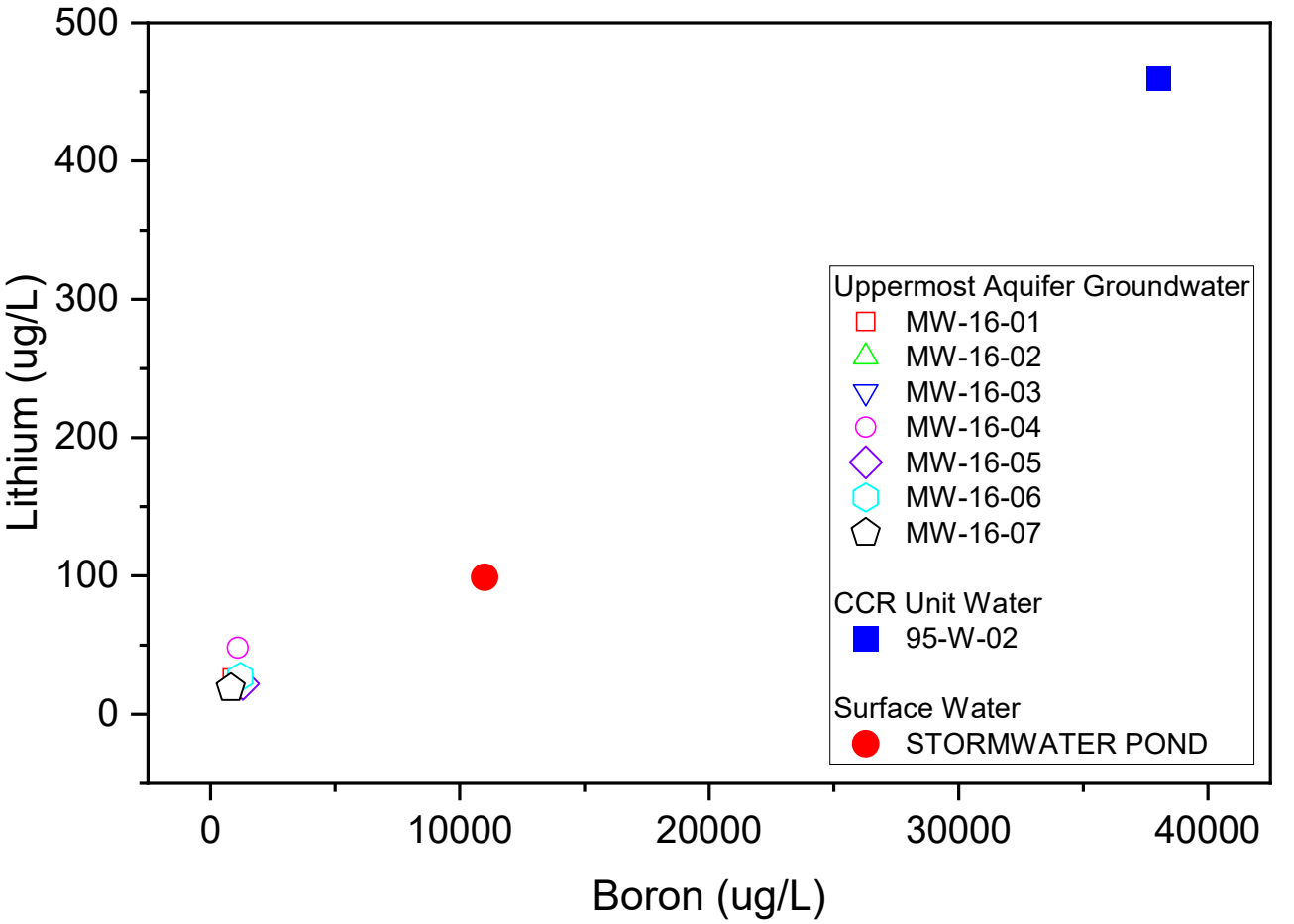
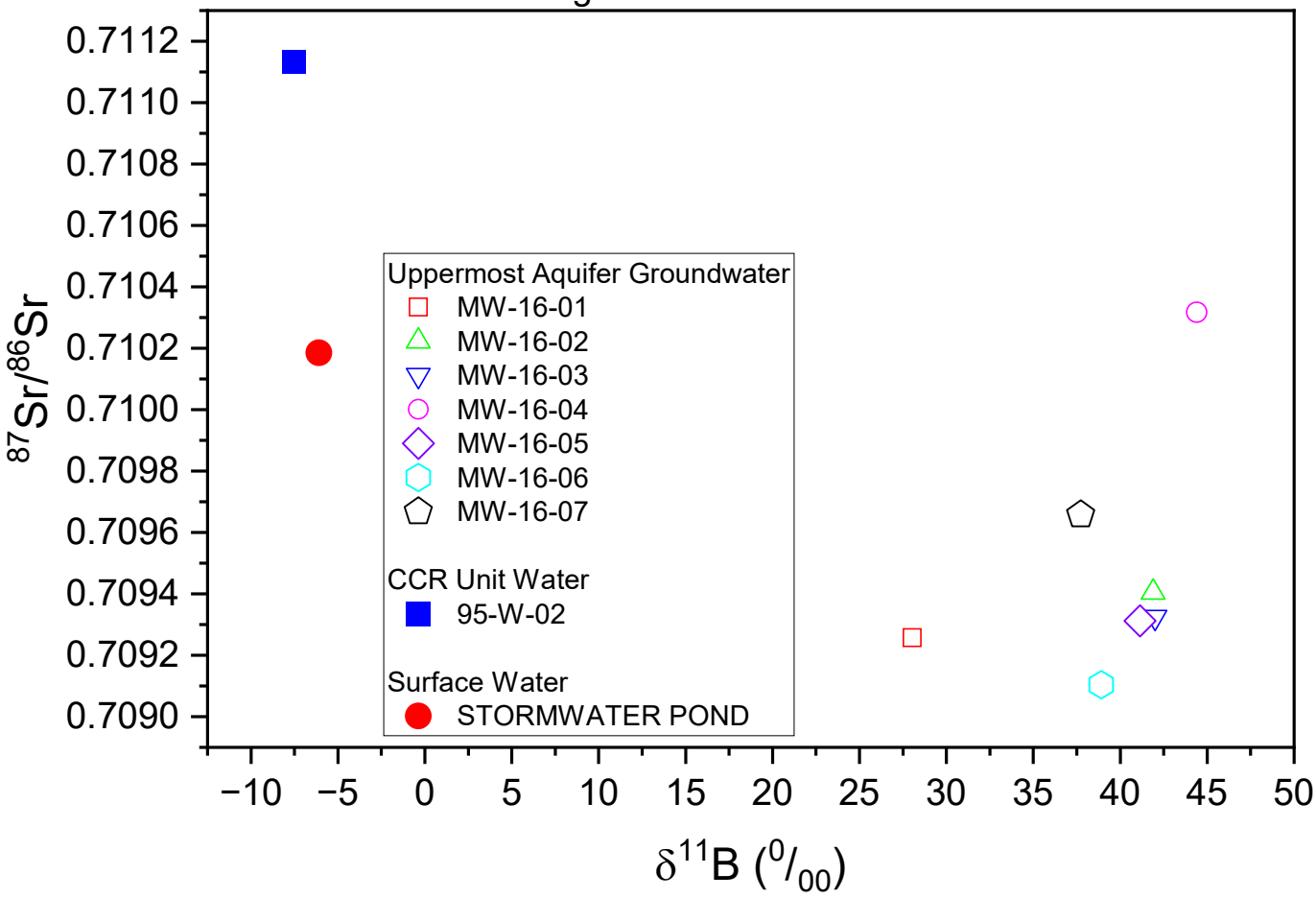


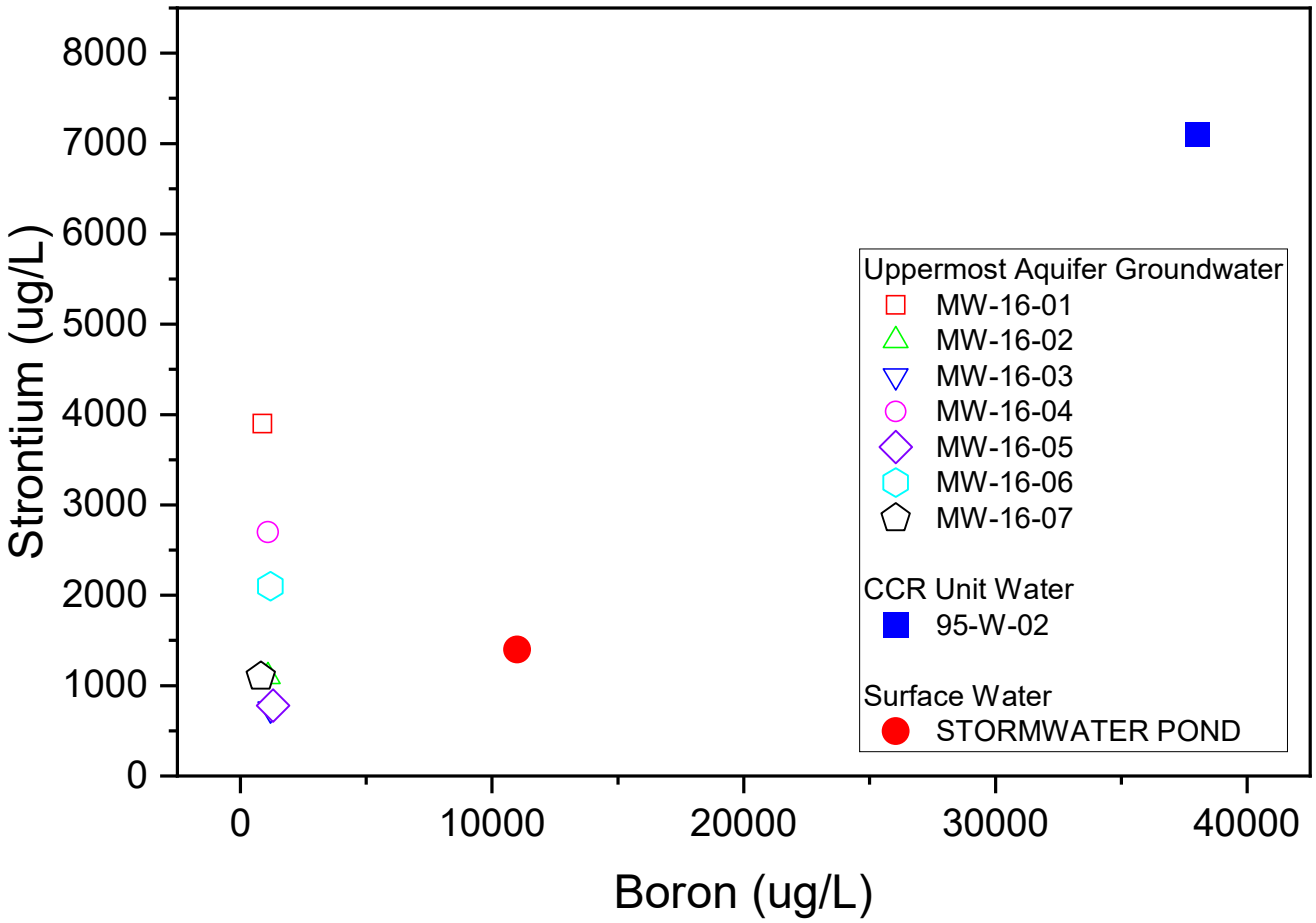
Figure 10

Summary of Strontium and Boron Isotopic and Concentration Results

August 2024

Range Road Landfill CCR Unit





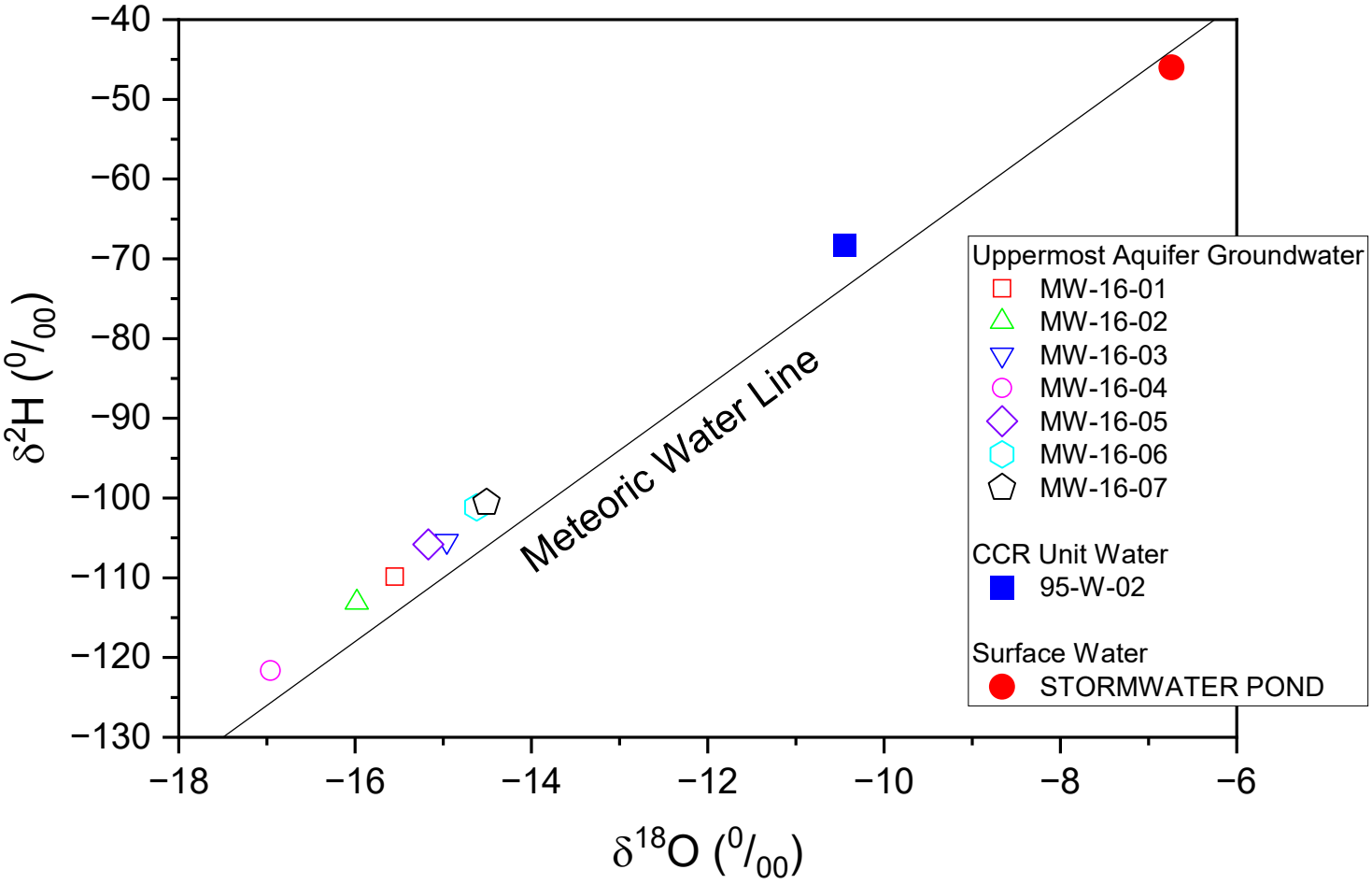


Figure 11
Summary of Hydrogen and Oxygen Isotopic Results
with Carbonate Solubility
August 2024
Range Road Landfill CCR Unit

Figure 12
Scree Plot
Range Road Landfill CCR Unit

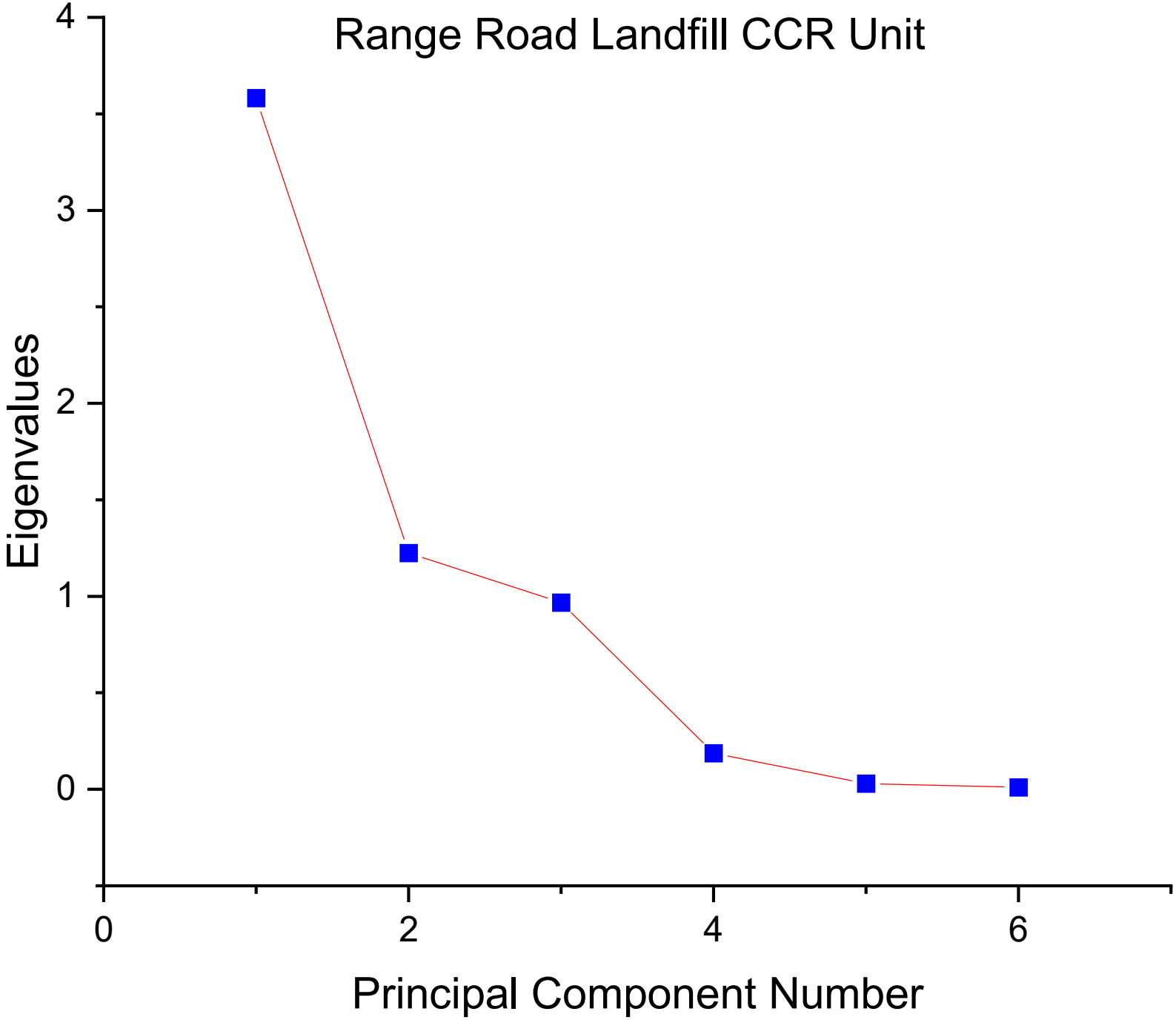


Figure 13
Biplot and 95% Confidence Area
Range Road Landfill CCR Unit

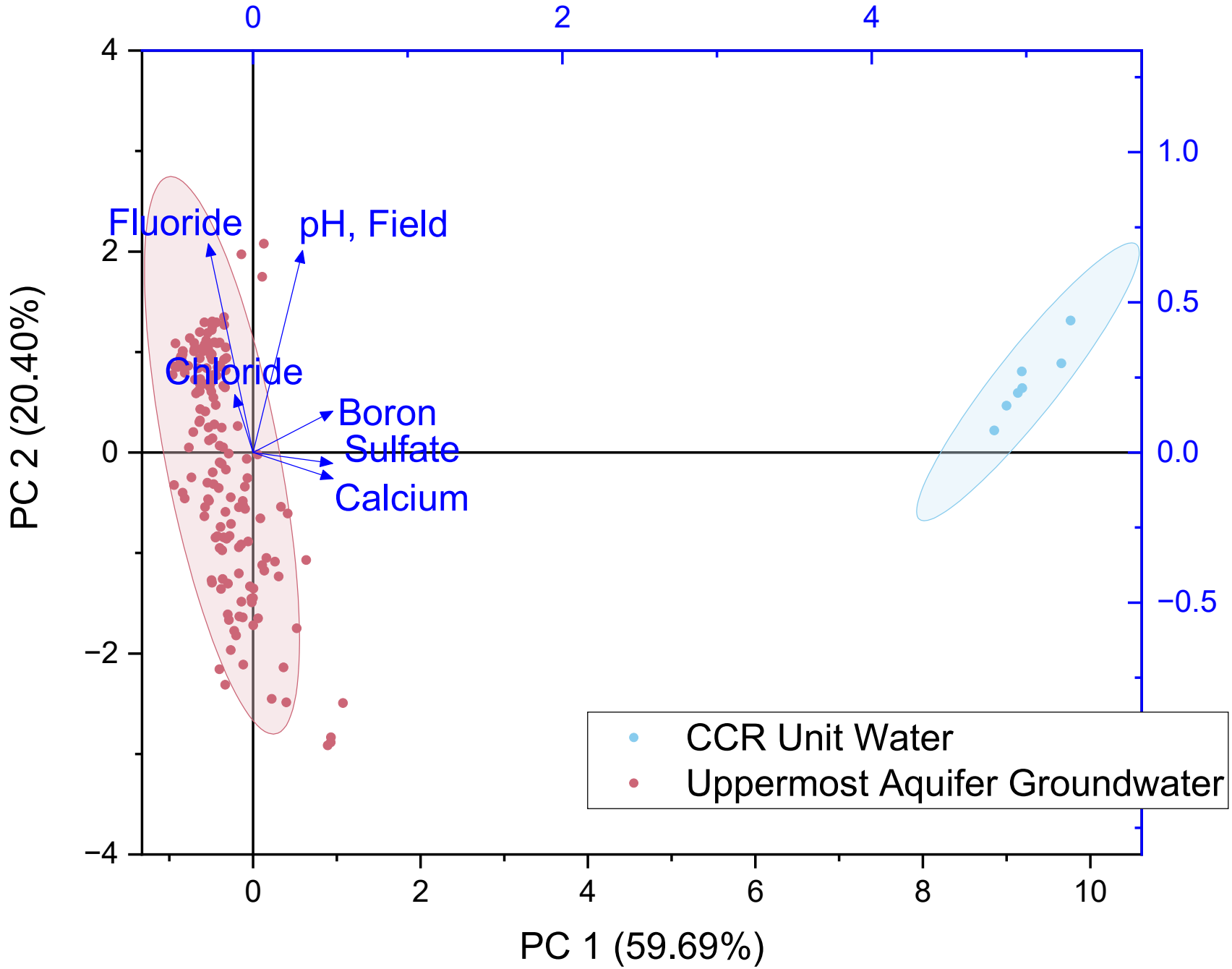


Figure 14
K-Means Clustering
Range Road Landfill CCR Unit

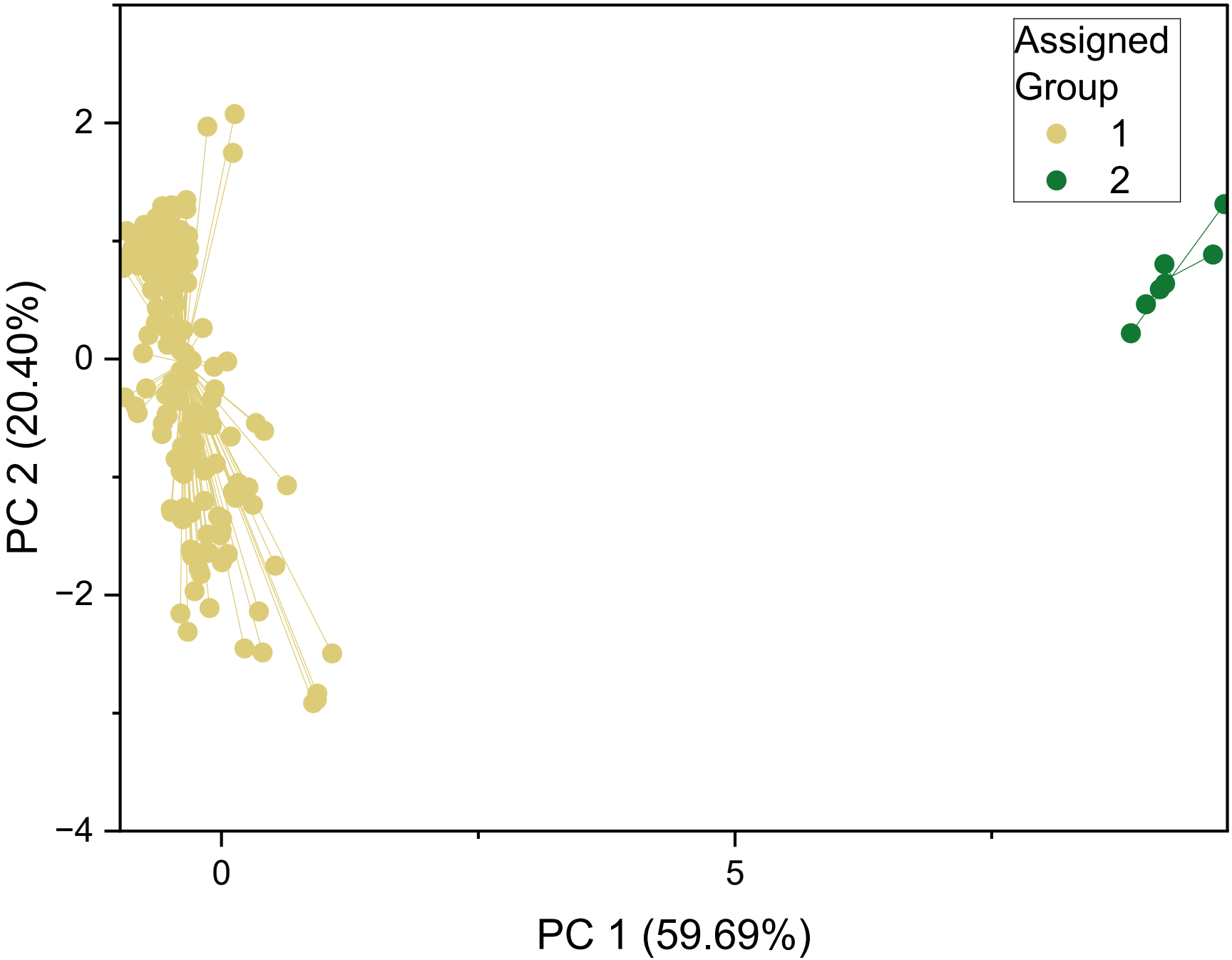
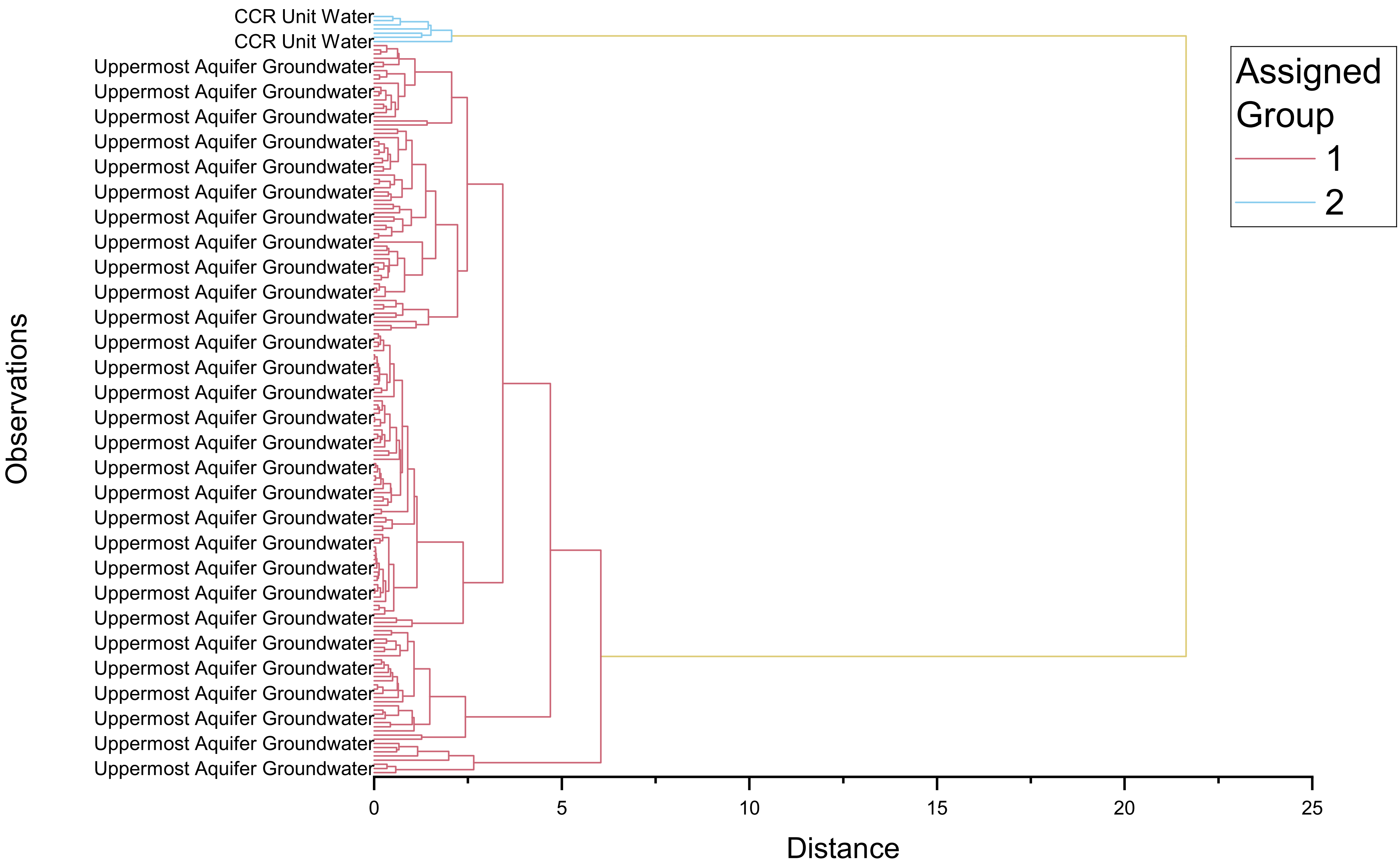


Figure 15
Dendrogram
Range Road Landfill CCR Unit



Appendix A
Laboratory Results

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 1/21/2025 7:24:49 PM Revision 1

JOB DESCRIPTION

CCR DTE Range Road Landfill-Aquifer

JOB NUMBER

240-210454-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

myEOL

Job Notes

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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.

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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: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

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: 240-210454-1 Eurofins Cleveland

Job Narrative
240-210454-1

REVISION

The report being provided is a revision of the original report sent on 9/17/2024. The report (revision 1) is being revised due to sulfate needs reported from the 10x dilution for sample 95-W-2.

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 8/31/2024 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 0.8°C.

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

General Chemistry
Method 9056A_28D: Sample result is being reworked to report the dilution. The undiluted sample reported as ND because the sulfate over saturated the column causing a peak shift, which resulted in the chrom software not identifying the peak. 95-W-2 (240-210454-8)

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: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET CLE
6020B	Metals (ICP/MS)	SW846	EET CLE
2320B-1997	Alkalinity, Total	SM	EET CLE
9056A	Anions, Ion Chromatography	SW846	EET CLE
9060A	Organic Carbon, Total (TOC)	SW846	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: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-210454-1	MW-16-01	Water	08/27/24 14:36	08/31/24 08:00
240-210454-2	MW-16-02	Water	08/28/24 08:33	08/31/24 08:00
240-210454-3	MW-16-03	Water	08/28/24 11:00	08/31/24 08:00
240-210454-4	MW-16-04	Water	08/28/24 13:53	08/31/24 08:00
240-210454-5	MW-16-05	Water	08/28/24 09:37	08/31/24 08:00
240-210454-6	MW-16-06	Water	08/28/24 15:33	08/31/24 08:00
240-210454-7	MW-16-07	Water	08/28/24 12:42	08/31/24 08:00
240-210454-8	95-W-2	Water	08/29/24 10:39	08/31/24 08:00
240-210454-9	STORMWATER POND	Water	08/29/24 11:40	08/31/24 08:00
240-210454-10	DUP-01	Water	08/29/24 00:00	08/31/24 08:00

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-01
Lab Sample ID: 240-210454-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	880		100		ug/L	1		6010D	Total Recoverable
Calcium	110000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	68000		1000		ug/L	1		6020B	Total Recoverable
Potassium	4700		1000		ug/L	1		6020B	Total Recoverable
Sodium	280000		1000		ug/L	1		6020B	Total Recoverable
Lithium	26		8.0		ug/L	1		6020B	Total Recoverable
Strontium	3900		10		ug/L	1		6020B	Total Recoverable
Alkalinity	150		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	150		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	550		5.0		mg/L	5		9056A	Total/NA
Sulfate	330		5.0		mg/L	5		9056A	Total/NA
Fluoride	0.67		0.050		mg/L	1		9056A	Total/NA
Total Organic Carbon	2.6		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	2.6		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	2.6		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	2.6		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	2.6		1.0		mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-02
Lab Sample ID: 240-210454-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	22000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	12000		1000		ug/L	1		6020B	Total Recoverable
Potassium	4200		1000		ug/L	1		6020B	Total Recoverable
Sodium	390000		1000		ug/L	1		6020B	Total Recoverable
Lithium	21		8.0		ug/L	1		6020B	Total Recoverable
Strontium	1100		10		ug/L	1		6020B	Total Recoverable
Alkalinity	160		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	160		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	630		10		mg/L	10		9056A	Total/NA
Fluoride	1.8		0.050		mg/L	1		9056A	Total/NA
Total Organic Carbon	1.1		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	1.1		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	1.1		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	1.2		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	1.2		1.0		mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-03 Lab Sample ID: 240-210454-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1200		100		ug/L	1		6010D	Total Recoverable
Calcium	20000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	8000		1000		ug/L	1		6020B	Total Recoverable
Potassium	3300		1000		ug/L	1		6020B	Total Recoverable
Sodium	370000		1000		ug/L	1		6020B	Total Recoverable
Lithium	24		8.0		ug/L	1		6020B	Total Recoverable
Strontium	740		10		ug/L	1		6020B	Total Recoverable
Alkalinity	200		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	200		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	540		5.0		mg/L	5		9056A	Total/NA
Fluoride	2.2		0.050		mg/L	1		9056A	Total/NA
Total Organic Carbon	1.7		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	1.7		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	1.7		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	1.7		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	1.7		1.0		mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-04 Lab Sample ID: 240-210454-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	63000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	43000		1000		ug/L	1		6020B	Total Recoverable
Potassium	8000		1000		ug/L	1		6020B	Total Recoverable
Sodium	1800000		10000		ug/L	10		6020B	Total Recoverable
Lithium	48		8.0		ug/L	1		6020B	Total Recoverable
Strontium	2700		10		ug/L	1		6020B	Total Recoverable
Alkalinity	91		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	91		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	3200		25		mg/L	25		9056A	Total/NA
Fluoride	1.2		0.25		mg/L	5		9056A	Total/NA
Total Organic Carbon	1.2		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	1.4		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	1.1		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	1.4		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	1.1		1.0		mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-05 Lab Sample ID: 240-210454-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1300		100		ug/L	1		6010D	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-16-05 (Continued) — Lab Sample ID: 240-210454-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Calcium	21000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	9500		1000		ug/L	1		6020B	Total Recoverable
Potassium	3200		1000		ug/L	1		6020B	Total Recoverable
Sodium	380000		1000		ug/L	1		6020B	Total Recoverable
Lithium	22		8.0		ug/L	1		6020B	Total Recoverable
Strontium	780		10		ug/L	1		6020B	Total Recoverable
Alkalinity	1600		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	1600		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	560		5.0		mg/L	5		9056A	Total/NA
Sulfate	26		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.7		0.050		mg/L	1		9056A	Total/NA
Total Organic Carbon	1.0		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	1.0		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	1.0		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	1.0		1.0		mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-06 — Lab Sample ID: 240-210454-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1200		100		ug/L	1		6010D	Total Recoverable
Calcium	59000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	32000		1000		ug/L	1		6020B	Total Recoverable
Potassium	2800		1000		ug/L	1		6020B	Total Recoverable
Sodium	320000		1000		ug/L	1		6020B	Total Recoverable
Lithium	27		8.0		ug/L	1		6020B	Total Recoverable
Strontium	2100		10		ug/L	1		6020B	Total Recoverable
Alkalinity	160		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	160		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	520		10		mg/L	10		9056A	Total/NA
Sulfate	220		10		mg/L	10		9056A	Total/NA
Fluoride	1.5		0.050		mg/L	1		9056A	Total/NA

Client Sample ID: MW-16-07 — Lab Sample ID: 240-210454-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	820		100		ug/L	1		6010D	Total Recoverable
Calcium	49000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	17000		1000		ug/L	1		6020B	Total Recoverable
Potassium	5200		1000		ug/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-16-07 (Continued) — Lab Sample ID: 240-210454-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Sodium	160000		1000		ug/L	1		6020B	Total Recoverable
Lithium	19		8.0		ug/L	1		6020B	Total Recoverable
Strontium	1100		10		ug/L	1		6020B	Total Recoverable
Alkalinity	130		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	130		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	310		5.0		mg/L	5		9056A	Total/NA
Sulfate	7.3		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.2		0.050		mg/L	1		9056A	Total/NA
Total Organic Carbon	2.0		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	2.0		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	2.1		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	2.0		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	2.0		1.0		mg/L	1		9060A	Total/NA

Client Sample ID: 95-W-2 — Lab Sample ID: 240-210454-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	38000		1000		ug/L	10		6010D	Total Recoverable
Calcium	530000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	17000		1000		ug/L	1		6020B	Total Recoverable
Potassium	60000		1000		ug/L	1		6020B	Total Recoverable
Sodium	28000		1000		ug/L	1		6020B	Total Recoverable
Lithium	460		8.0		ug/L	1		6020B	Total Recoverable
Strontium	7100		100		ug/L	10		6020B	Total Recoverable
Alkalinity	120		5.0		mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	75		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	14		1.0		mg/L	1		9056A	Total/NA
Sulfate	1600		10		mg/L	10		9056A	Total/NA
Fluoride	0.34		0.050		mg/L	1		9056A	Total/NA

Client Sample ID: STORMWATER POND — Lab Sample ID: 240-210454-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	11000		200		ug/L	2		6010D	Total Recoverable
Calcium	140000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	24000		1000		ug/L	1		6020B	Total Recoverable
Potassium	22000		1000		ug/L	1		6020B	Total Recoverable
Sodium	840000		1000		ug/L	1		6020B	Total Recoverable
Lithium	99		8.0		ug/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: STORMWATER POND (Continued) — Lab Sample ID: 240-210454-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Strontium	1400		10		ug/L	1		6020B	Total Recoverable
Alkalinity	280		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	270		5.0		mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	9.3		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	100		2.0		mg/L	2		9056A	Total/NA
Sulfate	2000		10		mg/L	10		9056A	Total/NA
Fluoride	0.55		0.10		mg/L	2		9056A	Total/NA
Total Organic Carbon	11		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	11		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	11		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	11		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	11		1.0		mg/L	1		9060A	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 240-210454-10

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1200		100		ug/L	1		6010D	Total Recoverable
Calcium	16000		1000		ug/L	1		6020B	Total Recoverable
Magnesium	6500		1000		ug/L	1		6020B	Total Recoverable
Potassium	2800		1000		ug/L	1		6020B	Total Recoverable
Sodium	290000		1000		ug/L	1		6020B	Total Recoverable
Lithium	19		8.0		ug/L	1		6020B	Total Recoverable
Strontium	590		10		ug/L	1		6020B	Total Recoverable
Alkalinity	190		5.0		mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	190		5.0		mg/L	1		2320B-1997	Total/NA
Chloride	520		10		mg/L	10		9056A	Total/NA
Fluoride	2.0		0.050		mg/L	1		9056A	Total/NA
Total Organic Carbon	1.5		1.0		mg/L	1		9060A	Total/NA
TOC Result 1	1.6		1.0		mg/L	1		9060A	Total/NA
TOC Result 2	1.5		1.0		mg/L	1		9060A	Total/NA
TOC Result 3	1.5		1.0		mg/L	1		9060A	Total/NA
TOC Result 4	1.4		1.0		mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-01
Lab Sample ID: 240-210454-1
Date Collected: 08/27/24 14:36
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	880		100		ug/L		09/03/24 14:00	09/05/24 19:27	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110000		1000		ug/L		09/03/24 14:00	09/04/24 16:51	1
Magnesium	68000		1000		ug/L		09/03/24 14:00	09/04/24 16:51	1
Potassium	4700		1000		ug/L		09/03/24 14:00	09/04/24 16:51	1
Sodium	280000		1000		ug/L		09/03/24 14:00	09/04/24 16:51	1
Lithium	26		8.0		ug/L		09/03/24 14:00	09/04/24 16:51	1
Strontium	3900		10		ug/L		09/03/24 14:00	09/04/24 16:51	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	150		5.0		mg/L			09/06/24 00:19	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	150		5.0		mg/L			09/06/24 00:19	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 00:19	1
Chloride (SW846 9056A)	550		5.0		mg/L			09/16/24 21:37	5
Sulfate (SW846 9056A)	330		5.0		mg/L			09/16/24 21:37	5
Fluoride (SW846 9056A)	0.67		0.050		mg/L			09/11/24 14:13	1
Total Organic Carbon (SW846 9060A)	2.6		1.0		mg/L			09/11/24 07:14	1
TOC Result 1 (SW846 9060A)	2.6		1.0		mg/L			09/11/24 07:14	1
TOC Result 2 (SW846 9060A)	2.6		1.0		mg/L			09/11/24 07:14	1
TOC Result 3 (SW846 9060A)	2.6		1.0		mg/L			09/11/24 07:14	1
TOC Result 4 (SW846 9060A)	2.6		1.0		mg/L			09/11/24 07:14	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-02
Lab Sample ID: 240-210454-2

Date Collected: 08/28/24 08:33
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		09/03/24 14:00	09/05/24 19:40	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22000		1000		ug/L		09/03/24 14:00	09/04/24 16:53	1
Magnesium	12000		1000		ug/L		09/03/24 14:00	09/04/24 16:53	1
Potassium	4200		1000		ug/L		09/03/24 14:00	09/04/24 16:53	1
Sodium	390000		1000		ug/L		09/03/24 14:00	09/04/24 16:53	1
Lithium	21		8.0		ug/L		09/03/24 14:00	09/04/24 16:53	1
Strontium	1100		10		ug/L		09/03/24 14:00	09/04/24 16:53	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	160		5.0		mg/L			09/06/24 00:35	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	160		5.0		mg/L			09/06/24 00:35	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 00:35	1
Chloride (SW846 9056A)	630		10		mg/L			09/11/24 15:28	10
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			09/11/24 15:10	1
Fluoride (SW846 9056A)	1.8		0.050		mg/L			09/11/24 15:10	1
Total Organic Carbon (SW846 9060A)	1.1		1.0		mg/L			09/11/24 07:38	1
TOC Result 1 (SW846 9060A)	1.1		1.0		mg/L			09/11/24 07:38	1
TOC Result 2 (SW846 9060A)	1.1		1.0		mg/L			09/11/24 07:38	1
TOC Result 3 (SW846 9060A)	1.2		1.0		mg/L			09/11/24 07:38	1
TOC Result 4 (SW846 9060A)	1.2		1.0		mg/L			09/11/24 07:38	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-03
Lab Sample ID: 240-210454-3
Date Collected: 08/28/24 11:00
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1200		100		ug/L		09/03/24 14:00	09/05/24 19:44	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	20000		1000		ug/L		09/03/24 14:00	09/04/24 16:56	1
Magnesium	8000		1000		ug/L		09/03/24 14:00	09/04/24 16:56	1
Potassium	3300		1000		ug/L		09/03/24 14:00	09/04/24 16:56	1
Sodium	370000		1000		ug/L		09/03/24 14:00	09/04/24 16:56	1
Lithium	24		8.0		ug/L		09/03/24 14:00	09/04/24 16:56	1
Strontium	740		10		ug/L		09/03/24 14:00	09/04/24 16:56	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	200		5.0		mg/L			09/06/24 03:31	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	200		5.0		mg/L			09/06/24 03:31	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 03:31	1
Chloride (SW846 9056A)	540		5.0		mg/L			09/10/24 00:45	5
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			09/10/24 00:23	1
Fluoride (SW846 9056A)	2.2		0.050		mg/L			09/10/24 00:23	1
Total Organic Carbon (SW846 9060A)	1.7		1.0		mg/L			09/11/24 08:03	1
TOC Result 1 (SW846 9060A)	1.7		1.0		mg/L			09/11/24 08:03	1
TOC Result 2 (SW846 9060A)	1.7		1.0		mg/L			09/11/24 08:03	1
TOC Result 3 (SW846 9060A)	1.7		1.0		mg/L			09/11/24 08:03	1
TOC Result 4 (SW846 9060A)	1.7		1.0		mg/L			09/11/24 08:03	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-04
Lab Sample ID: 240-210454-4

Date Collected: 08/28/24 13:53
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		09/03/24 14:00	09/05/24 19:49	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	63000		1000		ug/L		09/03/24 14:00	09/04/24 16:58	1
Magnesium	43000		1000		ug/L		09/03/24 14:00	09/04/24 16:58	1
Potassium	8000		1000		ug/L		09/03/24 14:00	09/04/24 16:58	1
Sodium	1800000		10000		ug/L		09/03/24 14:00	09/05/24 14:41	10
Lithium	48		8.0		ug/L		09/03/24 14:00	09/04/24 16:58	1
Strontium	2700		10		ug/L		09/03/24 14:00	09/04/24 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	91		5.0		mg/L			09/06/24 03:39	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	91		5.0		mg/L			09/06/24 03:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 03:39	1
Chloride (SW846 9056A)	3200		25		mg/L			09/11/24 16:04	25
Sulfate (SW846 9056A)	5.0	U	5.0		mg/L			09/11/24 15:46	5
Fluoride (SW846 9056A)	1.2		0.25		mg/L			09/11/24 15:46	5
Total Organic Carbon (SW846 9060A)	1.2		1.0		mg/L			09/11/24 08:28	1
TOC Result 1 (SW846 9060A)	1.4		1.0		mg/L			09/11/24 08:28	1
TOC Result 2 (SW846 9060A)	1.1		1.0		mg/L			09/11/24 08:28	1
TOC Result 3 (SW846 9060A)	1.4		1.0		mg/L			09/11/24 08:28	1
TOC Result 4 (SW846 9060A)	1.1		1.0		mg/L			09/11/24 08:28	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-05
Lab Sample ID: 240-210454-5

Date Collected: 08/28/24 09:37
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300		100		ug/L		09/03/24 14:00	09/05/24 19:53	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	21000		1000		ug/L		09/03/24 14:00	09/04/24 17:01	1
Magnesium	9500		1000		ug/L		09/03/24 14:00	09/04/24 17:01	1
Potassium	3200		1000		ug/L		09/03/24 14:00	09/04/24 17:01	1
Sodium	380000		1000		ug/L		09/03/24 14:00	09/04/24 17:01	1
Lithium	22		8.0		ug/L		09/03/24 14:00	09/04/24 17:01	1
Strontium	780		10		ug/L		09/03/24 14:00	09/04/24 17:01	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	1600		5.0		mg/L			09/05/24 22:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	1600		5.0		mg/L			09/05/24 22:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/05/24 22:55	1
Chloride (SW846 9056A)	560		5.0		mg/L			09/16/24 21:58	5
Sulfate (SW846 9056A)	26		1.0		mg/L			09/11/24 16:22	1
Fluoride (SW846 9056A)	1.7		0.050		mg/L			09/11/24 16:22	1
Total Organic Carbon (SW846 9060A)	1.0		1.0		mg/L			09/11/24 08:52	1
TOC Result 1 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 08:52	1
TOC Result 2 (SW846 9060A)	1.0		1.0		mg/L			09/11/24 08:52	1
TOC Result 3 (SW846 9060A)	1.0		1.0		mg/L			09/11/24 08:52	1
TOC Result 4 (SW846 9060A)	1.0		1.0		mg/L			09/11/24 08:52	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-06
Lab Sample ID: 240-210454-6

Date Collected: 08/28/24 15:33
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1200**		100		ug/L		09/03/24 14:00	09/05/24 19:57	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**59000**		1000		ug/L		09/03/24 14:00	09/04/24 17:03	1
Magnesium	**32000**		1000		ug/L		09/03/24 14:00	09/04/24 17:03	1
Potassium	**2800**		1000		ug/L		09/03/24 14:00	09/04/24 17:03	1
Sodium	**320000**		1000		ug/L		09/03/24 14:00	09/04/24 17:03	1
Lithium	**27**		8.0		ug/L		09/03/24 14:00	09/04/24 17:03	1
Strontium	**2100**		10		ug/L		09/03/24 14:00	09/04/24 17:03	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	**160**		5.0		mg/L			09/06/24 03:19	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	**160**		5.0		mg/L			09/06/24 03:19	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 03:19	1
Chloride (SW846 9056A)	**520**		10		mg/L			09/10/24 02:12	10
Sulfate (SW846 9056A)	**220**		10		mg/L			09/10/24 02:12	10
Fluoride (SW846 9056A)	**1.5**		0.050		mg/L			09/10/24 01:50	1
Total Organic Carbon (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 09:17	1
TOC Result 1 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 09:17	1
TOC Result 2 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 09:17	1
TOC Result 3 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 09:17	1
TOC Result 4 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 09:17	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-07
Lab Sample ID: 240-210454-7

Date Collected: 08/28/24 12:42
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	820		100		ug/L		09/03/24 14:00	09/05/24 20:01	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	49000		1000		ug/L		09/03/24 14:00	09/04/24 17:06	1
Magnesium	17000		1000		ug/L		09/03/24 14:00	09/04/24 17:06	1
Potassium	5200		1000		ug/L		09/03/24 14:00	09/04/24 17:06	1
Sodium	160000		1000		ug/L		09/03/24 14:00	09/04/24 17:06	1
Lithium	19		8.0		ug/L		09/03/24 14:00	09/04/24 17:06	1
Strontium	1100		10		ug/L		09/03/24 14:00	09/04/24 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	130		5.0		mg/L			09/06/24 00:53	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	130		5.0		mg/L			09/06/24 00:53	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 00:53	1
Chloride (SW846 9056A)	310		5.0		mg/L			09/10/24 01:28	5
Sulfate (SW846 9056A)	7.3		1.0		mg/L			09/10/24 01:06	1
Fluoride (SW846 9056A)	1.2		0.050		mg/L			09/10/24 01:06	1
Total Organic Carbon (SW846 9060A)	2.0		1.0		mg/L			09/10/24 23:36	1
TOC Result 1 (SW846 9060A)	2.0		1.0		mg/L			09/10/24 23:36	1
TOC Result 2 (SW846 9060A)	2.1		1.0		mg/L			09/10/24 23:36	1
TOC Result 3 (SW846 9060A)	2.0		1.0		mg/L			09/10/24 23:36	1
TOC Result 4 (SW846 9060A)	2.0		1.0		mg/L			09/10/24 23:36	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: 95-W-2
Lab Sample ID: 240-210454-8
Date Collected: 08/29/24 10:39
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	38000		1000		ug/L		09/03/24 14:00	09/06/24 15:49	10

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	530000		1000		ug/L		09/03/24 14:00	09/04/24 17:08	1
Magnesium	17000		1000		ug/L		09/03/24 14:00	09/04/24 17:08	1
Potassium	60000		1000		ug/L		09/03/24 14:00	09/04/24 17:08	1
Sodium	28000		1000		ug/L		09/03/24 14:00	09/04/24 17:08	1
Lithium	460		8.0		ug/L		09/03/24 14:00	09/04/24 17:08	1
Strontium	7100		100		ug/L		09/03/24 14:00	09/05/24 14:43	10

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	120		5.0		mg/L			09/06/24 00:46	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 00:46	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	75		5.0		mg/L			09/06/24 00:46	1
Chloride (SW846 9056A)	14		1.0		mg/L			09/10/24 02:33	1
Sulfate (SW846 9056A)	1600		10		mg/L			09/10/24 02:55	10
Fluoride (SW846 9056A)	0.34		0.050		mg/L			09/10/24 02:33	1
Total Organic Carbon (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 12:32	1
TOC Result 1 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 12:32	1
TOC Result 2 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 12:32	1
TOC Result 3 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 12:32	1
TOC Result 4 (SW846 9060A)	1.0	U	1.0		mg/L			09/11/24 12:32	1

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: STORMWATER POND
Lab Sample ID: 240-210454-9
Date Collected: 08/29/24 11:40
Matrix: Water
Date Received: 08/31/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	11000		200		ug/L		09/03/24 14:00	09/06/24 15:53	2

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	140000		1000		ug/L		09/03/24 14:00	09/04/24 17:11	1
Magnesium	24000		1000		ug/L		09/03/24 14:00	09/04/24 17:11	1
Potassium	22000		1000		ug/L		09/03/24 14:00	09/04/24 17:11	1
Sodium	840000		1000		ug/L		09/03/24 14:00	09/04/24 17:11	1
Lithium	99		8.0		ug/L		09/03/24 14:00	09/04/24 17:11	1
Strontium	1400		10		ug/L		09/03/24 14:00	09/04/24 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	280		5.0		mg/L			09/06/24 00:24	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	270		5.0		mg/L			09/06/24 00:24	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	9.3		5.0		mg/L			09/06/24 00:24	1
Chloride (SW846 9056A)	100		2.0		mg/L			09/11/24 23:35	2
Sulfate (SW846 9056A)	2000		10		mg/L			09/11/24 23:53	10
Fluoride (SW846 9056A)	0.55		0.10		mg/L			09/11/24 23:35	2
Total Organic Carbon (SW846 9060A)	11		1.0		mg/L			09/11/24 12:56	1
TOC Result 1 (SW846 9060A)	11		1.0		mg/L			09/11/24 12:56	1
TOC Result 2 (SW846 9060A)	11		1.0		mg/L			09/11/24 12:56	1
TOC Result 3 (SW846 9060A)	11		1.0		mg/L			09/11/24 12:56	1
TOC Result 4 (SW846 9060A)	11		1.0		mg/L			09/11/24 12:56	1

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: DUP-01
Date Collected: 08/29/24 00:00
Date Received: 08/31/24 08:00

Lab Sample ID: 240-210454-10
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1200		100		ug/L		09/03/24 14:00	09/05/24 20:14	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	16000		1000		ug/L		09/03/24 14:00	09/04/24 17:13	1
Magnesium	6500		1000		ug/L		09/03/24 14:00	09/04/24 17:13	1
Potassium	2800		1000		ug/L		09/03/24 14:00	09/04/24 17:13	1
Sodium	290000		1000		ug/L		09/03/24 14:00	09/04/24 17:13	1
Lithium	19		8.0		ug/L		09/03/24 14:00	09/04/24 17:13	1
Strontium	590		10		ug/L		09/03/24 14:00	09/04/24 17:13	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	190		5.0		mg/L			09/06/24 00:29	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	190		5.0		mg/L			09/06/24 00:29	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0		mg/L			09/06/24 00:29	1
Chloride (SW846 9056A)	520		10		mg/L			09/12/24 00:29	10
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			09/12/24 00:11	1
Fluoride (SW846 9056A)	2.0		0.050		mg/L			09/12/24 00:11	1
Total Organic Carbon (SW846 9060A)	1.5		1.0		mg/L			09/11/24 13:21	1
TOC Result 1 (SW846 9060A)	1.6		1.0		mg/L			09/11/24 13:21	1
TOC Result 2 (SW846 9060A)	1.5		1.0		mg/L			09/11/24 13:21	1
TOC Result 3 (SW846 9060A)	1.5		1.0		mg/L			09/11/24 13:21	1
TOC Result 4 (SW846 9060A)	1.4		1.0		mg/L			09/11/24 13:21	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Range Road Landfill-Aquifer

Job ID: 240-210454-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-625554/1-A
Matrix: Water
Analysis Batch: 625997

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 625554

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100		ug/L		09/03/24 14:00	09/05/24 18:37	1

Lab Sample ID: LCS 240-625554/2-A
Matrix: Water
Analysis Batch: 625997

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 625554

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron			1000	1080		ug/L		108	80 - 120		

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 240-625554/1-A
Matrix: Water
Analysis Batch: 625910

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 625554

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		09/03/24 14:00	09/04/24 16:22	1
Magnesium	1000	U	1000		ug/L		09/03/24 14:00	09/04/24 16:22	1
Potassium	1000	U	1000		ug/L		09/03/24 14:00	09/04/24 16:22	1
Sodium	1000	U	1000		ug/L		09/03/24 14:00	09/04/24 16:22	1
Lithium	8.0	U	8.0		ug/L		09/03/24 14:00	09/04/24 16:22	1
Strontium	10	U	10		ug/L		09/03/24 14:00	09/04/24 16:22	1

Lab Sample ID: LCS 240-625554/3-A
Matrix: Water
Analysis Batch: 625910

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 625554

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			25000	25800		ug/L		103	80 - 120		
Magnesium			25000	24900		ug/L		100	80 - 120		
Potassium			25000	25800		ug/L		103	80 - 120		
Sodium			25000	25500		ug/L		102	80 - 120		
Lithium			500	467		ug/L		93	80 - 120		
Strontium			500	527		ug/L		105	80 - 120		

Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: MB 240-626212/30
Matrix: Water
Analysis Batch: 626212

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			09/05/24 21:33	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/05/24 21:33	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/05/24 21:33	1

Method: 2320B-1997 - Alkalinity, Total (Continued)

Lab Sample ID: MB 240-626212/4
Matrix: Water
Analysis Batch: 626212

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			09/05/24 19:19	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/05/24 19:19	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/05/24 19:19	1

Lab Sample ID: MB 240-626212/56
Matrix: Water
Analysis Batch: 626212

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			09/05/24 23:51	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/05/24 23:51	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/05/24 23:51	1

Lab Sample ID: MB 240-626212/83
Matrix: Water
Analysis Batch: 626212

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			09/06/24 02:05	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/06/24 02:05	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0		mg/L			09/06/24 02:05	1

Lab Sample ID: LCS 240-626212/29
Matrix: Water
Analysis Batch: 626212

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			280	274		mg/L		98	86 - 123		

Lab Sample ID: LCS 240-626212/55
Matrix: Water
Analysis Batch: 626212

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			280	271		mg/L		97	86 - 123		

Lab Sample ID: LCS 240-626212/82
Matrix: Water
Analysis Batch: 626212

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			280	279		mg/L		100	86 - 123		

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-626129/3
Matrix: Water
Analysis Batch: 626129

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			09/09/24 15:41	1
Sulfate	1.0	U	1.0		mg/L			09/09/24 15:41	1
Fluoride	0.050	U	0.050		mg/L			09/09/24 15:41	1

Lab Sample ID: LCS 240-626129/4
Matrix: Water
Analysis Batch: 626129

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	50.4		mg/L		101	90 - 110		
Sulfate			50.0	51.6		mg/L		103	90 - 110		
Fluoride			2.50	2.64		mg/L		105	90 - 110		

Lab Sample ID: MB 240-626332/3
Matrix: Water
Analysis Batch: 626332

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			09/10/24 15:02	1
Sulfate	1.0	U	1.0		mg/L			09/10/24 15:02	1
Fluoride	0.050	U	0.050		mg/L			09/10/24 15:02	1

Lab Sample ID: LCS 240-626332/4
Matrix: Water
Analysis Batch: 626332

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	49.0		mg/L		98	90 - 110		
Sulfate			50.0	49.0		mg/L		98	90 - 110		
Fluoride			2.50	2.39		mg/L		96	90 - 110		

Lab Sample ID: MB 240-626347/3
Matrix: Water
Analysis Batch: 626347

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			09/11/24 22:58	1
Sulfate	1.0	U	1.0		mg/L			09/11/24 22:58	1
Fluoride	0.050	U	0.050		mg/L			09/11/24 22:58	1

Lab Sample ID: LCS 240-626347/4
Matrix: Water
Analysis Batch: 626347

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	49.2		mg/L		98	90 - 110		
Sulfate			50.0	49.2		mg/L		98	90 - 110		
Fluoride			2.50	2.41		mg/L		96	90 - 110		

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

Lab Sample ID: MB 240-627213/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 627213

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			09/16/24 16:54	1
Sulfate	1.0	U	1.0		mg/L			09/16/24 16:54	1
Fluoride	0.050	U	0.050		mg/L			09/16/24 16:54	1

Lab Sample ID: LCS 240-627213/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 627213

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			50.0	49.2		mg/L		98	90 - 110		
Sulfate			50.0	51.5		mg/L		103	90 - 110		
Fluoride			2.50	2.54		mg/L		102	90 - 110		

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 240-626670/38 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 626670

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			09/11/24 10:29	1
TOC Result 1	1.0	U	1.0		mg/L			09/11/24 10:29	1
TOC Result 2	1.0	U	1.0		mg/L			09/11/24 10:29	1
TOC Result 3	1.0	U	1.0		mg/L			09/11/24 10:29	1
TOC Result 4	1.0	U	1.0		mg/L			09/11/24 10:29	1

Lab Sample ID: MB 240-626670/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 626670

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			09/10/24 21:10	1
TOC Result 1	1.0	U	1.0		mg/L			09/10/24 21:10	1
TOC Result 2	1.0	U	1.0		mg/L			09/10/24 21:10	1
TOC Result 3	1.0	U	1.0		mg/L			09/10/24 21:10	1
TOC Result 4	1.0	U	1.0		mg/L			09/10/24 21:10	1

Lab Sample ID: LCS 240-626670/21 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 626670

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon			16.3	16.3		mg/L		100	85 - 115		
TOC Result 1			16.3	16.2		mg/L		99	85 - 115		
TOC Result 2			16.3	16.4		mg/L		101	85 - 115		
TOC Result 3			16.3	16.1		mg/L		99	85 - 115		
TOC Result 4			16.3	16.6		mg/L		102	85 - 115		

Client: TRC Environmental Corporation.
Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 240-626670/39
Matrix: Water
Analysis Batch: 626670

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	16.3	16.4		mg/L		101	85 - 115
TOC Result 1	16.3	16.1		mg/L		99	85 - 115
TOC Result 2	16.3	16.6		mg/L		102	85 - 115
TOC Result 3	16.3	16.2		mg/L		100	85 - 115
TOC Result 4	16.3	16.7		mg/L		102	85 - 115

Lab Sample ID: LCS 240-626670/6
Matrix: Water
Analysis Batch: 626670

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	16.3	16.5		mg/L		102	85 - 115
TOC Result 1	16.3	16.4		mg/L		101	85 - 115
TOC Result 2	16.3	16.6		mg/L		102	85 - 115
TOC Result 3	16.3	16.3		mg/L		100	85 - 115
TOC Result 4	16.3	16.8		mg/L		103	85 - 115

Metals

Prep Batch: 625554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total Recoverable	Water	3005A	
240-210454-2	MW-16-02	Total Recoverable	Water	3005A	
240-210454-3	MW-16-03	Total Recoverable	Water	3005A	
240-210454-4	MW-16-04	Total Recoverable	Water	3005A	
240-210454-5	MW-16-05	Total Recoverable	Water	3005A	
240-210454-6	MW-16-06	Total Recoverable	Water	3005A	
240-210454-7	MW-16-07	Total Recoverable	Water	3005A	
240-210454-8	95-W-2	Total Recoverable	Water	3005A	
240-210454-9	STORMWATER POND	Total Recoverable	Water	3005A	
240-210454-10	DUP-01	Total Recoverable	Water	3005A	
MB 240-625554/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-625554/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-625554/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 625910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total Recoverable	Water	6020B	625554
240-210454-2	MW-16-02	Total Recoverable	Water	6020B	625554
240-210454-3	MW-16-03	Total Recoverable	Water	6020B	625554
240-210454-4	MW-16-04	Total Recoverable	Water	6020B	625554
240-210454-5	MW-16-05	Total Recoverable	Water	6020B	625554
240-210454-6	MW-16-06	Total Recoverable	Water	6020B	625554
240-210454-7	MW-16-07	Total Recoverable	Water	6020B	625554
240-210454-8	95-W-2	Total Recoverable	Water	6020B	625554
240-210454-9	STORMWATER POND	Total Recoverable	Water	6020B	625554
240-210454-10	DUP-01	Total Recoverable	Water	6020B	625554
MB 240-625554/1-A	Method Blank	Total Recoverable	Water	6020B	625554
LCS 240-625554/3-A	Lab Control Sample	Total Recoverable	Water	6020B	625554

Analysis Batch: 625997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total Recoverable	Water	6010D	625554
240-210454-2	MW-16-02	Total Recoverable	Water	6010D	625554
240-210454-3	MW-16-03	Total Recoverable	Water	6010D	625554
240-210454-4	MW-16-04	Total Recoverable	Water	6010D	625554
240-210454-5	MW-16-05	Total Recoverable	Water	6010D	625554
240-210454-6	MW-16-06	Total Recoverable	Water	6010D	625554
240-210454-7	MW-16-07	Total Recoverable	Water	6010D	625554
240-210454-10	DUP-01	Total Recoverable	Water	6010D	625554
MB 240-625554/1-A	Method Blank	Total Recoverable	Water	6010D	625554
LCS 240-625554/2-A	Lab Control Sample	Total Recoverable	Water	6010D	625554

Analysis Batch: 626042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-4	MW-16-04	Total Recoverable	Water	6020B	625554
240-210454-8	95-W-2	Total Recoverable	Water	6020B	625554

Analysis Batch: 626156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-8	95-W-2	Total Recoverable	Water	6010D	625554
240-210454-9	STORMWATER POND	Total Recoverable	Water	6010D	625554

General Chemistry

Analysis Batch: 626129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-3	MW-16-03	Total/NA	Water	9056A	
240-210454-3	MW-16-03	Total/NA	Water	9056A	
240-210454-6	MW-16-06	Total/NA	Water	9056A	
240-210454-6	MW-16-06	Total/NA	Water	9056A	
240-210454-7	MW-16-07	Total/NA	Water	9056A	
240-210454-7	MW-16-07	Total/NA	Water	9056A	
240-210454-8	95-W-2	Total/NA	Water	9056A	
240-210454-8	95-W-2	Total/NA	Water	9056A	
MB 240-626129/3	Method Blank	Total/NA	Water	9056A	
LCS 240-626129/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 626212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total/NA	Water	2320B-1997	
240-210454-2	MW-16-02	Total/NA	Water	2320B-1997	
240-210454-3	MW-16-03	Total/NA	Water	2320B-1997	
240-210454-4	MW-16-04	Total/NA	Water	2320B-1997	
240-210454-5	MW-16-05	Total/NA	Water	2320B-1997	
240-210454-6	MW-16-06	Total/NA	Water	2320B-1997	
240-210454-7	MW-16-07	Total/NA	Water	2320B-1997	
240-210454-8	95-W-2	Total/NA	Water	2320B-1997	
240-210454-9	STORMWATER POND	Total/NA	Water	2320B-1997	
240-210454-10	DUP-01	Total/NA	Water	2320B-1997	
MB 240-626212/30	Method Blank	Total/NA	Water	2320B-1997	
MB 240-626212/4	Method Blank	Total/NA	Water	2320B-1997	
MB 240-626212/56	Method Blank	Total/NA	Water	2320B-1997	
MB 240-626212/83	Method Blank	Total/NA	Water	2320B-1997	
LCS 240-626212/29	Lab Control Sample	Total/NA	Water	2320B-1997	
LCS 240-626212/55	Lab Control Sample	Total/NA	Water	2320B-1997	
LCS 240-626212/82	Lab Control Sample	Total/NA	Water	2320B-1997	

Analysis Batch: 626332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total/NA	Water	9056A	
240-210454-2	MW-16-02	Total/NA	Water	9056A	
240-210454-2	MW-16-02	Total/NA	Water	9056A	
240-210454-4	MW-16-04	Total/NA	Water	9056A	
240-210454-4	MW-16-04	Total/NA	Water	9056A	
240-210454-5	MW-16-05	Total/NA	Water	9056A	
MB 240-626332/3	Method Blank	Total/NA	Water	9056A	
LCS 240-626332/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 626347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-9	STORMWATER POND	Total/NA	Water	9056A	
240-210454-9	STORMWATER POND	Total/NA	Water	9056A	
240-210454-10	DUP-01	Total/NA	Water	9056A	
240-210454-10	DUP-01	Total/NA	Water	9056A	
MB 240-626347/3	Method Blank	Total/NA	Water	9056A	
LCS 240-626347/4	Lab Control Sample	Total/NA	Water	9056A	

QC Association Summary

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

General Chemistry

Analysis Batch: 626670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total/NA	Water	9060A	
240-210454-2	MW-16-02	Total/NA	Water	9060A	
240-210454-3	MW-16-03	Total/NA	Water	9060A	
240-210454-4	MW-16-04	Total/NA	Water	9060A	
240-210454-5	MW-16-05	Total/NA	Water	9060A	
240-210454-6	MW-16-06	Total/NA	Water	9060A	
240-210454-7	MW-16-07	Total/NA	Water	9060A	
240-210454-8	95-W-2	Total/NA	Water	9060A	
240-210454-9	STORMWATER POND	Total/NA	Water	9060A	
240-210454-10	DUP-01	Total/NA	Water	9060A	
MB 240-626670/38	Method Blank	Total/NA	Water	9060A	
MB 240-626670/5	Method Blank	Total/NA	Water	9060A	
LCS 240-626670/21	Lab Control Sample	Total/NA	Water	9060A	
LCS 240-626670/39	Lab Control Sample	Total/NA	Water	9060A	
LCS 240-626670/6	Lab Control Sample	Total/NA	Water	9060A	

Analysis Batch: 627213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-210454-1	MW-16-01	Total/NA	Water	9056A	
240-210454-5	MW-16-05	Total/NA	Water	9056A	
MB 240-627213/4	Method Blank	Total/NA	Water	9056A	
LCS 240-627213/5	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-01 — Lab Sample ID: 240-210454-1

Date Collected: 08/27/24 14:36 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 19:27
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 16:51
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 00:19
Total/NA	Analysis	9056A		5	627213	JMR	EET CLE	09/16/24 21:37
Total/NA	Analysis	9056A		1	626332	JMR	EET CLE	09/11/24 14:13
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 07:14

Client Sample ID: MW-16-02 — Lab Sample ID: 240-210454-2

Date Collected: 08/28/24 08:33 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 19:40
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 16:53
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 00:35
Total/NA	Analysis	9056A		1	626332	JMR	EET CLE	09/11/24 15:10
Total/NA	Analysis	9056A		10	626332	JMR	EET CLE	09/11/24 15:28
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 07:38

Client Sample ID: MW-16-03 — Lab Sample ID: 240-210454-3

Date Collected: 08/28/24 11:00 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 19:44
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 16:56
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 03:31
Total/NA	Analysis	9056A		1	626129	JMR	EET CLE	09/10/24 00:23
Total/NA	Analysis	9056A		5	626129	JMR	EET CLE	09/10/24 00:45
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 08:03

Client Sample ID: MW-16-04 — Lab Sample ID: 240-210454-4

Date Collected: 08/28/24 13:53 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 19:49

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-04 — Lab Sample ID: 240-210454-4

Date Collected: 08/28/24 13:53 — **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 16:58
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		10	626042	AJC	EET CLE	09/05/24 14:41
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 03:39
Total/NA	Analysis	9056A		5	626332	JMR	EET CLE	09/11/24 15:46
Total/NA	Analysis	9056A		25	626332	JMR	EET CLE	09/11/24 16:04
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 08:28

Client Sample ID: MW-16-05 — Lab Sample ID: 240-210454-5

Date Collected: 08/28/24 09:37 — **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 19:53
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 17:01
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/05/24 22:55
Total/NA	Analysis	9056A		5	627213	JMR	EET CLE	09/16/24 21:58
Total/NA	Analysis	9056A		1	626332	JMR	EET CLE	09/11/24 16:22
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 08:52

Client Sample ID: MW-16-06 — Lab Sample ID: 240-210454-6

Date Collected: 08/28/24 15:33 — **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 19:57
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 17:03
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 03:19
Total/NA	Analysis	9056A		1	626129	JMR	EET CLE	09/10/24 01:50
Total/NA	Analysis	9056A		10	626129	JMR	EET CLE	09/10/24 02:12
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 09:17

Client Sample ID: MW-16-07 — Lab Sample ID: 240-210454-7

Date Collected: 08/28/24 12:42 — **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 20:01

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: MW-16-07 — Lab Sample ID: 240-210454-7

Date Collected: 08/28/24 12:42 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 17:06
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 00:53
Total/NA	Analysis	9056A		1	626129	JMR	EET CLE	09/10/24 01:06
Total/NA	Analysis	9056A		5	626129	JMR	EET CLE	09/10/24 01:28
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/10/24 23:36

Client Sample ID: 95-W-2 — Lab Sample ID: 240-210454-8

Date Collected: 08/29/24 10:39 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		10	626156	RKT	EET CLE	09/06/24 15:49
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 17:08
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		10	626042	AJC	EET CLE	09/05/24 14:43
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 00:46
Total/NA	Analysis	9056A		1	626129	JMR	EET CLE	09/10/24 02:33
Total/NA	Analysis	9056A		10	626129	JMR	EET CLE	09/10/24 02:55
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 12:32

Client Sample ID: STORMWATER POND — Lab Sample ID: 240-210454-9

Date Collected: 08/29/24 11:40 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		2	626156	RKT	EET CLE	09/06/24 15:53
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 17:11
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 00:24
Total/NA	Analysis	9056A		2	626347	JMR	EET CLE	09/11/24 23:35
Total/NA	Analysis	9056A		10	626347	JMR	EET CLE	09/11/24 23:53
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 12:56

Client Sample ID: DUP-01 — Lab Sample ID: 240-210454-10

Date Collected: 08/29/24 00:00 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6010D		1	625997	RKT	EET CLE	09/05/24 20:14

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

Client Sample ID: DUP-01 Lab Sample ID: 240-210454-10

Date Collected: 08/29/24 00:00 **Matrix: Water**
Date Received: 08/31/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			625554	BN	EET CLE	09/03/24 14:00
Total Recoverable	Analysis	6020B		1	625910	AJC	EET CLE	09/04/24 17:13
Total/NA	Analysis	2320B-1997		1	626212	JMR	EET CLE	09/06/24 00:29
Total/NA	Analysis	9056A		1	626347	JMR	EET CLE	09/12/24 00:11
Total/NA	Analysis	9056A		10	626347	JMR	EET CLE	09/12/24 00:29
Total/NA	Analysis	9060A		1	626670	JWW	EET CLE	09/11/24 13:21

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: 240-210454-1
Project/Site: CCR DTE Range Road Landfill-Aquifer

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	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	11-14-24
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-17-24

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone (330) 497-9396 Phone (330) 497-0772

9/10/24

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing

Client Information	Sampler: Jacob Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-123683-43133.1
Client Contact: Mr. Vincent Buening	Phone: 734-395-9804	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 #: 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE Range Road Landfill-Aquifer	Project #: 24016807			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:
D - HNO3
N - None
S - H2SO4

240-210454 Chain of Custody

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)	6010D Bo, 6020B Ca,Mg,Na,K,Li,Sr	9056A_28D - Chloride, Sulfate	9060A ~~TOC~~ TOC	2320B - Carb, BiCarb, Total Alkalinity	Total Number of Containers	Special Instructions/Note:
Preservation Code:							D	N	S	N		
MW-16-01	8-27-24	1436	G	Water	N	N	X	X	X	X	5	
MW-16-02	8-28-24	0833	G	Water	N	N	X	X	X	X	5	
MW-16-03	8-28-24	1100	G	Water	N	N	X	X	X	X	5	
MW-16-04	8-28-24	1353	G	Water	N	N	X	X	X	X	5	
MW-16-05	8-29-24	0937	G	Water	N	N	X	X	X	X	5	
MW-16-06	8-28-24	1533	G	Water	N	N	X	X	X	X	5	
MW-16-07	8-28-24	1242	G	Water	N	N	X	X	X	X	5	
95-W-2	8-29-24	1039	G	Water	N	N	X	X	X	X	5	
Stormwater Pond	8-29-24	1140	G	Water	N	N	X	X	X	X	5	
DUP-01	8-28-24	—	G	Water	N	N	X	X	X	X	5	
				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
1		8-30-24 1004	TRC		8/30/24 10:07am	EETA
2		8/30/24 1009	EETA	JESSICA RIGDON	8-31-24 0800	EETNC
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:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # : 210454**
Barberton Facility

Client TRC Site Name

Cooler unpacked by: JESSICA RIGDON

Cooler Received on 8-31-24 Opened on 8-31-24

FedEx: 1st Grd Exp UPS FAS (Waypoint) Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # BC 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 # 21 (CF +0.2 °C) Observed Cooler Temp 0.6 °C Corrected Cooler Temp. 0.8 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No	**Tests that are not checked for pH by Receiving.**
-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)	**VOAs**
-Were tamper/custody seals intact and uncompromised?	(Yes) No NA	**Oil and Grease**
3 Shippers' packing slip attached to the cooler(s)?	Yes (No)	**TOC**
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# HC442471
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)	

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.

8/31/2024

Login Container Summary Report

240-210454

1/21/2025 (Rev. 1)

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-16-01-01	240-210454-A-1	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-01	240-210454-B-1	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-01	240-210454-C-1	Plastic 60 mL - unpreserved				
MW-16-01-01	240-210454-D-1	Plastic 60 mL - unpreserved				
MW-16-01-01	240-210454-E-1	Plastic 500ml - with Nitric Acid	<2			
MW-16-01-02	240-210454-A-2	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-02	240-210454-B-2	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-02	240-210454-C-2	Plastic 60 mL - unpreserved				
MW-16-01-02	240-210454-D-2	Plastic 60 mL - unpreserved				
MW-16-01-02	240-210454-E-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-01-03	240-210454-A-3	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-03	240-210454-B-3	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-03	240-210454-C-3	Plastic 60 mL - unpreserved				
MW-16-01-03	240-210454-D-3	Plastic 60 mL - unpreserved				
MW-16-01-03	240-210454-E-3	Plastic 500ml - with Nitric Acid	<2			
MW-16-01-04	240-210454-A-4	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-04	240-210454-B-4	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-04	240-210454-C-4	Plastic 60 mL - unpreserved				
MW-16-01-04	240-210454-D-4	Plastic 60 mL - unpreserved				
MW-16-01-04	240-210454-E-4	Plastic 500ml - with Nitric Acid	<2			
MW-16-01-05	240-210454-A-5	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-05	240-210454-B-5	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-05	240-210454-C-5	Plastic 60 mL - unpreserved				
MW-16-01-05	240-210454-D-5	Plastic 60 mL - unpreserved				
MW-16-01-05	240-210454-E-5	Plastic 500ml - with Nitric Acid	<2			
MW-16-01-06	240-210454-A-6	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-06	240-210454-B-6	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-06	240-210454-C-6	Plastic 60 mL - unpreserved				
MW-16-01-06	240-210454-D-6	Plastic 60 mL - unpreserved				
MW-16-01-06	240-210454-E-6	Plastic 500ml - with Nitric Acid	<2			
MW-16-01-07	240-210454-A-7	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-07	240-210454-B-7	Voa Vial 40ml - with Sulfuric Acid				
MW-16-01-07	240-210454-C-7	Plastic 60 mL - unpreserved				
MW-16-01-07	240-210454-D-7	Plastic 60 mL - unpreserved				
MW-16-01-07	240-210454-E-7	Plastic 500ml - with Nitric Acid	<2			

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
95-W-2	240-210454-A-8	Voa Vial 40ml - with Sulfuric Acid				
95-W-2	240-210454-B-8	Voa Vial 40ml - with Sulfuric Acid				
95-W-2	240-210454-C-8	Plastic 60 mL - unpreserved				
95-W-2	240-210454-D-8	Plastic 60 mL - unpreserved				
95-W-2	240-210454-E-8	Plastic 500ml - with Nitric Acid	<2			
STORMWATER POND	240-210454-A-9	Voa Vial 40ml - with Sulfuric Acid				
STORMWATER POND	240-210454-B-9	Voa Vial 40ml - with Sulfuric Acid				
STORMWATER POND	240-210454-C-9	Plastic 60 mL - unpreserved				
STORMWATER POND	240-210454-D-9	Plastic 60 mL - unpreserved				
STORMWATER POND	240-210454-E-9	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-210454-A-10	Voa Vial 40ml - with Sulfuric Acid				
DUP-01	240-210454-B-10	Voa Vial 40ml - with Sulfuric Acid				
DUP-01	240-210454-C-10	Plastic 60 mL - unpreserved				
DUP-01	240-210454-D-10	Plastic 60 mL - unpreserved				
DUP-01	240-210454-E-10	Plastic 500ml - with Nitric Acid	<2			

ANALYSIS REPORT

Issued by: ALS Scandinavia Luleå, Aurorum 10, SE-977 75 LULEÅ, Sweden
Client: TRC, USA
Date of receipt: 2024-09-06
Date of analysis: 2024-09-17
Order number(our): LE2415365
Your reference: Vincent Buening
Our reference: Cora Paulukat

Lab number(our	Sample name	δ7Li, ‰	2SD, ‰	δ11B, ‰	2SD, ‰	$^{87}Sr/^{86}Sr$	2 SD
LE2415365-001	MW-16-01	22.15	0.57	28.04	0.52	0.709257	0.000056
LE2415365-002	MW-16-02	25.30	0.59	41.90	0.70	0.709405	0.000052
LE2415365-003	MW-16-03	27.92	0.52	42.00	0.54	0.709324	0.000069
LE2415365-004	MW-16-04	25.58	0.76	44.40	0.56	0.710317	0.000060
LE2415365-004	MW-16-04, r.2	25.25	1.26	44.39	0.70	0.710322	0.000054
LE2415365-005	MW-16-05	25.92	0.65	41.13	0.51	0.709312	0.000043
LE2415365-006	MW-16-06	25.00	0.53	38.91	0.54	0.709104	0.000063
LE2415365-007	MW-16-07	23.26	0.55	37.73	0.69	0.709658	0.000053
LE2415365-008	95-W-2	10.65	0.52	-7.56	0.56	0.711132	0.000065
LE2415365-008	95-W-2, r.2	10.31	0.50	-7.70	0.62	0.711135	0.000070
LE2415365-009	Stormwater Pond	14.76	0.59	-6.09	0.65	0.710185	0.000053
LE2415365-010	DUP-01	26.95	0.67	41.93	0.53	0.709411	0.000048

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
Boron delta values calculated to NIST SRM 951 RM
Li delta value calculated against LSVEC NIST 8545 RM
SD calculated from two independent consequintive measurements

Signature

Cora Paulukat
Chemist
ALS Scandinavia AB

Client:Buening/TRC

PO#:220773

ISO# 2024537
Location: C3
10 for 18O, 2H

Environmental Isotope Lab
2024-09-16

#	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	2024-08-27	537565	X	-15.55	-15.55	X	-109.86	-110.30	250ml	7.25	1635	
2	MW-16-02	2024-08-28	537566	X	-15.98		X	-113.09		250ml	8.02	1576	
3	MW-16-03	2024-08-28	537567	X	-14.96		X	-105.41		250ml	7.95	1417	
4	MW-16-04	2024-08-28	537568	X	-16.96		X	-121.63		250ml	8.01	6724	
5	MW-16-05	2024-08-29	537569	X	-15.17		X	-105.81		250ml	8.00	1429	
6	MW-16-06	2024-08-28	537570	X	-14.62	-14.60	X	-101.16	-101.36	250ml	7.73	1488	
7	MW-16-07	2024-08-28	537571	X	-14.51		X	-100.56		250ml	7.53	864	
8	95-W-2	2024-08-29	537572	X	-10.45		X	-68.25		250ml	9.33	1719	
9	Stormwater Pond	2024-08-29	537573	X	-6.74		X	-46.00		250ml	8.43	3870	
10	DUP-01	2024-08-28	537574	X	-14.96	-15.04	X	-104.46	-104.95	250ml	7.95	1417	

BAL= Below Analytical Limit
NA= Not Attempted (concentrations too low)
NES= Not Enough Sample
ND= Non-detect

ENVIRONMENTAL ISOTOPE 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

November 11, 2024

TRITIUM LABORATORY

Data Release #24-090
Job # 4448

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 https://tritium.earth.miami.edu/.

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
Recvd : 24/09/04
Job# : 4448
Final : 24/11/07

DTE: Range Road Landfill

Purchase Order: 220771
Contact: Vince Buening, 734-904-3302
1540 Eisenhower Place
Ann Arbor, MI 48108

Cust	LABEL INFO	JOB.SX	REFDATE	QUANT	ELYS	TU	eTU
MW-16-01		4448.01	240827	1000	275	0.73	0.09
MW-16-02		4448.02	240828	1000	275	0.08	0.09
MW-16-03		4448.03	240828	1000	275	0.15	0.09
MW-16-04		4448.04	240828	1000	275	0.12	0.09
MW-16-05		4448.05	240829	1000	275	0.03	0.09
MW-16-06		4448.06	240828	1000	275	0.14	0.09
MW-16-07		4448.07	240828	1000	275	2.13	0.09
95-W-2		4448.08	240829	1000	275	7.20	0.24
STORMWATER POND		4448.09	240829	1000	275	12.5	0.4
DUP-01		4448.10	240828	1000	275	0.04	0.09

Appendix B
Summary of Statistical Comparisons

Appendix B
Statistical Analysis
Range Road Landfill
China Township, Michigan

$\delta^{7}Li$

t-Test: Two-Sample Assuming Equal Variances

	Aquifer	*CCR Unit Water*
Mean	25.26	10.48
Variance	3.458714286	0.0578
Observations	8	2
Pooled Variance	3.0336	
Hypothesized Mean Difference	0	
df	8	
t Stat	10.73384371	
P(T<=t) one-tail	2.49535E-06	
t Critical one-tail	2.896459448	
P(T<=t) two-tail	4.99069E-06	
t Critical two-tail	3.355387331	

t-Test: Two-Sample Assuming Unequal Variances

	Aquifer	*CCR Unit Water*
Mean	25.26	10.48
Variance	3.458714286	0.0578
Observations	8	2
Hypothesized Mean Difference	0	
df	8	
t Stat	21.7626255	
P(T<=t) one-tail	1.04787E-08	
t Critical one-tail	2.896459448	
P(T<=t) two-tail	2.09573E-08	
t Critical two-tail	3.355387331	

$\delta^{11}B$

t-Test: Two-Sample Assuming Equal Variances

	Aquifer	*CCR Unit Water*
Mean	39.505	-7.63
Variance	25.62774286	0.0098
Observations	8	2
Pooled Variance	22.4255	
Hypothesized Mean Difference	0	
df	8	
t Stat	12.59019438	
P(T<=t) one-tail	7.42877E-07	
t Critical one-tail	2.896459448	
P(T<=t) two-tail	1.48575E-06	
t Critical two-tail	3.355387331	

t-Test: Two-Sample Assuming Unequal Variances

	Aquifer	*CCR Unit Water*
Mean	39.505	-7.63
Variance	25.62774286	0.0098
Observations	8	2
Hypothesized Mean Difference	0	
df	7	
t Stat	26.31488237	
P(T<=t) one-tail	1.46468E-08	
t Critical one-tail	2.997951567	
P(T<=t) two-tail	2.92937E-08	
t Critical two-tail	3.499483297	

Appendix B
Statistical Analysis
Range Road Landfill
China Township, Michigan

$^{87}Sr/^{86}Sr$

t-Test: Two-Sample Assuming Equal Variances

	Aquifer	*CCR Unit Water*
Mean	0.7094735	0.7111335
Variance	1.40852E-07	4.5E-12
Observations	8	2
Pooled Variance	1.23246E-07	
Hypothesized Mean Difference	0	
df	8	
t Stat	-5.981100671	
P(T<=t) one-tail	0.000165142	
t Critical one-tail	2.896459448	
P(T<=t) two-tail	0.000330284	
t Critical two-tail	3.355387331	

t-Test: Two-Sample Assuming Unequal Variances

	Aquifer	*CCR Unit Water*
Mean	0.7094735	0.7111335
Variance	1.40852E-07	4.5E-12
Observations	8	2
Hypothesized Mean Difference	0	
df	7	
t Stat	-12.50959887	
P(T<=t) one-tail	2.40375E-06	
t Critical one-tail	2.997951567	
P(T<=t) two-tail	4.80751E-06	
t Critical two-tail	3.499483297	

$\delta^{2}H$

t-Test: One-Sample

	Aquifer
Mean	-107.7475
Standard Deviation	6.97761267
Observations	8
Hypothesized Mean	-68.25
df	7
t Stat	-16.01060501
t Critical two-tail	3.499483297

$\delta^{18}O$

t-Test: One-Sample

	Aquifer
Mean	-15.33875
Standard Deviation	0.810915488
Observations	8
Hypothesized Mean	-10.45
df	7
t Stat	-17.05168209
t Critical two-tail	3.499483297

Appendix C
Laboratory Analytical and Field Data

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 5/1/2024 10:32:59 PM

JOB DESCRIPTION

CCR DTE RRLF HMP Uppermost Aquifer

JOB NUMBER

240-203326-1

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

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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: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
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: 240-203326-1 Eurofins Cleveland

Job Narrative
240-203326-1

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

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

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

Receipt
The samples were received on 4/25/2024 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
Method 6010D - Total Recoverable: The continuing calibration verification (CCV) associated with batch 240-611057 recovered above the upper control limit for boron. The samples associated with this CCV were below the reporting limit for the affected analytes; therefore, the data have been reported. The associated sample is impacted: EB-01 (240-203326-1).

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

General Chemistry
Method 9056A_28D: The following sample was diluted due to the nature of the sample matrix: MW-16-04 (240-203326-4). Elevated reporting limits (RLs) are provided.

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

Method Summary

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

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: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-203326-1	EB-01	Water	04/22/24 10:12	04/25/24 08:00
240-203326-2	MW-16-06	Water	04/22/24 12:53	04/25/24 08:00
240-203326-3	MW-16-03	Water	04/22/24 14:45	04/25/24 08:00
240-203326-4	MW-16-04	Water	04/23/24 09:12	04/25/24 08:00
240-203326-5	MW-16-02	Water	04/23/24 09:56	04/25/24 08:00
240-203326-6	DUP-01	Water	04/23/24 00:00	04/25/24 08:00
240-203326-7	MW-16-05	Water	04/23/24 11:04	04/25/24 08:00
240-203326-8	MW-16-01	Water	04/23/24 11:39	04/25/24 08:00
240-203326-9	MW-16-07	Water	04/23/24 12:42	04/25/24 08:00

Detection Summary

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: EB-01 Lab Sample ID: 240-203326-1

No Detections.

Client Sample ID: MW-16-06 Lab Sample ID: 240-203326-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	61000		1000		ug/L	1		6020B	Total Recoverable
Iron	580		100		ug/L	1		6020B	Total Recoverable
Chloride	480		10		mg/L	10		9056A	Total/NA
Fluoride	1.4		0.050		mg/L	1		9056A	Total/NA
Sulfate	230		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1200		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-03 Lab Sample ID: 240-203326-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1200		100		ug/L	1		6010D	Total Recoverable
Calcium	20000		1000		ug/L	1		6020B	Total Recoverable
Iron	420		100		ug/L	1		6020B	Total Recoverable
Chloride	520		5.0		mg/L	5		9056A	Total/NA
Fluoride	2.2		0.050		mg/L	1		9056A	Total/NA
Total Dissolved Solids	1000		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-04 Lab Sample ID: 240-203326-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	68000		1000		ug/L	1		6020B	Total Recoverable
Iron	1400		100		ug/L	1		6020B	Total Recoverable
Chloride	3300		25		mg/L	25		9056A	Total/NA
Fluoride	1.6		0.25		mg/L	5		9056A	Total/NA
Total Dissolved Solids	4900		50		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-02 Lab Sample ID: 240-203326-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	23000		1000		ug/L	1		6020B	Total Recoverable
Iron	630		100		ug/L	1		6020B	Total Recoverable
Chloride	690		10		mg/L	10		9056A	Total/NA
Fluoride	2.0		0.050		mg/L	1		9056A	Total/NA
Total Dissolved Solids	1100		20		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: DUP-01 — Lab Sample ID: 240-203326-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	22000		1000		ug/L	1		6020B	Total Recoverable
Iron	630		100		ug/L	1		6020B	Total Recoverable
Chloride	690		10		mg/L	10		9056A	Total/NA
Fluoride	2.0		0.050		mg/L	1		9056A	Total/NA
Total Dissolved Solids	1100		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-05 — Lab Sample ID: 240-203326-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1300		100		ug/L	1		6010D	Total Recoverable
Calcium	29000		1000		ug/L	1		6020B	Total Recoverable
Iron	180		100		ug/L	1		6020B	Total Recoverable
Chloride	560		10		mg/L	10		9056A	Total/NA
Fluoride	1.8		0.050		mg/L	1		9056A	Total/NA
Sulfate	78		1.0		mg/L	1		9056A	Total/NA
Total Dissolved Solids	1300		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-01 — Lab Sample ID: 240-203326-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	140000		1000		ug/L	1		6020B	Total Recoverable
Iron	1500		100		ug/L	1		6020B	Total Recoverable
Chloride	420		10		mg/L	10		9056A	Total/NA
Fluoride	0.69		0.050		mg/L	1		9056A	Total/NA
Sulfate	630		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1700		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-07 — Lab Sample ID: 240-203326-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	700		100		ug/L	1		6010D	Total Recoverable
Calcium	48000		1000		ug/L	1		6020B	Total Recoverable
Iron	4300		100		ug/L	1		6020B	Total Recoverable
Chloride	260		5.0		mg/L	5		9056A	Total/NA
Fluoride	1.1		0.050		mg/L	1		9056A	Total/NA
Sulfate	11		1.0		mg/L	1		9056A	Total/NA
Total Dissolved Solids	580		10		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: EB-01
Lab Sample ID: 240-203326-1
Date Collected: 04/22/24 10:12
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U ^+	100		ug/L		04/25/24 14:00	04/26/24 20:07	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		04/25/24 14:00	04/26/24 20:57	1
Iron	100	U	100		ug/L		04/25/24 14:00	04/26/24 20:57	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	1.0	U	1.0		mg/L			04/27/24 09:58	1
Fluoride (SW846 9056A)	0.050	U	0.050		mg/L			04/27/24 09:58	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			04/27/24 09:58	1
Total Dissolved Solids (SM 2540C)	10	U	10		mg/L			04/29/24 09:38	1

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-06 **Lab Sample ID: 240-203326-2**
Date Collected: 04/22/24 12:53 **Matrix: Water**
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		04/25/24 14:00	04/30/24 10:50	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	61000		1000		ug/L		04/25/24 14:00	04/26/24 21:00	1
Iron	580		100		ug/L		04/25/24 14:00	04/26/24 21:00	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	480		10		mg/L			04/27/24 16:00	10
Fluoride (SW846 9056A)	1.4		0.050		mg/L			04/27/24 15:40	1
Sulfate (SW846 9056A)	230		10		mg/L			04/27/24 16:00	10
Total Dissolved Solids (SM 2540C)	1200		20		mg/L			04/29/24 09:38	1

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-03
Lab Sample ID: 240-203326-3
Date Collected: 04/22/24 14:45
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1200		100		ug/L		04/25/24 14:00	04/30/24 10:54	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	20000		1000		ug/L		04/25/24 14:00	04/26/24 21:02	1
Iron	420		100		ug/L		04/25/24 14:00	04/26/24 21:02	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	520		5.0		mg/L			04/27/24 11:58	5
Fluoride (SW846 9056A)	2.2		0.050		mg/L			04/27/24 11:38	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			04/27/24 11:38	1
Total Dissolved Solids (SM 2540C)	1000		20		mg/L			04/29/24 09:38	1

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-04
Lab Sample ID: 240-203326-4
Date Collected: 04/23/24 09:12
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		04/25/24 14:00	04/30/24 10:59	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	68000		1000		ug/L		04/25/24 14:00	04/26/24 21:10	1
Iron	1400		100		ug/L		04/25/24 14:00	04/26/24 21:10	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	3300		25		mg/L			04/27/24 20:42	25
Fluoride (SW846 9056A)	1.6		0.25		mg/L			04/27/24 20:22	5
Sulfate (SW846 9056A)	5.0	U	5.0		mg/L			04/27/24 20:22	5
Total Dissolved Solids (SM 2540C)	4900		50		mg/L			04/29/24 09:38	1

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-02
Lab Sample ID: 240-203326-5
Date Collected: 04/23/24 09:56
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		04/25/24 14:00	04/30/24 11:03	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	23000		1000		ug/L		04/25/24 14:00	04/26/24 21:12	1
Iron	630		100		ug/L		04/25/24 14:00	04/26/24 21:12	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	690		10		mg/L			04/27/24 18:01	10
Fluoride (SW846 9056A)	2.0		0.050		mg/L			04/27/24 17:41	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			04/27/24 17:41	1
Total Dissolved Solids (SM 2540C)	1100		20		mg/L			04/29/24 11:14	1

Client Sample ID: DUP-01 **Lab Sample ID: 240-203326-6**
Date Collected: 04/23/24 00:00 **Matrix: Water**
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		04/25/24 14:00	04/30/24 11:08	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22000		1000		ug/L		04/25/24 14:00	04/26/24 21:15	1
Iron	630		100		ug/L		04/25/24 14:00	04/26/24 21:15	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	690		10		mg/L			04/27/24 19:22	10
Fluoride (SW846 9056A)	2.0		0.050		mg/L			04/27/24 18:21	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			04/27/24 18:21	1
Total Dissolved Solids (SM 2540C)	1100		20		mg/L			04/29/24 11:14	1

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-05
Lab Sample ID: 240-203326-7
Date Collected: 04/23/24 11:04
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300		100		ug/L		04/25/24 14:00	04/30/24 11:12	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	29000		1000		ug/L		04/25/24 14:00	04/26/24 21:17	1
Iron	180		100		ug/L		04/25/24 14:00	04/26/24 21:17	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	560		10		mg/L			04/27/24 16:40	10
Fluoride (SW846 9056A)	1.8		0.050		mg/L			04/27/24 16:20	1
Sulfate (SW846 9056A)	78		1.0		mg/L			04/27/24 16:20	1
Total Dissolved Solids (SM 2540C)	1300		20		mg/L			04/29/24 09:38	1

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-01
Lab Sample ID: 240-203326-8
Date Collected: 04/23/24 11:39
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		04/25/24 14:00	04/30/24 11:16	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	140000		1000		ug/L		04/25/24 14:00	04/26/24 21:19	1
Iron	1500		100		ug/L		04/25/24 14:00	04/26/24 21:19	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	420		10		mg/L			04/27/24 17:21	10
Fluoride (SW846 9056A)	0.69		0.050		mg/L			04/27/24 17:01	1
Sulfate (SW846 9056A)	630		10		mg/L			04/27/24 17:21	10
Total Dissolved Solids (SM 2540C)	1700		20		mg/L			04/29/24 11:14	1

Client: TRC Environmental Corporation.
Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-07
Lab Sample ID: 240-203326-9
Date Collected: 04/23/24 12:42
Matrix: Water
Date Received: 04/25/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	700		100		ug/L		04/25/24 14:00	04/30/24 11:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	48000		1000		ug/L		04/25/24 14:00	04/26/24 21:22	1
Iron	4300		100		ug/L		04/25/24 14:00	04/26/24 21:22	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	260		5.0		mg/L			04/27/24 15:20	5
Fluoride (SW846 9056A)	1.1		0.050		mg/L			04/27/24 14:19	1
Sulfate (SW846 9056A)	11		1.0		mg/L			04/27/24 14:19	1
Total Dissolved Solids (SM 2540C)	580		10		mg/L			04/29/24 11:14	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-610816/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 611396 — **Prep Batch: 610816**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100		ug/L		04/25/24 14:00	04/30/24 09:58	1

Lab Sample ID: LCS 240-610816/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 611396 — **Prep Batch: 610816**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron			1000	1010		ug/L		101	80 - 120		

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 240-610816/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 611067 — **Prep Batch: 610816**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		04/25/24 14:00	04/26/24 20:45	1
Iron	100	U	100		ug/L		04/25/24 14:00	04/26/24 20:45	1

Lab Sample ID: LCS 240-610816/24-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 611067 — **Prep Batch: 610816**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			25000	24200		ug/L		97	80 - 120		
Iron			5000	4730		ug/L		95	80 - 120		

Lab Sample ID: 240-203326-9 MS — **Client Sample ID: MW-16-07**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 611067 — **Prep Batch: 610816**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	48000		25000	71900		ug/L		95	80 - 120		
Iron	4300		5000	9630		ug/L		106	80 - 120		

Lab Sample ID: 240-203326-9 MSD — **Client Sample ID: MW-16-07**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 611067 — **Prep Batch: 610816**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	48000		25000	71900		ug/L		96	80 - 120	0	20
Iron	4300		5000	9490		ug/L		103	80 - 120	1	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-611008/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611008

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			04/27/24 03:15	1
Fluoride	0.050	U	0.050		mg/L			04/27/24 03:15	1
Sulfate	1.0	U	1.0		mg/L			04/27/24 03:15	1

Lab Sample ID: LCS 240-611008/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611008

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			50.0	50.3		mg/L		101	90 - 110		
Fluoride			2.50	2.60		mg/L		104	90 - 110		
Sulfate			50.0	51.0		mg/L		102	90 - 110		

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

Lab Sample ID: MB 240-611145/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611145

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10		mg/L			04/29/24 09:38	1

Lab Sample ID: LCS 240-611145/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611145

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			505	486		mg/L		96	80 - 120		

Lab Sample ID: 240-203326-1 DU — **Client Sample ID: EB-01**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611145

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	10	U		10	U	mg/L				NC	20

Lab Sample ID: MB 240-611182/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611182

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10		mg/L			04/29/24 11:14	1

Lab Sample ID: LCS 240-611182/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 611182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			505	500		mg/L		99	80 - 120		

Metals

Prep Batch: 610816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-1	EB-01	Total Recoverable	Water	3005A	
240-203326-2	MW-16-06	Total Recoverable	Water	3005A	
240-203326-3	MW-16-03	Total Recoverable	Water	3005A	
240-203326-4	MW-16-04	Total Recoverable	Water	3005A	
240-203326-5	MW-16-02	Total Recoverable	Water	3005A	
240-203326-6	DUP-01	Total Recoverable	Water	3005A	
240-203326-7	MW-16-05	Total Recoverable	Water	3005A	
240-203326-8	MW-16-01	Total Recoverable	Water	3005A	
240-203326-9	MW-16-07	Total Recoverable	Water	3005A	
MB 240-610816/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-610816/24-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-610816/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-203326-9 MS	MW-16-07	Total Recoverable	Water	3005A	
240-203326-9 MSD	MW-16-07	Total Recoverable	Water	3005A	

Analysis Batch: 611057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-1	EB-01	Total Recoverable	Water	6010D	610816

Analysis Batch: 611067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-1	EB-01	Total Recoverable	Water	6020B	610816
240-203326-2	MW-16-06	Total Recoverable	Water	6020B	610816
240-203326-3	MW-16-03	Total Recoverable	Water	6020B	610816
240-203326-4	MW-16-04	Total Recoverable	Water	6020B	610816
240-203326-5	MW-16-02	Total Recoverable	Water	6020B	610816
240-203326-6	DUP-01	Total Recoverable	Water	6020B	610816
240-203326-7	MW-16-05	Total Recoverable	Water	6020B	610816
240-203326-8	MW-16-01	Total Recoverable	Water	6020B	610816
240-203326-9	MW-16-07	Total Recoverable	Water	6020B	610816
MB 240-610816/1-A	Method Blank	Total Recoverable	Water	6020B	610816
LCS 240-610816/24-A	Lab Control Sample	Total Recoverable	Water	6020B	610816
240-203326-9 MS	MW-16-07	Total Recoverable	Water	6020B	610816
240-203326-9 MSD	MW-16-07	Total Recoverable	Water	6020B	610816

Analysis Batch: 611396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-2	MW-16-06	Total Recoverable	Water	6010D	610816
240-203326-3	MW-16-03	Total Recoverable	Water	6010D	610816
240-203326-4	MW-16-04	Total Recoverable	Water	6010D	610816
240-203326-5	MW-16-02	Total Recoverable	Water	6010D	610816
240-203326-6	DUP-01	Total Recoverable	Water	6010D	610816
240-203326-7	MW-16-05	Total Recoverable	Water	6010D	610816
240-203326-8	MW-16-01	Total Recoverable	Water	6010D	610816
240-203326-9	MW-16-07	Total Recoverable	Water	6010D	610816
MB 240-610816/1-A	Method Blank	Total Recoverable	Water	6010D	610816
LCS 240-610816/2-A	Lab Control Sample	Total Recoverable	Water	6010D	610816

General Chemistry

Analysis Batch: 611008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-1	EB-01	Total/NA	Water	9056A	
240-203326-2	MW-16-06	Total/NA	Water	9056A	
240-203326-2	MW-16-06	Total/NA	Water	9056A	
240-203326-3	MW-16-03	Total/NA	Water	9056A	
240-203326-3	MW-16-03	Total/NA	Water	9056A	
240-203326-4	MW-16-04	Total/NA	Water	9056A	
240-203326-4	MW-16-04	Total/NA	Water	9056A	
240-203326-5	MW-16-02	Total/NA	Water	9056A	
240-203326-5	MW-16-02	Total/NA	Water	9056A	
240-203326-6	DUP-01	Total/NA	Water	9056A	
240-203326-6	DUP-01	Total/NA	Water	9056A	
240-203326-7	MW-16-05	Total/NA	Water	9056A	
240-203326-7	MW-16-05	Total/NA	Water	9056A	
240-203326-8	MW-16-01	Total/NA	Water	9056A	
240-203326-8	MW-16-01	Total/NA	Water	9056A	
240-203326-9	MW-16-07	Total/NA	Water	9056A	
240-203326-9	MW-16-07	Total/NA	Water	9056A	
MB 240-611008/3	Method Blank	Total/NA	Water	9056A	
LCS 240-611008/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 611145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-1	EB-01	Total/NA	Water	SM 2540C	
240-203326-2	MW-16-06	Total/NA	Water	SM 2540C	
240-203326-3	MW-16-03	Total/NA	Water	SM 2540C	
240-203326-4	MW-16-04	Total/NA	Water	SM 2540C	
240-203326-7	MW-16-05	Total/NA	Water	SM 2540C	
MB 240-611145/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-611145/2	Lab Control Sample	Total/NA	Water	SM 2540C	
240-203326-1 DU	EB-01	Total/NA	Water	SM 2540C	

Analysis Batch: 611182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-203326-5	MW-16-02	Total/NA	Water	SM 2540C	
240-203326-6	DUP-01	Total/NA	Water	SM 2540C	
240-203326-8	MW-16-01	Total/NA	Water	SM 2540C	
240-203326-9	MW-16-07	Total/NA	Water	SM 2540C	
MB 240-611182/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-611182/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: EB-01 — Lab Sample ID: 240-203326-1

Date Collected: 04/22/24 10:12 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611057	RKT	EET CLE	04/26/24 20:07
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 20:57
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 09:58
Total/NA	Analysis	SM 2540C		1	611145	UWU2	EET CLE	04/29/24 09:38

Client Sample ID: MW-16-06 — Lab Sample ID: 240-203326-2

Date Collected: 04/22/24 12:53 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 10:50
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:00
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 15:40
Total/NA	Analysis	9056A		10	611008	JWW	EET CLE	04/27/24 16:00
Total/NA	Analysis	SM 2540C		1	611145	UWU2	EET CLE	04/29/24 09:38

Client Sample ID: MW-16-03 — Lab Sample ID: 240-203326-3

Date Collected: 04/22/24 14:45 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 10:54
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:02
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 11:38
Total/NA	Analysis	9056A		5	611008	JWW	EET CLE	04/27/24 11:58
Total/NA	Analysis	SM 2540C		1	611145	UWU2	EET CLE	04/29/24 09:38

Client Sample ID: MW-16-04 — Lab Sample ID: 240-203326-4

Date Collected: 04/23/24 09:12 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 10:59
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:10
Total/NA	Analysis	9056A		5	611008	JWW	EET CLE	04/27/24 20:22
Total/NA	Analysis	9056A		25	611008	JWW	EET CLE	04/27/24 20:42

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

Client Sample ID: MW-16-04 — Lab Sample ID: 240-203326-4

Date Collected: 04/23/24 09:12 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	611145	UWU2	EET CLE	04/29/24 09:38

Client Sample ID: MW-16-02 — Lab Sample ID: 240-203326-5

Date Collected: 04/23/24 09:56 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 11:03
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:12
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 17:41
Total/NA	Analysis	9056A		10	611008	JWW	EET CLE	04/27/24 18:01
Total/NA	Analysis	SM 2540C		1	611182	UWU2	EET CLE	04/29/24 11:14

Client Sample ID: DUP-01 — Lab Sample ID: 240-203326-6

Date Collected: 04/23/24 00:00 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 11:08
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:15
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 18:21
Total/NA	Analysis	9056A		10	611008	JWW	EET CLE	04/27/24 19:22
Total/NA	Analysis	SM 2540C		1	611182	UWU2	EET CLE	04/29/24 11:14

Client Sample ID: MW-16-05 — Lab Sample ID: 240-203326-7

Date Collected: 04/23/24 11:04 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 11:12
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:17
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 16:20
Total/NA	Analysis	9056A		10	611008	JWW	EET CLE	04/27/24 16:40
Total/NA	Analysis	SM 2540C		1	611145	UWU2	EET CLE	04/29/24 09:38

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-203326-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-01 — Lab Sample ID: 240-203326-8

Date Collected: 04/23/24 11:39 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 11:16
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:19
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 17:01
Total/NA	Analysis	9056A		10	611008	JWW	EET CLE	04/27/24 17:21
Total/NA	Analysis	SM 2540C		1	611182	UWU2	EET CLE	04/29/24 11:14

Client Sample ID: MW-16-07 — Lab Sample ID: 240-203326-9

Date Collected: 04/23/24 12:42 — **Matrix: Water**
Date Received: 04/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6010D		1	611396	KLC	EET CLE	04/30/24 11:21
Total Recoverable	Prep	3005A			610816	BN	EET CLE	04/25/24 14:00
Total Recoverable	Analysis	6020B		1	611067	AJC	EET CLE	04/26/24 21:22
Total/NA	Analysis	9056A		1	611008	JWW	EET CLE	04/27/24 14:19
Total/NA	Analysis	9056A		5	611008	JWW	EET CLE	04/27/24 15:20
Total/NA	Analysis	SM 2540C		1	611182	UWU2	EET CLE	04/29/24 11:14

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: 240-203326-1
Project/Site: CCR DTE RRLF HMP Upermost Aquifer

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	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone (330) 497-9396 Phone (330) 497-0772

MICHIGAN 190

1.4.24

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing

Client Information	Sampler: Jake Krentz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-106957-31929.1
Client Contact: Mr. Vincent Buening	Phone: 734-395-9804	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page of
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 #: 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF HMP Uppermost Aquifer	Project #: 24016807			
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)	6010 Bo, 6020 Ca, Fe	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N		
EB-01	4-22-24	1012	G	Water	N	N	X	X	X		
MW-16-06	4-22-24	1253	G	Water	N	N	X	X	X		
MW-16-03	4-22-24	1445	G	Water	N	N	X	X	X		
MW-16-04	4-23-24	0912	G	Water	N	N	X	X	X		
MW-16-02	4-23-24	0956	G	Water	N	N	X	X	X		
DUP-01	4-23-24	—	G	Water	N	N	X	X	X		
MW-16-05	4-23-24	1104	G	Water	N	N	X	X	X		
MW-16-01	4-23-24	1139	G	Water	N	N	X	X	X		
MW-16-07	4-23-24	1242	G	Water	N	N	X	X	X		
				Water							

240-203326 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		4-24-24/0830	TRC		4/24/24 0850	EEA
2		4/24/24 0900	EEA		4-25-24 800	
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :** _____
Barberton Facility

Client TRC Site Name _____ Cooler unpacked by: M. Yoch

Cooler Received on 4-25-24 Opened on 4-25-24

FedEx. 1st Grd Exp UPS FAS (Waypoint) Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # (2) 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 # 18 (CF 0 °C) Observed Cooler Temp 1.4 °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)?	
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# HC329089
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 _____

4/25/2024

Login Container Summary Report

240-203326

5/1/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
EB-01	240-203326-A-1	Plastic 60 mL - unpreserved				
EB-01	240-203326-B-1	Plastic 250ml - with Nitric Acid	<2			
EB-01	240-203326-C-1	Plastic 500ml unpreserved				
MW 16-06	240-203326 A 2	Plastic 60 mL - unpreserved				
MW-16-06	240-203326-B-2	Plastic 250ml - with Nitric Acid	<2			
MW 16-06	240-203326-C-2	Plastic 500ml - unpreserved				
MW-16-03	240-203326-A-3	Plastic 60 mL - unpreserved				
MW-16-03	240-203326-B-3	Plastic 250ml - with Nitric Acid	<2			
MW-16-03	240-203326-C-3	Plastic 500ml - unpreserved				
MW-16-04	240 203326-A-4	Plastic 60 mL unpreserved				
MW-16-04	240-203326-B-4	Plastic 250ml - with Nitric Acid	<2			
MW 16-04	240-203326-C-4	Plastic 500ml - unpreserved				
MW-16-02	240-203326-A-5	Plastic 60 mL - unpreserved				
MW 16-02	240-203326-B-5	Plastic 250ml - with Nitric Acid	<2			
MW-16-02	240 203326-C-5	Plastic 500ml unpreserved				
DUP-01	240-203326-A-6	Plastic 60 mL - unpreserved				
DUP-01	240-203326-B-6	Plastic 250ml - with Nitric Acid	<2			
DUP-01	240-203326-C-6	Plastic 500ml - unpreserved				
MW-16-05	240-203326-A-7	Plastic 60 mL - unpreserved				
MW-16-05	240-203326-B-7	Plastic 250ml - with Nitric Acid	<2			
MW 16-05	240-203326-C-7	Plastic 500ml - unpreserved				
MW 16-01	240-203326-A-8	Plastic 60 mL unpreserved				
MW-16-01	240-203326-B-8	Plastic 250ml - with Nitric Acid	<2			
MW-16-01	240-203326-C-8	Plastic 500ml - unpreserved				
MW-16-07	240-203326-A-9	Plastic 60 mL - unpreserved				
MW-16-07	240-203326-B-9	Plastic 250ml with Nitric Acid	<2			
MW-16-07	240-203326-C-9	Plastic 500ml - unpreserved				

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ANALYTICAL REPORT

PREPARED FOR

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

Generated 6/13/2024 2:04:32 AM

JOB DESCRIPTION

CCR DTE RRLF

JOB NUMBER

240-205902-1

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
6/13/2024 2:04:32 AM

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: 240-205902-1
Project/Site: CCR DTE RRLF

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: 240-205902-1 Eurofins Cleveland

Job Narrative
240-205902-1

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

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

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

Receipt
The samples were received on 6/8/2024 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 4.6°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 RRLF

Job ID: 240-205902-1

Method	Method Description	Protocol	Laboratory
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: 240-205902-1
Project/Site: CCR DTE RRLF

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205902-1	MW-16-05	Water	06/06/24 14:17	06/08/24 08:00
240-205902-2	DUP-01	Water	06/06/24 00:00	06/08/24 08:00
240-205902-3	MW-16-01	Water	06/06/24 13:02	06/08/24 08:00

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE RRLF

Job ID: 240-205902-1

Client Sample ID: MW-16-05 — Lab Sample ID: 240-205902-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Calcium	22000		1000		ug/L	1		6020B	Total Recoverable
Sulfate	23		5.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids	1000		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 240-205902-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Calcium	21000		1000		ug/L	1		6020B	Total Recoverable
Sulfate	22		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1000		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-01 — Lab Sample ID: 240-205902-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	1600		20		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Job ID: 240-205902-1
Project/Site: CCR DTE RRLF

Client Sample ID: MW-16-05
Lab Sample ID: 240-205902-1
Date Collected: 06/06/24 14:17
Matrix: Water
Date Received: 06/08/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22000		1000		ug/L		06/10/24 14:00	06/11/24 18:58	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (SW846 9056A)	23		5.0		mg/L			06/10/24 22:30	5
Total Dissolved Solids (SM 2540C)	1000		20		mg/L			06/10/24 08:41	1

Client: TRC Environmental Corporation.
Job ID: 240-205902-1
Project/Site: CCR DTE RRLF

Client Sample ID: DUP-01
Lab Sample ID: 240-205902-2
Date Collected: 06/06/24 00:00
Matrix: Water
Date Received: 06/08/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	21000		1000		ug/L		06/10/24 14:00	06/11/24 20:06	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (SW846 9056A)	22		10		mg/L			06/10/24 23:10	10
Total Dissolved Solids (SM 2540C)	1000		20		mg/L			06/10/24 08:41	1

Client Sample Results

Client: TRC Environmental Corporation.
Project/Site: CCR DTE RRLF

Job ID: 240-205902-1

Client Sample ID: MW-16-01
Date Collected: 06/06/24 13:02
Date Received: 06/08/24 08:00

Lab Sample ID: 240-205902-3
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1600		20		mg/L			06/10/24 08:41	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 240-616056/1-A
Matrix: Water
Analysis Batch: 616267

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 616056

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		06/10/24 14:00	06/11/24 18:53	1

Lab Sample ID: LCS 240-616056/2-A
Matrix: Water
Analysis Batch: 616267

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 616056

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			25000	23300		ug/L		93	80 - 120		

Lab Sample ID: 240-205902-1 MS
Matrix: Water
Analysis Batch: 616267

Client Sample ID: MW-16-05
Prep Type: Total Recoverable
Prep Batch: 616056

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	22000		25000	45200		ug/L		94	80 - 120		

Lab Sample ID: 240-205902-1 MSD
Matrix: Water
Analysis Batch: 616267

Client Sample ID: MW-16-05
Prep Type: Total Recoverable
Prep Batch: 616056

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	22000		25000	45100		ug/L		94	80 - 120	0	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-616002/3
Matrix: Water
Analysis Batch: 616002

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.0	U	1.0		mg/L			06/10/24 14:17	1

Lab Sample ID: LCS 240-616002/4
Matrix: Water
Analysis Batch: 616002

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			50.0	49.9		mg/L		100	90 - 110		

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

Lab Sample ID: MB 240-615999/1
Matrix: Water
Analysis Batch: 615999

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			06/10/24 08:41	1

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

Lab Sample ID: LCS 240-615999/2
Matrix: Water
Analysis Batch: 615999

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	442	418		mg/L		95	80 - 120

QC Association Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE RRLF

Job ID: 240-205902-1

Metals

Prep Batch: 616056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205902-1	MW-16-05	Total Recoverable	Water	3005A	
240-205902-2	DUP-01	Total Recoverable	Water	3005A	
MB 240-616056/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-616056/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-205902-1 MS	MW-16-05	Total Recoverable	Water	3005A	
240-205902-1 MSD	MW-16-05	Total Recoverable	Water	3005A	

Analysis Batch: 616267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205902-1	MW-16-05	Total Recoverable	Water	6020B	616056
240-205902-2	DUP-01	Total Recoverable	Water	6020B	616056
MB 240-616056/1-A	Method Blank	Total Recoverable	Water	6020B	616056
LCS 240-616056/2-A	Lab Control Sample	Total Recoverable	Water	6020B	616056
240-205902-1 MS	MW-16-05	Total Recoverable	Water	6020B	616056
240-205902-1 MSD	MW-16-05	Total Recoverable	Water	6020B	616056

General Chemistry

Analysis Batch: 615999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205902-1	MW-16-05	Total/NA	Water	SM 2540C	
240-205902-2	DUP-01	Total/NA	Water	SM 2540C	
240-205902-3	MW-16-01	Total/NA	Water	SM 2540C	
MB 240-615999/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-615999/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 616002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205902-1	MW-16-05	Total/NA	Water	9056A	
240-205902-2	DUP-01	Total/NA	Water	9056A	
MB 240-616002/3	Method Blank	Total/NA	Water	9056A	
LCS 240-616002/4	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation.
Job ID: 240-205902-1
Project/Site: CCR DTE RRLF

Client Sample ID: MW-16-05
Lab Sample ID: 240-205902-1

Date Collected: 06/06/24 14:17
Matrix: Water
Date Received: 06/08/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			616056	S4FJ	EET CLE	06/10/24 14:00
Total Recoverable	Analysis	6020B		1	616267	AJC	EET CLE	06/11/24 18:58
Total/NA	Analysis	9056A		5	616002	QUY8	EET CLE	06/10/24 22:30
Total/NA	Analysis	SM 2540C		1	615999	UWU2	EET CLE	06/10/24 08:41

Client Sample ID: DUP-01
Lab Sample ID: 240-205902-2

Date Collected: 06/06/24 00:00
Matrix: Water
Date Received: 06/08/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			616056	S4FJ	EET CLE	06/10/24 14:00
Total Recoverable	Analysis	6020B		1	616267	AJC	EET CLE	06/11/24 20:06
Total/NA	Analysis	9056A		10	616002	QUY8	EET CLE	06/10/24 23:10
Total/NA	Analysis	SM 2540C		1	615999	UWU2	EET CLE	06/10/24 08:41

Client Sample ID: MW-16-01
Lab Sample ID: 240-205902-3

Date Collected: 06/06/24 13:02
Matrix: Water
Date Received: 06/08/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	615999	UWU2	EET CLE	06/10/24 08:41

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: 240-205902-1
Project/Site: CCR DTE RRLF

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	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

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

MICHIGAN 190

Chain of Custody Record

MICHIGAN 4/4/24 190

eurofins | Environment Testing

Client Information	Sampler: A. Wheeler	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-121203-42306.1
Client Contact: Mr. Vincent Buening	Phone: 734-216-4239	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin: MI	Page: Page 1 of 1
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested: 3 Day			
City: Ann Arbor	TAT Requested (days): 3 Day TAT			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: ~~199485~~ 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF	Project #: 24016807			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:
D - HNO3
N - None
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)	6020 - (MOD) Metals - Ca	9056A_28D - Sulfate	2540C_Calcd - TDS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N		
MW-16-05	6/6/24	1417	G	Water	N	N	X	X	X	3	3 day turn
DUP-01	6/6/24	—	G	Water	N	N	X	X	X	3	around time
MW-16-01	6/6/24	1302	G	Water	N	N			X	1	on the
											samples

240-205902 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) TRC EDD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/6/24 1650	TRC		6/7/24 1323	
2		6/7/24 122	TRC		6/7/24 1400	
3				TAMMY ROYER	6-8-24 800	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

205902

Eurofins = Cleveland Sample Receipt Form/Narrative Login #
Barberton Facility

Client IRC Site Name

Cooler Received on 6-8-24 Opened on 6-8-24

Cooler unpacked by: TAMMY ROYER

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 # 18 (CF 0.0 °C) Observed Cooler Temp. 4.6 °C Corrected Cooler Temp. 4.6 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3 Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5 Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7 Did all bottles arrive in good condition (Unbroken)?	Yes	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	Yes	No
11 Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC339814
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.

6/8/2024

Login Container Summary Report

240-205902

6/13/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-16-05	240-205902-A-1	Plastic 60 mL - unpreserved				
MW-16-05	240-205902-B-1	Plastic 500ml - unpreserved				
MW-16-05	240-205902-C-1	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-205902-A-2	Plastic 60 mL - unpreserved				
DUP-01	240-205902-B-2	Plastic 500ml - unpreserved				
DUP-01	240-205902-C-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-01	240-205902-A-3	Plastic 60 mL - unpreserved				

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

MICHIGAN 190

Chain of Custody Record

4/6/24 MICHIGAN 190

eurofins | Environment Testing

Client Information	Sampler: A. Whaley	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-121203-42306.1
Client Contact: Mr. Vincent Buening	Phone: 734-260-4239	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin: MI	Page: Page 1 of 1
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested: 3 Day			
City: Ann Arbor	TAT Requested (days): 3 Day TAT			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: ~~199485~~ 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF	Project #: 24016807			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:
D - HNO3
N - None

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)	6020 - (MOD) Metals - Ca	9056A_28D - Sulfate	2540C_Calcd - TDS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N		
MW-16-05	6/6/24	1417	G	Water	N	N	X	X	X	3	3 day turn
DUP-01	6/6/24	—	G	Water	N	N	X	X	X	3	around time
MW-16-01	6/6/24	1302	G	Water	N	N			X	1	on the
											samples

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) TRC EDD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/6/24 1650	TRC		6/7/24 1325	
2		6/7/24 122	TRC		6/7/24 1400	
3				TAMMY ROYER	6-8-24 800	

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

Ver: 04/02/2024

6/13/2024

205902

Eurofins - Cleveland Sample Receipt Form/Narrative Login #:
Barberton Facility

Client IRC Site Name

Cooler Received on 6-8-24 Opened on 6-8-24

Cooler unpacked by: TAMMY ROYER

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 # 18 (CF 0.0 °C) Observed Cooler Temp 4.6 °C Corrected Cooler Temp. 4.6 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3 Shippers' packing slip attached to the cooler(s)?	Yes	No
4 Did custody papers accompany the sample(s)?	Yes	No
5 Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7 Did all bottles arrive in good condition (Unbroken)?	Yes	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	Yes	No
11 Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC339814
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.

6/8/2024

Login Container Summary Report

240-205902

6/13/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-16-05	240-205902-A-1	Plastic 60 mL - unpreserved				
MW-16-05	240-205902-B-1	Plastic 500ml - unpreserved				
MW-16-05	240-205902-C-1	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-205902-A-2	Plastic 60 mL - unpreserved				
DUP-01	240-205902-B-2	Plastic 500ml - unpreserved				
DUP-01	240-205902-C-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-01	240-205902-A-3	Plastic 60 mL - unpreserved				

ANALYTICAL REPORT

PREPARED FOR

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

Generated 11/13/2024 7:43:40 PM

JOB DESCRIPTION

CCR DTE RRLF HMP Uppermost Aquifer

JOB NUMBER

240-214081-1

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
11/13/2024 7:43:40 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. Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

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: 240-214081-1 Eurofins Cleveland

Job Narrative
240-214081-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

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

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

Receipt
The samples were received on 11/1/2024 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 1.0°C and 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
Method 9056A_28D: The following sample was diluted due to the nature of the sample matrix: MW-16-04 (240-214081-6). Elevated reporting limits (RLs) are provided.

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

Method Summary

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

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: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-214081-1	MW-16-02	Water	10/28/24 15:09	11/01/24 08:00
240-214081-2	EB-01	Water	10/28/24 15:00	11/01/24 08:00
240-214081-3	MW-16-07	Water	10/30/24 08:37	11/01/24 08:00
240-214081-4	MW-16-05	Water	10/30/24 10:08	11/01/24 08:00
240-214081-5	MW-16-03	Water	10/30/24 10:46	11/01/24 08:00
240-214081-6	MW-16-04	Water	10/30/24 11:55	11/01/24 08:00
240-214081-7	DUP-01	Water	10/30/24 00:00	11/01/24 08:00
240-214081-8	MW-16-06	Water	10/28/24 14:49	11/01/24 08:00
240-214081-9	MW-16-01	Water	10/28/24 13:57	11/01/24 08:00

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-02 — Lab Sample ID: 240-214081-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	24000		1000		ug/L	1		6020B	Total Recoverable
Iron	700		100		ug/L	1		6020B	Total Recoverable
Chloride	640		10		mg/L	10		9056A	Total/NA
Fluoride	2.0		0.050		mg/L	1		9056A	Total/NA
Total Dissolved Solids	1100		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: EB-01 — Lab Sample ID: 240-214081-2

No Detections.

Client Sample ID: MW-16-07 — Lab Sample ID: 240-214081-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	800		100		ug/L	1		6010D	Total Recoverable
Calcium	47000		1000		ug/L	1		6020B	Total Recoverable
Iron	4700		100		ug/L	1		6020B	Total Recoverable
Chloride	330		5.0		mg/L	5		9056A	Total/NA
Fluoride	1.2		0.050		mg/L	1		9056A	Total/NA
Sulfate	4.9		1.0		mg/L	1		9056A	Total/NA
Total Dissolved Solids	600		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-05 — Lab Sample ID: 240-214081-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1300		100		ug/L	1		6010D	Total Recoverable
Calcium	19000		1000		ug/L	1		6020B	Total Recoverable
Iron	190		100		ug/L	1		6020B	Total Recoverable
Chloride	520		5.0		mg/L	5		9056A	Total/NA
Fluoride	2.2		0.050		mg/L	1		9056A	Total/NA
Total Dissolved Solids	1100		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-03 — Lab Sample ID: 240-214081-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	20000		1000		ug/L	1		6020B	Total Recoverable
Iron	550		100		ug/L	1		6020B	Total Recoverable
Chloride	550		5.0		mg/L	5		9056A	Total/NA
Fluoride	1.9		0.050		mg/L	1		9056A	Total/NA
Sulfate	9.0		1.0		mg/L	1		9056A	Total/NA
Total Dissolved Solids	930		20		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation. Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-04 — Lab Sample ID: 240-214081-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	69000		1000		ug/L	1		6020B	Total Recoverable
Iron	1100		100		ug/L	1		6020B	Total Recoverable
Chloride	3300		25		mg/L	25		9056A	Total/NA
Fluoride	1.5		0.25		mg/L	5		9056A	Total/NA
Total Dissolved Solids	5300		50		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 240-214081-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	21000		1000		ug/L	1		6020B	Total Recoverable
Iron	560		100		ug/L	1		6020B	Total Recoverable
Chloride	540		5.0		mg/L	5		9056A	Total/NA
Fluoride	2.3		0.050		mg/L	1		9056A	Total/NA
Total Dissolved Solids	990		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-06 — Lab Sample ID: 240-214081-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100		ug/L	1		6010D	Total Recoverable
Calcium	70000		1000		ug/L	1		6020B	Total Recoverable
Iron	660		100		ug/L	1		6020B	Total Recoverable
Chloride	460		10		mg/L	10		9056A	Total/NA
Fluoride	1.4		0.050		mg/L	1		9056A	Total/NA
Sulfate	270		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1100		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-01 — Lab Sample ID: 240-214081-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	830		100		ug/L	1		6010D	Total Recoverable
Calcium	110000		1000		ug/L	1		6020B	Total Recoverable
Iron	1400		100		ug/L	1		6020B	Total Recoverable
Chloride	580		10		mg/L	10		9056A	Total/NA
Fluoride	0.78		0.050		mg/L	1		9056A	Total/NA
Sulfate	280		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1300		20		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-02
Lab Sample ID: 240-214081-1
Date Collected: 10/28/24 15:09
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		11/05/24 05:00	11/06/24 03:11	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	24000		1000		ug/L		11/05/24 05:00	11/05/24 19:34	1
Iron	700		100		ug/L		11/05/24 05:00	11/05/24 19:34	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	640		10		mg/L			11/12/24 04:56	10
Fluoride (SW846 9056A)	2.0		0.050		mg/L			11/12/24 04:36	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			11/12/24 04:36	1
Total Dissolved Solids (SM 2540C)	1100		20		mg/L			11/04/24 07:41	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: EB-01
Lab Sample ID: 240-214081-2

Date Collected: 10/28/24 15:00
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100		ug/L		11/05/24 05:00	11/06/24 03:15	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		11/05/24 05:00	11/05/24 19:37	1
Iron	100	U	100		ug/L		11/05/24 05:00	11/05/24 19:37	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	1.0	U	1.0		mg/L			11/12/24 02:18	1
Fluoride (SW846 9056A)	0.050	U	0.050		mg/L			11/12/24 02:18	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			11/12/24 02:18	1
Total Dissolved Solids (SM 2540C)	10	U	10		mg/L			11/04/24 07:41	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-07
Lab Sample ID: 240-214081-3
Date Collected: 10/30/24 08:37
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	800		100		ug/L		11/05/24 05:00	11/06/24 03:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	47000		1000		ug/L		11/05/24 05:00	11/05/24 19:45	1
Iron	4700		100		ug/L		11/05/24 05:00	11/05/24 19:45	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	330		5.0		mg/L			11/12/24 07:33	5
Fluoride (SW846 9056A)	1.2		0.050		mg/L			11/12/24 07:14	1
Sulfate (SW846 9056A)	4.9		1.0		mg/L			11/12/24 07:14	1
Total Dissolved Solids (SM 2540C)	600		10		mg/L			11/04/24 10:07	1

Client Sample Results

Client: TRC Environmental Corporation. Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-05 — Lab Sample ID: 240-214081-4

Date Collected: 10/30/24 10:08 — **Matrix: Water**
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300		100		ug/L		11/05/24 05:00	11/06/24 02:34	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	19000		1000		ug/L		11/05/24 05:00	11/05/24 19:13	1
Iron	190		100		ug/L		11/05/24 05:00	11/05/24 19:13	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	520		5.0		mg/L			11/12/24 06:14	5
Fluoride (SW846 9056A)	2.2		0.050		mg/L			11/12/24 05:55	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			11/12/24 05:55	1
Total Dissolved Solids (SM 2540C)	1100		20		mg/L			11/04/24 10:07	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-03
Lab Sample ID: 240-214081-5
Date Collected: 10/30/24 10:46
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		11/05/24 05:00	11/06/24 03:25	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	20000		1000		ug/L		11/05/24 05:00	11/05/24 19:47	1
Iron	550		100		ug/L		11/05/24 05:00	11/05/24 19:47	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	550		5.0		mg/L			11/12/24 05:35	5
Fluoride (SW846 9056A)	1.9		0.050		mg/L			11/12/24 05:15	1
Sulfate (SW846 9056A)	9.0		1.0		mg/L			11/12/24 05:15	1
Total Dissolved Solids (SM 2540C)	930		20		mg/L			11/04/24 10:07	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-04
Lab Sample ID: 240-214081-6
Date Collected: 10/30/24 11:55
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		11/05/24 05:00	11/06/24 03:29	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	69000		1000		ug/L		11/05/24 05:00	11/05/24 19:50	1
Iron	1100		100		ug/L		11/05/24 05:00	11/05/24 19:50	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	3300		25		mg/L			11/12/24 13:29	25
Fluoride (SW846 9056A)	1.5		0.25		mg/L			11/12/24 13:09	5
Sulfate (SW846 9056A)	5.0	U	5.0		mg/L			11/12/24 13:09	5
Total Dissolved Solids (SM 2540C)	5300		50		mg/L			11/04/24 10:07	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: DUP-01
Lab Sample ID: 240-214081-7
Date Collected: 10/30/24 00:00
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		11/05/24 05:00	11/06/24 03:35	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	21000		1000		ug/L		11/05/24 05:00	11/05/24 19:53	1
Iron	560		100		ug/L		11/05/24 05:00	11/05/24 19:53	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	540		5.0		mg/L			11/12/24 14:48	5
Fluoride (SW846 9056A)	2.3		0.050		mg/L			11/12/24 14:28	1
Sulfate (SW846 9056A)	1.0	U	1.0		mg/L			11/12/24 14:28	1
Total Dissolved Solids (SM 2540C)	990		20		mg/L			11/04/24 10:07	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-06
Lab Sample ID: 240-214081-8

Date Collected: 10/28/24 14:49
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100		ug/L		11/05/24 05:00	11/06/24 03:39	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	70000		1000		ug/L		11/05/24 05:00	11/05/24 19:55	1
Iron	660		100		ug/L		11/05/24 05:00	11/05/24 19:55	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	460		10		mg/L			11/12/24 15:27	10
Fluoride (SW846 9056A)	1.4		0.050		mg/L			11/12/24 15:08	1
Sulfate (SW846 9056A)	270		10		mg/L			11/12/24 15:27	10
Total Dissolved Solids (SM 2540C)	1100		20		mg/L			11/04/24 07:41	1

Client: TRC Environmental Corporation.
Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-01
Lab Sample ID: 240-214081-9

Date Collected: 10/28/24 13:57
Matrix: Water
Date Received: 11/01/24 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	830		100		ug/L		11/05/24 05:00	11/06/24 03:56	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110000		1000		ug/L		11/05/24 05:00	11/05/24 19:58	1
Iron	1400		100		ug/L		11/05/24 05:00	11/05/24 19:58	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	580		10		mg/L			11/12/24 16:07	10
Fluoride (SW846 9056A)	0.78		0.050		mg/L			11/12/24 15:47	1
Sulfate (SW846 9056A)	280		10		mg/L			11/12/24 16:07	10
Total Dissolved Solids (SM 2540C)	1300		20		mg/L			11/04/24 07:41	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-633812/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634080 — **Prep Batch: 633812**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100		ug/L		11/05/24 05:00	11/06/24 02:25	1

Lab Sample ID: LCS 240-633812/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634080 — **Prep Batch: 633812**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron			1000	1040		ug/L		104	80 - 120		

Lab Sample ID: 240-214081-4 MS — **Client Sample ID: MW-16-05**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634080 — **Prep Batch: 633812**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron	1300		1000	2380		ug/L		112	75 - 125		

Lab Sample ID: 240-214081-4 MSD — **Client Sample ID: MW-16-05**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634080 — **Prep Batch: 633812**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1300		1000	2340		ug/L		107	75 - 125	2	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 240-633812/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634046 — **Prep Batch: 633812**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		11/05/24 05:00	11/05/24 19:08	1
Iron	100	U	100		ug/L		11/05/24 05:00	11/05/24 19:08	1

Lab Sample ID: LCS 240-633812/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634046 — **Prep Batch: 633812**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			25000	25500		ug/L		102	80 - 120		
Iron			5000	5310		ug/L		106	80 - 120		

Lab Sample ID: 240-214081-4 MS — **Client Sample ID: MW-16-05**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634046 — **Prep Batch: 633812**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	19000		25000	44300		ug/L		100	80 - 120		
Iron	190		5000	5380		ug/L		104	80 - 120		

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

Lab Sample ID: 240-214081-4 MSD — **Client Sample ID: MW-16-05**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 634046 — **Prep Batch: 633812**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	19000		25000	44000		ug/L		98	80 - 120	1	20
Iron	190		5000	5270		ug/L		102	80 - 120	2	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-634867/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 634867

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/11/24 19:23	1
Fluoride	0.050	U	0.050		mg/L			11/11/24 19:23	1
Sulfate	1.0	U	1.0		mg/L			11/11/24 19:23	1

Lab Sample ID: LCS 240-634867/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 634867

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			50.0	49.8		mg/L		100	90 - 110		
Fluoride			2.50	2.62		mg/L		105	90 - 110		
Sulfate			50.0	51.0		mg/L		102	90 - 110		

Lab Sample ID: 240-214081-2 MS — **Client Sample ID: EB-01**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 634867

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1.0	U	50.0	53.8		mg/L		108	80 - 120		
Fluoride	0.050	U	2.50	2.83		mg/L		113	80 - 120		
Sulfate	1.0	U	50.0	54.5		mg/L		109	80 - 120		

Lab Sample ID: 240-214081-2 MSD — **Client Sample ID: EB-01**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 634867

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1.0	U	50.0	53.7		mg/L		107	80 - 120	0	15
Fluoride	0.050	U	2.50	2.83		mg/L		113	80 - 120	0	15
Sulfate	1.0	U	50.0	54.5		mg/L		109	80 - 120	0	15

Lab Sample ID: MB 240-634868/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 634868

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/12/24 10:31	1
Fluoride	0.050	U	0.050		mg/L			11/12/24 10:31	1
Sulfate	1.0	U	1.0		mg/L			11/12/24 10:31	1

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

Lab Sample ID: LCS 240-634868/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 634868

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.9		mg/L		100	90 - 110
Fluoride	2.50	2.63		mg/L		105	90 - 110
Sulfate	50.0	51.1		mg/L		102	90 - 110

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

Lab Sample ID: MB 240-633733/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633733

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	mg/L			11/04/24 07:41	1

Lab Sample ID: LCS 240-633733/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633733

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	569	523		mg/L		92	80 - 120

Lab Sample ID: 240-214081-2 DU — **Client Sample ID: EB-01**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633733

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	10	U	10	U	mg/L		NC	20

Lab Sample ID: 240-214081-8 DU — **Client Sample ID: MW-16-06**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633733

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1100		1140		mg/L		3	20

Lab Sample ID: MB 240-633795/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633795

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	mg/L			11/04/24 10:07	1

Lab Sample ID: LCS 240-633795/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633795

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	569	519		mg/L		91	80 - 120

Metals

Prep Batch: 633812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-1	MW-16-02	Total Recoverable	Water	3005A	
240-214081-2	EB-01	Total Recoverable	Water	3005A	
240-214081-3	MW-16-07	Total Recoverable	Water	3005A	
240-214081-4	MW-16-05	Total Recoverable	Water	3005A	
240-214081-5	MW-16-03	Total Recoverable	Water	3005A	
240-214081-6	MW-16-04	Total Recoverable	Water	3005A	
240-214081-7	DUP-01	Total Recoverable	Water	3005A	
240-214081-8	MW-16-06	Total Recoverable	Water	3005A	
240-214081-9	MW-16-01	Total Recoverable	Water	3005A	
MB 240-633812/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-633812/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-633812/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-214081-4 MS	MW-16-05	Total Recoverable	Water	3005A	
240-214081-4 MS	MW-16-05	Total Recoverable	Water	3005A	
240-214081-4 MSD	MW-16-05	Total Recoverable	Water	3005A	
240-214081-4 MSD	MW-16-05	Total Recoverable	Water	3005A	

Analysis Batch: 634046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-1	MW-16-02	Total Recoverable	Water	6020B	633812
240-214081-2	EB-01	Total Recoverable	Water	6020B	633812
240-214081-3	MW-16-07	Total Recoverable	Water	6020B	633812
240-214081-4	MW-16-05	Total Recoverable	Water	6020B	633812
240-214081-5	MW-16-03	Total Recoverable	Water	6020B	633812
240-214081-6	MW-16-04	Total Recoverable	Water	6020B	633812
240-214081-7	DUP-01	Total Recoverable	Water	6020B	633812
240-214081-8	MW-16-06	Total Recoverable	Water	6020B	633812
240-214081-9	MW-16-01	Total Recoverable	Water	6020B	633812
MB 240-633812/1-A	Method Blank	Total Recoverable	Water	6020B	633812
LCS 240-633812/3-A	Lab Control Sample	Total Recoverable	Water	6020B	633812
240-214081-4 MS	MW-16-05	Total Recoverable	Water	6020B	633812
240-214081-4 MSD	MW-16-05	Total Recoverable	Water	6020B	633812

Analysis Batch: 634080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-1	MW-16-02	Total Recoverable	Water	6010D	633812
240-214081-2	EB-01	Total Recoverable	Water	6010D	633812
240-214081-3	MW-16-07	Total Recoverable	Water	6010D	633812
240-214081-4	MW-16-05	Total Recoverable	Water	6010D	633812
240-214081-5	MW-16-03	Total Recoverable	Water	6010D	633812
240-214081-6	MW-16-04	Total Recoverable	Water	6010D	633812
240-214081-7	DUP-01	Total Recoverable	Water	6010D	633812
240-214081-8	MW-16-06	Total Recoverable	Water	6010D	633812
240-214081-9	MW-16-01	Total Recoverable	Water	6010D	633812
MB 240-633812/1-A	Method Blank	Total Recoverable	Water	6010D	633812
LCS 240-633812/2-A	Lab Control Sample	Total Recoverable	Water	6010D	633812
240-214081-4 MS	MW-16-05	Total Recoverable	Water	6010D	633812
240-214081-4 MSD	MW-16-05	Total Recoverable	Water	6010D	633812

General Chemistry

Analysis Batch: 633733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-1	MW-16-02	Total/NA	Water	SM 2540C	
240-214081-2	EB-01	Total/NA	Water	SM 2540C	
240-214081-8	MW-16-06	Total/NA	Water	SM 2540C	
240-214081-9	MW-16-01	Total/NA	Water	SM 2540C	
MB 240-633733/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-633733/2	Lab Control Sample	Total/NA	Water	SM 2540C	
240-214081-2 DU	EB-01	Total/NA	Water	SM 2540C	
240-214081-8 DU	MW-16-06	Total/NA	Water	SM 2540C	

Analysis Batch: 633795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-3	MW-16-07	Total/NA	Water	SM 2540C	
240-214081-4	MW-16-05	Total/NA	Water	SM 2540C	
240-214081-5	MW-16-03	Total/NA	Water	SM 2540C	
240-214081-6	MW-16-04	Total/NA	Water	SM 2540C	
240-214081-7	DUP-01	Total/NA	Water	SM 2540C	
MB 240-633795/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-633795/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 634867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-1	MW-16-02	Total/NA	Water	9056A	
240-214081-1	MW-16-02	Total/NA	Water	9056A	
240-214081-2	EB-01	Total/NA	Water	9056A	
240-214081-3	MW-16-07	Total/NA	Water	9056A	
240-214081-3	MW-16-07	Total/NA	Water	9056A	
240-214081-4	MW-16-05	Total/NA	Water	9056A	
240-214081-4	MW-16-05	Total/NA	Water	9056A	
240-214081-5	MW-16-03	Total/NA	Water	9056A	
240-214081-5	MW-16-03	Total/NA	Water	9056A	
MB 240-634867/3	Method Blank	Total/NA	Water	9056A	
LCS 240-634867/4	Lab Control Sample	Total/NA	Water	9056A	
240-214081-2 MS	EB-01	Total/NA	Water	9056A	
240-214081-2 MSD	EB-01	Total/NA	Water	9056A	

Analysis Batch: 634868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-214081-6	MW-16-04	Total/NA	Water	9056A	
240-214081-6	MW-16-04	Total/NA	Water	9056A	
240-214081-7	DUP-01	Total/NA	Water	9056A	
240-214081-7	DUP-01	Total/NA	Water	9056A	
240-214081-8	MW-16-06	Total/NA	Water	9056A	
240-214081-8	MW-16-06	Total/NA	Water	9056A	
240-214081-9	MW-16-01	Total/NA	Water	9056A	
240-214081-9	MW-16-01	Total/NA	Water	9056A	
MB 240-634868/3	Method Blank	Total/NA	Water	9056A	
LCS 240-634868/4	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-02 — Lab Sample ID: 240-214081-1

Date Collected: 10/28/24 15:09 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:11
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:34
Total/NA	Analysis	9056A		1	634867	JMR	EET CLE	11/12/24 04:36
Total/NA	Analysis	9056A		10	634867	JMR	EET CLE	11/12/24 04:56
Total/NA	Analysis	SM 2540C		1	633733	TAV2	EET CLE	11/04/24 07:41

Client Sample ID: EB-01 — Lab Sample ID: 240-214081-2

Date Collected: 10/28/24 15:00 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:15
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:37
Total/NA	Analysis	9056A		1	634867	JMR	EET CLE	11/12/24 02:18
Total/NA	Analysis	SM 2540C		1	633733	TAV2	EET CLE	11/04/24 07:41

Client Sample ID: MW-16-07 — Lab Sample ID: 240-214081-3

Date Collected: 10/30/24 08:37 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:21
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:45
Total/NA	Analysis	9056A		1	634867	JMR	EET CLE	11/12/24 07:14
Total/NA	Analysis	9056A		5	634867	JMR	EET CLE	11/12/24 07:33
Total/NA	Analysis	SM 2540C		1	633795	GZF4	EET CLE	11/04/24 10:07

Client Sample ID: MW-16-05 — Lab Sample ID: 240-214081-4

Date Collected: 10/30/24 10:08 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 02:34
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:13
Total/NA	Analysis	9056A		1	634867	JMR	EET CLE	11/12/24 05:55
Total/NA	Analysis	9056A		5	634867	JMR	EET CLE	11/12/24 06:14

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-05 — Lab Sample ID: 240-214081-4

Date Collected: 10/30/24 10:08 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	633795	GZF4	EET CLE	11/04/24 10:07

Client Sample ID: MW-16-03 — Lab Sample ID: 240-214081-5

Date Collected: 10/30/24 10:46 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:25
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:47
Total/NA	Analysis	9056A		1	634867	JMR	EET CLE	11/12/24 05:15
Total/NA	Analysis	9056A		5	634867	JMR	EET CLE	11/12/24 05:35
Total/NA	Analysis	SM 2540C		1	633795	GZF4	EET CLE	11/04/24 10:07

Client Sample ID: MW-16-04 — Lab Sample ID: 240-214081-6

Date Collected: 10/30/24 11:55 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:29
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:50
Total/NA	Analysis	9056A		5	634868	JMR	EET CLE	11/12/24 13:09
Total/NA	Analysis	9056A		25	634868	JMR	EET CLE	11/12/24 13:29
Total/NA	Analysis	SM 2540C		1	633795	GZF4	EET CLE	11/04/24 10:07

Client Sample ID: DUP-01 — Lab Sample ID: 240-214081-7

Date Collected: 10/30/24 00:00 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:35
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:53
Total/NA	Analysis	9056A		1	634868	JMR	EET CLE	11/12/24 14:28
Total/NA	Analysis	9056A		5	634868	JMR	EET CLE	11/12/24 14:48
Total/NA	Analysis	SM 2540C		1	633795	GZF4	EET CLE	11/04/24 10:07

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

Client Sample ID: MW-16-06 — Lab Sample ID: 240-214081-8

Date Collected: 10/28/24 14:49 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:39
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:55
Total/NA	Analysis	9056A		1	634868	JMR	EET CLE	11/12/24 15:08
Total/NA	Analysis	9056A		10	634868	JMR	EET CLE	11/12/24 15:27
Total/NA	Analysis	SM 2540C		1	633733	TAV2	EET CLE	11/04/24 07:41

Client Sample ID: MW-16-01 — Lab Sample ID: 240-214081-9

Date Collected: 10/28/24 13:57 — **Matrix: Water**
Date Received: 11/01/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6010D		1	634080	RKT	EET CLE	11/06/24 03:56
Total Recoverable	Prep	3005A			633812	BN	EET CLE	11/05/24 05:00
Total Recoverable	Analysis	6020B		1	634046	AJC	EET CLE	11/05/24 19:58
Total/NA	Analysis	9056A		1	634868	JMR	EET CLE	11/12/24 15:47
Total/NA	Analysis	9056A		10	634868	JMR	EET CLE	11/12/24 16:07
Total/NA	Analysis	SM 2540C		1	633733	TAV2	EET CLE	11/04/24 07:41

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: 240-214081-1
Project/Site: CCR DTE RRLF HMP Uppermost Aquifer

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	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

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: E. Rinehart / S. Kranz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-106957-31929.1
Client Contact: Mr. Vincent Buening	Phone:	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page of
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): Standard			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF HMP Uppermost Aquifer	Project #: 24016807			
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)	6010 Bo, 6020 Ca, Fe	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N		
MW-16-07	10-28-24	1509	G	Water							
EB-01	10-29-24	1500	G	Water							
MW-16-07	10-30-24	837	G	Water							
MW-16-05	10-30-24	1008	G	Water							
MW-16-03	10-30-24	1046	G	Water							
MW-16-04	10-30-24	1155	G	Water							
Dup-01	10-30-24	—	G	Water							
MW-16-06	10-28-24	1449	G	Water							
MW-16-01	10-28-24	1357	G	Water							
				Water							

240-214081 COC

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	[signature]	~~10-31-24~~ 10-31-24/0800	TRC	[signature]	10/31/24 0830	FETA
2	[signature]	10/31/24 0830	FETA	[signature]	11-1-24 800	EC
3		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:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :**
Barberton Facility

Client TRC Site Name

Cooler Received on 11-1-24 Opened on 11-1-24

Cooler unpacked by:

FedEx: 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # 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 +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 2	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# HC447997
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 # : ____________

Eurofins - Cleveland 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 #: 17	1.3	1.4	Wet Ice (circled) Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______	0.9	1.0	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
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

11/1/2024

Login Container Summary Report

240-214081

11/13/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-16002	240-214081-A-1	Plastic 60 mL - unpreserved				
MW-16002	240-214081-B-1	Plastic 250ml - with Nitric Acid	<2			
MW-16002	240-214081-C-1	Plastic 500ml - unpreserved	<2			
EB-01	240-214081-A-2	Plastic 60 mL - unpreserved				
EB-01	240-214081-B-2	Plastic 250ml - with Nitric Acid	<2			
EB-01	240-214081-C-2	Plastic 500ml - unpreserved	<2			
MW-16-07	240-214081-A-3	Plastic 60 mL - unpreserved				
MW-16-07	240-214081-B-3	Plastic 250ml - with Nitric Acid	<2			
MW-16-07	240-214081-C-3	Plastic 500ml - unpreserved	<2			
MW-16-05	240-214081-A-4	Plastic 60 mL - unpreserved				
MW-16-05	240-214081-B-4	Plastic 500ml - unpreserved				
MW-16-05	240-214081-C-4	Plastic 500ml - with Nitric Acid	<2			
MW-16-03	240-214081-A-5	Plastic 60 mL - unpreserved				
MW-16-03	240-214081-B-5	Plastic 250ml - with Nitric Acid	<2			
MW-16-03	240-214081-C-5	Plastic 500ml - unpreserved	<2			
MW-16-04	240-214081-A-6	Plastic 60 mL - unpreserved				
MW-16-04	240-214081-B-6	Plastic 250ml - with Nitric Acid	<2			
MW-16-04	240-214081-C-6	Plastic 500ml - unpreserved	<2			
DUP-01	240-214081-A-7	Plastic 60 mL - unpreserved				
DUP-01	240-214081-B-7	Plastic 250ml - with Nitric Acid	<2			
DUP-01	240-214081-C-7	Plastic 500ml - unpreserved	<2			
MW-16-06	240-214081-A-8	Plastic 60 mL - unpreserved				
MW-16-06	240-214081-B-8	Plastic 500ml - unpreserved				
MW-16-06	240-214081-C-8	Plastic 500ml - with Nitric Acid	<2			
MW-16-01	240-214081-A-9	Plastic 60 mL - unpreserved				
MW-16-01	240-214081-B-9	Plastic 500ml - unpreserved				
MW-16-01	240-214081-C-9	Plastic 500ml - with Nitric Acid	<2			

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 12/23/2024 2:20:23 PM

JOB DESCRIPTION

CCR DTE Range Road Landfill HMP

JOB NUMBER

240-216763-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

myEOL

Job Notes

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

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

Authorization

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12/23/2024 2:20:23 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. Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Qualifiers

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: 240-216763-1 Eurofins Cleveland

Job Narrative
240-216763-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 12/17/2024 9:30 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 1.7°C, 1.9°C and 2.2°C.

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: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CLE

Protocol References:

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: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-216763-1	MW-16-05	Water	12/11/24 12:23	12/17/24 09:30
240-216763-2	DUP-01	Water	12/11/24 00:00	12/17/24 09:30

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Client Sample ID: MW-16-05
Lab Sample ID: 240-216763-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.8		0.050		mg/L	1		9056A	Total/NA

Client Sample ID: DUP-01
Lab Sample ID: 240-216763-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.8		0.050		mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Client Sample ID: MW-16-05
Lab Sample ID: 240-216763-1
Date Collected: 12/11/24 12:23
Matrix: Water
Date Received: 12/17/24 09:30

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride (SW846 9056A)	1.8		0.050		mg/L			12/20/24 13:54	1

Client: TRC Environmental Corporation.
Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Client Sample ID: DUP-01
Lab Sample ID: 240-216763-2
Date Collected: 12/11/24 00:00
Matrix: Water
Date Received: 12/17/24 09:30

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride (SW846 9056A)	1.8		0.050		mg/L			12/20/24 14:37	1

Client: TRC Environmental Corporation.
Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-639510/4
Matrix: Water
Analysis Batch: 639510

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.050	U	0.050		mg/L			12/20/24 04:45	1

Lab Sample ID: LCS 240-639510/5
Matrix: Water
Analysis Batch: 639510

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	2.54		mg/L		102	90 - 110		

QC Association Summary

Client: TRC Environmental Corporation.
Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

General Chemistry

Analysis Batch: 639510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-216763-1	MW-16-05	Total/NA	Water	9056A	
240-216763-2	DUP-01	Total/NA	Water	9056A	
MB 240-639510/4	Method Blank	Total/NA	Water	9056A	
LCS 240-639510/5	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation.
Job ID: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

Client Sample ID: MW-16-05
Lab Sample ID: 240-216763-1

Date Collected: 12/11/24 12:23
Matrix: Water
Date Received: 12/17/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	639510	JMR	EET CLE	12/20/24 13:54

Client Sample ID: DUP-01
Lab Sample ID: 240-216763-2

Date Collected: 12/11/24 00:00
Matrix: Water
Date Received: 12/17/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	639510	JMR	EET CLE	12/20/24 14:37

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: 240-216763-1
Project/Site: CCR DTE Range Road Landfill HMP

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	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-25
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24
Wisconsin	State	399167560	08-31-25

Eurofins Canton
180 S. Van Buren Ave

Barberton, OH 44203-3543
phone 330.497.9396 fax 330.497.0772

12.6/12.7

Chain of Custody Record

MICHIGAN 190

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Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Eurofins Environment Testing America

Client Contact	Project Manager: Vincent Buening	Site Contact:	Date: 12-11-24	COC No:
TRC Companies	Email: Vbuening@trccompanies.com	Lab Contact: Kris Brooks	Carrier:	1 of 1 COCs
1540 Eisenhower Place	Tel/Fax: 934-904-3302			TALS Project #:
Ann Arbor Michigan, 48108	Analysis Turnaround Time			Sampler:
734-971-7080 Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
NA	TAT if different from Below ~~5 Days~~ 3 Day			Walk-in Client:
Project Name: DTE CCR Range Road Landfill HMP Uppermo	☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Lab Sampling:
Site: Michigan				Job / SDG No.:
P O # 214268				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	9056A_28D - Fluoride	Sample Specific Notes:
MW-16-05	12/11	1233	G	GW	1	N	N	X	
DUP-01	12/11	—	G	GW	1	N	N	X	
								1	

240-216763 COC

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: TRC EDD Required

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

	Company	Date/Time		Company	Date/Time
Relinquished by:	TRC	1645	Received by:	TRC	12/11/24 1645
Relinquished by:	TRC	12/16/24 1423	Received by:	EETA	12/16/24 1430
Relinquished by:	EETA	12/16/24 1435	Received in Laboratory by: KATHARINE MARTIN	EVL	12/17/24 1030

@ 12

12/23/2024

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :**
Barberton Facility

Client TRC Site Name

Cooler Received on 12/17/24 Opened on 12/17/24

Cooler unpacked by: CMartin

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 # 17 (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 1 (KW)	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# HC450408
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 # : ____________

Eurofins - Cleveland 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 #: ______	1.6	1.7	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______	2.1	2.2	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______	1.8	1.9	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

12/17/2024

Login Container Summary Report

240-216763

12/23/2024

Temperature readings. _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-16-05	240-216763-A-1	Plastic 60 mL - unpreserved				
DUP-01	240-216763-A-2	Plastic 60 mL - unpreserved				

TO EUROFINS BARBERTON
EUROFINS BARBERTON
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396

DEPT

FedEx Express

FedEx

TRK# 0201 7708 1881 8702

TUE - 17 DEC 12:00P
PRIORITY OVERNIGHT

64 CAKA

44203
OH,US CLE

240-216763 Wayb

9024 4924 MTW EXP 03/25

Field Notes

TRC

PROJECT NAME:	DTE: CCR RRLF 2024 Sample & Report
PROJECT NUMBER:	553931.0000.0000
PROJECT MANAGER:	Vince Buening
SITE LOCATION:	China Township, Michigan
DATES OF FIELDWORK:	4/22/2024 4/23/2024 ~~4/22/2024~~ TO ~~4/3/2024~~
PURPOSE OF FIELDWORK:	1st 2024 Semiannual Sampling Event
WORK PERFORMED BY:	Jake Krenz

SIGNED 5-2-24 DATE

CHECKED BY 5/13/24 DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: CCR RRLF 2024 Sample	DATE: 4-22-24	TIME ARRIVED: 0900
PROJECT NUMBER: 553931.0000.0000	AUTHOR: JK	TIME LEFT: 1530

WEATHER		
TEMPERATURE: 60 °F	WIND: 0-5 MPH	VISIBILITY: clear

WORK / SAMPLING PERFORMED

Site wide water levels collected,
Sampled Monitoring wells MW-16-06, MW-16-03

pumped Down Monitoring wells MW-16-04 and MW-16-07

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
J. Stanislawski	DTE	check in/out

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
purge water	NM	purged to ground

JK 5-2-24
SIGNED DATE

[signature] 5-7-24
CHECKED BY DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: CCR RRLF 2024 Sample	DATE: 4-23-24	TIME ARRIVED: 0800
PROJECT NUMBER: 553931.0000.0000	AUTHOR: JK	TIME LEFT: ~~1500~~ 1530

WEATHER

TEMPERATURE: 68 °F WIND: 0-5 MPH VISIBILITY: Sunny

WORK / SAMPLING PERFORMED

Sampled wells MW-16-04, MW-16-02, MW-16-05, MW-16-06, and MW-16-07

checked off site sumps for GW capture system/ collected samples

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
S. Stanislawski	DTE	check in/out

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
purge water	DNM	purged to ground

JC JK 5-2-24
SIGNED DATE

[illegible] 5-7-24
CHECKED BY DATE

TRC

EQUIPMENT SUMMARY

PROJECT NAME:	DTE: CCR RRLF 2024 Samp	SAMPLER NAME:	Jake Krenz
PROJECT NO.:	553931.0000.0000		

WATER LEVEL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	PROJECT DEDICATED
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PRODUCT LEVEL MEASUREMENTS COLLECTED WITH:

NA	NA
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

DEPTH TO BOTTOM OF WELL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	PROJECT DEDICATED
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PURGING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)

SAMPLING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)
NA	NA
NAME AND MODEL OF FILTERATION DEVICE	FILTER TYPE AND SIZE
DEDICATED TEFLON TUBING	☑ LOW-FLOW SAMPLING EVENT
TUBING TYPE	

PURGE WATER DISPOSAL METHOD

☑ GROUND ☐ DRUM ☐ POTW ☐ POLYTANK ☐ OTHER _____

DECONTAMINATION AND FIELD BLANK WATER SOURCE

STORE BOUGHT	LABORATORY PROVIDED
POTABLE WATER SOURCE	DI WATER SOURCE
JL JG 5-2-24	HOwle 5-7-24
SIGNED DATE	CHECKED BY DATE

REVISED 04/2019

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	DTE: CCR RRLF 2024 Sample & Report	MODEL: YSI Pro DSS	SAMPLER: JK
PROJECT NO.:	553931.0000.0000	SERIAL #: PROJECT	DATE: 4-22-24

PH CALIBRATION CHECK

pH 7 (LOT #): 3GJ0918 (EXP. DATE): Oct/25 — POST-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 3GI0691 (EXP. DATE): Sep/25 — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
7.06 / 7.06	4.00 / 4.00	☒ WITHIN RANGE	1040
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 36J0103 (EXP. DATE): OCT/24 — POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
1070 / 1070	11.5	☒ WITHIN RANGE	1035
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 23K100208 (EXP. DATE): 10-8-28 — POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
204.4 / 204.4	12.4	☒ WITHIN RANGE	1044
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CAL. READING — POST-CAL. READING /SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
10.01 / 10.01	14.7	☒ WITHIN RANGE	1048
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): 23502122 (EXP. DATE): 11/24 — POST-CAL. READING / STANDARD	(LOT #): (EXP. DATE): — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
10.00 / 10.00	/	☒ WITHIN RANGE	1045
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

COMMENTS

☐ AUTOCAL SOLUTION (LOT #): (EXP. DATE):	☑ STANDARD SOLUTION (S) — LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK
CALIBRATED PARAMETERS	CALIBRATION RANGES [1]
☐ pH	pH: +/- 0.2 S.U.
☐ COND	COND: +/- 1% OF CAL. STANDARD
☐ ORP	ORP: +/- 25 mV
☐ D.O.	D.O.: VARIES
☐ TURB	TURB: +/- 5% OF CAL. STANDARD
☐ _____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER
☐ _____	

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS

SIGNED: JE JK 5-2-24 DATE

CHECKED BY: KGrubb 5-7-24 DATE

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	DTE: CCR RRLF 2024 Sample & Report	MODEL: YSI Pro DSS	SAMPLER: JK
PROJECT NO.:	553931.0000.0000	SERIAL #: PROJECT	DATE: 4-23-24

PH CALIBRATION CHECK

pH 7 (LOT #): 3GJ0918 (EXP. DATE): Oct/25 — POST-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 3GI0691 (EXP. DATE): Sep/25 — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
7.06 / 7.06	4.00 / 4.00	☒ WITHIN RANGE	0820
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 3GJ0103 (EXP. DATE): Oct/24 — POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
~~1.3~~ /		☐ WITHIN RANGE	
1137 / 1137	12.1	☒ WITHIN RANGE	0823
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 23K100208 (EXP. DATE): 10-8-28 — POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
208.2 / 208.2	12.3	☐ WITHIN RANGE	0825
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CAL. READING — POST-CAL. READING /SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
10.15 / 10.15	13.6	☐ WITHIN RANGE	0828
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): 23S0212C (EXP. DATE): 11/24 — POST-CAL. READING / STANDARD	(LOT #): (EXP. DATE): — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
10.0 / 10.0	/	☐ WITHIN RANGE	0821
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

COMMENTS

☐ AUTOCAL SOLUTION (LOT #): (EXP. DATE):	☑ STANDARD SOLUTION (S) — LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK
CALIBRATED PARAMETERS	CALIBRATION RANGES [1]
☐ pH	pH: +/- 0.2 S.U.
☐ COND	COND: +/- 1% OF CAL. STANDARD
☐ ORP	ORP: +/- 25 mV
☐ D.O.	D.O.: VARIES
☐ TURB	TURB: +/- 5% OF CAL. STANDARD
☐ _____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER
☐ _____	

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS

SIGNED _____ DATE 5-2-24

CHECKED BY _____ DATE 5-7-24

TRC

WATER LEVEL DATA

PROJECT NAME:	DTE: CCR RRLF 2024 Sample & Report	DATE:	4-22-24
PROJECT NUMBER:	553931.0000.0000	AUTHOR:	Jake Krenz

WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
MW-16-01	0830	TOC	17.77	NM	NA	NM
MW-16-02	0835		20.73			
MW-16-03	0838		19.95			
MW-16-04	0842		19.25			
MW-16-05	0857		27.74			
MW-16-06	0846		23.71			
MW-16-07	0907		17.16			

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR
(E.G., 1.1 + 0.00 T/PVC).

JC JK 5-2-24
SIGNED DATE

DH Smith 5-7-24
CHECKED DATE

TRC

WATER SAMPLE LOG

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-23-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-01 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1122	DATE: 4-23-24	SAMPLE	TIME: 1139	DATE: 4-23-24

PURGE METHOD: ☐ PUMP PERISTALTIC PUMP ☑ BAILER

DEPTH TO WATER: 17.65 T/ PVC

DEPTH TO BOTTOM NM T/ PVC

WELL VOLUME: NA ☐ LITERS ☐ GALLONS

VOLUME REMOVED 4.5 ☒ LITERS ☐ GALLONS

COLOR: Clear ODOR: none

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER

PH: 7.28 SU | CONDUCTIVITY: ~~1739~~ 1843 umhos/cm

ORP: -73.0 mV | DO: 1.44 mg/L

TURBIDITY: 1.41 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 10.6 °C | OTHER: —

COLOR: Clear | ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — | FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1124	300	7.34	1755	-63.5	1.94	1.65	10.7	17.77	INITIAL
1129	300	7.20	1761	-67.0	1.54	1.36	10.7	17.77	1.5
1134	300	7.26	1834	-70.9	1.46	1.47	10.7	17.77	3.0
1139	300	7.28	1843	-73.0	1.44	1.41	10.6	17.77	4.5

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: lab Drop off | DATE SHIPPED: 4-24-24 | AIRBILL NUMBER: —

COC NUMBER: — | SIGNATURE: [signature] | DATE SIGNED: 5-2-24

TRC

WATER SAMPLE LOG

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-23-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-02 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 0932	DATE: 4-23-24	SAMPLE	TIME: 0956	DATE: 4-23-24

PURGE METHOD: ☒ ~~PUMP~~ ~~PERISTALTIC PUMP~~ Dedicated Bladder ☑ ~~BAILER~~

DEPTH TO WATER: 20.53 T/ PVC	PH: 8.14 SU	CONDUCTIVITY: 1602 umhos/cm
DEPTH TO BOTTOM NM T/ PVC	ORP: -81.5 mV	DO: 1.51 mg/L
WELL VOLUME: NA ☐ LITERS ☐ GALLONS	TURBIDITY: 0.48 NTU	
VOLUME REMOVED 4 ☒ LITERS ☐ GALLONS	☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY	
COLOR: clear ODOR: none	TEMPERATURE: 10.0 °C	OTHER: —
TURBIDITY	COLOR: clear	ODOR: none
☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY	FILTRATE (0.45 um) ☐ YES ☒ NO	
DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER	FILTRATE COLOR: —	FILTRATE ODOR: —
	QC SAMPLE: ☐ MS/MSD ☒ DUP- 01	
	COMMENTS:	

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
0936	200	8.00	1739	-15.9	2.71	5.84	9.9	20.58	INITIAL
0941	200	7.89	1608	-28.8	1.66	1.00	10.0	20.58	1
0946	200	8.04	1604	-48.8	1.56	0.45	10.0	20.58	2
0951	200	8.09	1604	-62.4	1.54	0.57	10.0	20.58	3
0956	200	8.14	1602	-81.5	1.51	0.48	10.0	20.58	4

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	2	500mL	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	2	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	2	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: Lab Drop off	DATE SHIPPED: 4-24-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE: [signature]	DATE SIGNED: 5-2-24

WATER SAMPLE LOG

TRC

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-22-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-03 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1308	DATE: 4-22-24	SAMPLE	TIME: 1445	DATE: 4-22-24

PURGE METHOD: ☒ PUMP ~~PERISTALTIC PUMP~~ Dedicated Bladder ~~☐ BAILER~~

PH: 7.95 SU | CONDUCTIVITY: 1429 umhos/cm

ORP: -159.2 mV | DO: 1.36 mg/L

DEPTH TO WATER: 19.95 T/ PVC

TURBIDITY: 0.18 NTU

DEPTH TO BOTTOM NM T/ PVC

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

WELL VOLUME: N/A ☐ LITERS ☐ GALLONS

TEMPERATURE: 11.3 °C | OTHER: —

VOLUME REMOVED 19 ☒ LITERS ☐ GALLONS

COLOR: clear | ODOR: none

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

FILTRATE COLOR: — | FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1310	200	7.64	1425	-30.9	1.68	0.24	11.1	19.95	INITIAL
1315	200	7.62	1412	-40.7	1.50	0.22	11.1	19.95	1
1320	200	7.65	1419	-49.4	1.47	0.20	11.1	19.95	2
1325	200	7.68	1426	-57.5	1.44	0.25	11.3	19.95	3
1330	200	7.71	1437	-67.3	1.43	0.31	11.4	19.95	4
1335	200	7.74	1437	-76.3	1.42	0.21	11.5	19.95	5
1340	200	7.76	1435	-84.8	1.41	0.25	11.4	19.95	6
1345	200	7.78	1441	-91.3	1.40	0.22	11.5	19.95	7
1350	200	7.80	1440	-100.4	1.41	0.18	11.6	19.95	8
~~1355~~	200	7.82	1436	-107.0	1.41	0.26	11.5	19.95	9

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: lab drop off	DATE SHIPPED: 4-24-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE:	DATE SIGNED: 5-2-24

TRC

WATER SAMPLE LOG

(CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-22-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-03

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1400	200	7.83	1440	-113.4	1.39	0.21	11.5	19.95	10
1405	200	7.84	1430	-119.3	1.39	0.15	11.2	19.95	11
1410	200	7.86	1429	-126.9	1.38	0.18	11.2	19.95	12
1415	200	7.88	1429	-131.5	1.38	0.19	11.2	19.95	13
1420	200	7.90	1432	-136.7	1.37	0.23	11.2	19.95	14
1425	200	7.91	1432	-142.6	1.37	0.17	11.2	19.95	15
1430	200	7.92	1432	-148.5	1.37	0.19	11.2	19.95	16
1435	200	7.93	1429	-151.2	1.37	0.23	11.2	19.95	17
1440	200	7.94	1434	-154.6	1.36	0.21	11.3	19.95	18
1445	200	7.95	1429	-159.2	1.36	0.18	11.3	19.95	19

SIGNATURE: JE Zy

DATE SIGNED: 5-2-24

TRC

WATER SAMPLE LOG

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-23-24	BY: AG	DATE: 5-7-24

SAMPLE ID: MW-16-04 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 0832	DATE: 4-23-24	SAMPLE	TIME: 0912	DATE: 4-23-24
PURGE METHOD: ☒ PUMP ~~PERISTALTIC PUMP~~ Dedicated Bladder / ☑ ~~BAILER~~			PH: 8.04 SU	CONDUCTIVITY: 6671 umhos/cm	
			ORP: 6.8 mV	DO: 1.57 mg/L	
DEPTH TO WATER: 19.15 T/ PVC			TURBIDITY: 12.2 NTU		
DEPTH TO BOTTOM NM T/ PVC			☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: NA ☐ LITERS ☐ GALLONS			TEMPERATURE: 10.6 °C	OTHER:	
VOLUME REMOVED ☐ LITERS ☐ GALLONS			COLOR: Clear	ODOR: none	
COLOR: Clear	ODOR: none		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY			FILTRATE COLOR:	FILTRATE ODOR:	
			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER			COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
0837	200	6.52	6675	115.5	6.32	16.3	10.6	21.95	INITIAL
0842	200	7.03	6844	160.0	2.74	31.4	10.6	23.70	1
0847	200	7.57	6745	117.5	1.99	46.9	10.6	26.07	2
0852	200	7.77	6694	91.5	1.80	27.6	10.6	28.10	3
0857	200	7.88	6671	69.5	1.71	15.2	10.6	29.95	4
0902	200	7.94	6652	53.9	1.65	11.9	10.6	31.54	5
0907	200	8.00	6654	34.2	1.60	11.3	10.6	33.37	6
0912	200	8.04	6671	6.8	1.57	12.2	10.6	35.13	7

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	Plastic	A	☐ Y ☒ N
~~4~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: ~~lab Drop off~~	DATE SHIPPED: 4-24-24	AIRBILL NUMBER:
COC NUMBER:	SIGNATURE:	DATE SIGNED: 5-2-24

WATER SAMPLE LOG

TRC

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-23-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-05 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1021	DATE: 4-23-24	SAMPLE	TIME: 1104	DATE: 4-23-24

PURGE METHOD: ☒ PUMP ~~PERISTALTIC PUMP~~ ~~☑ BAILER~~

DEPTH TO WATER: 27.48 T/ PVC

DEPTH TO BOTTOM NM T/ PVC

WELL VOLUME: NA ☐ LITERS ☐ GALLONS

VOLUME REMOVED 12 ☒ LITERS ☐ GALLONS

COLOR: clear ODOR: none

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER

PH: 8.17 SU | CONDUCTIVITY: 1547 umhos/cm

ORP: -117.3 mV | DO: 1.40 mg/L

TURBIDITY: 0.21 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 11.2 °C | OTHER: —

COLOR: Clear | ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — | FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1024	300	7.66	1493	-29.5	4.31	2.29	10.8	27.55	INITIAL
1029	300	7.60	1614	-48.0	1.72	2.16	10.8	27.55	1.5
1034	300	7.76	1717	-71.9	1.54	0.27	10.7	27.55	3.0
1039	300	7.89	1686	-86.2	1.46	0.42	10.7	27.55	4.5
~~1044~~ 1044	300	7.95	1662	-93.7	1.44	0.37	10.8	27.55	6.0
1049	300	8.02	1625	-102.7	1.42	0.28	11.0	27.55	7.5
1054	300	8.08	1592	-108.9	1.41	0.22	11.2	27.55	9.0
1059	300	8.14	1557	-114.2	1.41	0.25	11.0	27.55	10.5
1104	300	8.17	1547	-117.3	1.40	0.21	11.2	27.55	12.0

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 0.1 COND.: +/- 10 % ORP: +/- D.O.: +/- TURB: +/- 10 % or </= 10 TEMP.: +/- 0.5°C

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: Lab Dop ~~off~~	DATE SHIPPED: 4-24-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE: [signature]	DATE SIGNED: 5-2-24

TRC

WATER SAMPLE LOG

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-22-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-06 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1100	DATE: 4-22-24	SAMPLE	TIME: 1253	DATE: 4-22-24

PURGE METHOD: ☒ PUMP ~~PERISTALTIC PUMP~~ Dedicated Bladder ~~☐ BAILER~~

DEPTH TO WATER: 23.71 T/ PVC

DEPTH TO BOTTOM NM T/ PVC

WELL VOLUME: NA ☐ LITERS ☐ GALLONS

VOLUME REMOVED 33 ☒ LITERS ☐ GALLONS

COLOR: Clear ODOR: none

TURBIDITY

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER

PH: 7.56 SU | CONDUCTIVITY: 1562 umhos/cm

ORP: -99.7 mV | DO: 1.44 mg/L

TURBIDITY: 0.15 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 11.3 °C | OTHER: —

COLOR: Clear | ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — | FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1103	300	6.61	1697	26.2	1.80	4.70	11.0	23.71	INITIAL
1108	300	6.98	1747	-8.0	1.52	1.70	11.1	23.71	1.5
1113	300	7.07	1741	-26.2	1.49	2.60	11.1	23.71	3.0
1118	300	7.17	1742	-42.9	1.48	0.93	11.1	23.71	4.5
1123	300	7.23	1728	-53.5	1.47	0.72	11.1	23.71	6.0
1128	300	7.28	1726	-61.6	1.46	0.11	11.1	23.71	7.5
1133	300	7.31	1710	-67.8	1.46	0.27	11.1	23.71	9.0
1138	300	7.34	1692	-72.5	1.47	0.26	11.2	23.71	10.5
1143	300	7.37	1687	-76.8	1.47	0.29	11.2	23.71	12.0
1148	300	7.39	1677	-79.1	1.45	0.09	11.2	23.71	13.5

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: ~~lab Drop off~~	DATE SHIPPED: 4-24-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE: [signature]	DATE SIGNED: 5-2-24

TRC

WATER SAMPLE LOG

(CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-22-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-06

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1153	300	7.41	1665	-81.6	1,46	0.11	11.2	23.71	15.0
1158	300	7.42	1656	-83.4	1.45	0,16	11.1	23.71	16.5
1203	300	7.45	1633	-85.9	1,47	0,28	11.2	23.71	18.0
1208	300	7.46	1624	-87.3	1.44	0,15	11.2	23.71	19.5
1213	300	7.47	1609	-88.9	1,46	0,31	11.2	23.71	~~19~~ 21
1218	300	7.49	1603	-90.6	1,44	0,25	11.2	23.71	22.5
1223	300	7.50	1602	-91.7	1,45	0,17	11,3	23,71	24.0
1228	300	7.51	1588	-93.1	1.45	0,22	11.3	23.71	25.5
1233	300	7.52	1588	-94.7	1,43	0,31	11.3	23,71	27.0
1238	300	7.53	1586	-96.0	1,42	0,27	11.3	23.71	28.5
1243	300	7.54	1575	-97.0	1.43	0,16	11.3	23.71	~~3~~0
1248	300	7.55	1562	-98.4	1.44	0.20	11.3	23.71	31.5
1253	300	7.56	1562	-99.7	1,44	0, 15	11,3	23.71	33.0

SIGNATURE: JE Kz

DATE SIGNED: 5-2-24

TRC

WATER SAMPLE LOG

PROJECT NAME: DTE: CCR RRLF 2024 Sample	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: JK	DATE: 4-23-24	BY: HG	DATE: 5-7-24

SAMPLE ID: MW-16-07	WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER
WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL	☐ OTHER
SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE	☐ OTHER

PURGING	TIME: 1158	DATE: 4-23-24
PURGE METHOD: ☐ PUMP PERISTALTIC PUMP ☑ BAILER		
DEPTH TO WATER: ~~17.90~~ T/ PVC 16.90		
DEPTH TO BOTTOM NM T/ PVC		
WELL VOLUME: NA ☐ LITERS ☐ GALLONS		
VOLUME REMOVED 8 ☒ LITERS ☐ GALLONS		
COLOR: gray	ODOR: none	
TURBIDITY ☐ NONE ☐ SLIGHT ☒ MODERATE ☐ VERY		
DISPOSAL METHOD ☒ GROUND ☐ DRUM ☐ OTHER		

SAMPLE	TIME: 1242	DATE: 4-23-24
PH: 7.63 SU	CONDUCTIVITY: 776 umhos/cm	
ORP: -122.7 mV	DO: 1.41 mg/L	
TURBIDITY: 62.5 NTU		
~~☒ NONE~~ (SK) ☐ SLIGHT ☒ MODERATE ☐ VERY		
TEMPERATURE: 11.1 °C	OTHER: —	
COLOR: gray	ODOR: none	
FILTRATE (0.45 um) ☐ YES ☒ NO		
FILTRATE COLOR: —	FILTRATE ODOR: —	
QC SAMPLE: ☐ MS/MSD ☐ DUP-		
COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1202	200	7.50	723	-30.6	2.43	25.5	10.8	18.20	INITIAL
1207	200	7.34	735	-26.0	6.08	47.1	11.4	17.70	1
1212	200	7.29	750	-20.4	3.64	56.9	10.7	18.50	2
1217	200	7.40	773	-44.8	1.76	64.8	10.9	18.90	3
1222	200	7.47	773	-70.7	1.50	66.2	10.9	19.00	4
1227	200	7.52	772	-86.3	1.45	73.2	~~10~~ 11.0	19.25	5
1232	200	7.57	777	-102.7	1.42	62.6	11.0	19.40	6
1237	200	7.61	776	-113.6	1.41	~~56.~~ 666.6	11.1	19.50	7
1242	200	7.63	776	-122.7	1.41	62.5	11.1	19.60	8

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	plastic	A	☐ Y ☒ N
1	500mL	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	250mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: Lab Drop off	DATE SHIPPED: 4-24-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE: JL Hz	DATE SIGNED: 5-2-24

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone (330) 497-9396 Phone (330) 497-0772

MICHIGAN 190

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing

Client Information	Sampler: Jake Krentz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-106957-31929.1
Client Contact: Mr. Vincent Buening	Phone: 734-395-9804	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page of
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 #: 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF HMP Uppermost Aquifer	Project #: 24016807			
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)	6010 Bo, 6020 Ca, Fe	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate											Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	N											X	
EB-01	4-22-24	1012	G	Water	N	N	X	X	X												
MW-16-06	4-22-24	1253	G	Water	N	N	X	X	X												
MW-16-03	4-22-24	1445	G	Water	N	N	X	X	X												
MW-16-04	4-23-24	0912	G	Water	N	N	X	X	X												
MW-16-02	4-23-24	0956	G	Water	N	N	X	X	X												
DUP-01	4-23-24	—	G	Water	N	N	X	X	X												
MW-16-05	4-23-24	1104	G	Water	N	N	X	X	X												
MW-16-01	4-23-24	1139	G	Water	N	N	X	X	X												
MW-16-07	4-23-24	1242	G	Water	N	N	X	X	X												
				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
	4-24-24/0830	TRC		4/24/24 0850	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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

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TRC

PROJECT NAME:	DTE: RRLF 2024 Sampling
PROJECT NUMBER:	553931.0000.0000
PROJECT MANAGER:	Vince Buening
SITE LOCATION:	4505 King Road China Township, MI 48054
DATES OF FIELDWORK:	6/6/24
PURPOSE OF FIELDWORK:	1SA2024 CCR Verification Sampling Event
WORK PERFORMED BY:	A. Whaley

SIGNED 6/7/24 DATE

CHECKED BY 6-10-24 DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: RRLF 2024 Sampling	DATE: 6/6/24	TIME ARRIVED: 1235
PROJECT NUMBER: 553931.0000.0000	AUTHOR: A. Whaley	TIME LEFT: 1500

WEATHER

TEMPERATURE: 74 °F WIND: 5-12 MPH VISIBILITY: Partly Cloudy

WORK / SAMPLING PERFORMED

Check in w/ security

Sample MW-16-01 and MW-16-05 (DUP-01) as part of the 1SA24 CCR verification

contact security / site contact to be let out (gates close at 1400)

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN
None	

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
Jake Krenz	TRC	Technical Coordinator
~~Jason Roggenbuck~~ AW	DTE	Site Contact
Jamie Stanislawski		

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
GW	NM	Purged to ground

A. Whaley 6/7/24
SIGNED DATE

[signature] 6-10-24
CHECKED BY DATE

TRC

EQUIPMENT SUMMARY

PROJECT NAME:	DTE: RRLF 2024 Sampling	SAMPLER NAME:	A. Whaley
PROJECT NO.:	553931.0000.0000		

WATER LEVEL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	TRC A2
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PRODUCT LEVEL MEASUREMENTS COLLECTED WITH:

NA	NA
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

DEPTH TO BOTTOM OF WELL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	TRC A2
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PURGING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)

SAMPLING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)
NA	0.45 MICRON
NAME AND MODEL OF FILTERATION DEVICE	FILTER TYPE AND SIZE
DEDICATED ~~TEFLON~~ Polyethelene TUBING	☑ LOW-FLOW SAMPLING EVENT
TUBING TYPE	

PURGE WATER DISPOSAL METHOD

☑ GROUND ☐ DRUM ☐ POTW ☐ POLYTANK ☐ OTHER _____

DECONTAMINATION AND FIELD BLANK WATER SOURCE

STORE BOUGHT	LABORATORY PROVIDED
POTABLE WATER SOURCE	DI WATER SOURCE
[signature] 6/7/24	[signature] 6-10-24
SIGNED DATE	CHECKED BY DATE

REVISED 04/2019

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	DTE RRLF ISA 24 GR verification	MODEL: ~~YSI 600XL~~ PRO DSS	SAMPLER: ~~JJASSO~~ A. Whaley
PROJECT NO.:	553931.0000.0000	SERIAL #: ~~IRC A2~~ Dedicated	DATE: 6/6/24

PH CALIBRATION CHECK

pH 7 (LOT #): 4GB1040 (EXP. DATE): Feb/26 POST-CAL. READING / STANDARD	pH (4) 10 (LOT #): 4GB1376 (EXP. DATE): Feb/26 POST-CAL. READING / STANDARD	CAL. RANGE	TIME
7.01 / 7.01	4.00 / 4.00	[X] WITHIN RANGE	1027
/	/	[ ] WITHIN RANGE	
/	/	[ ] WITHIN RANGE	
/	/	[ ] WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 4GC0232 (EXP. DATE): Mar/25 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
1332 / 1332	21.8	[X] WITHIN RANGE	1032
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 23E100250 (EXP. DATE): May/28 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
222.0 / 222.0	21.9	[X] WITHIN RANGE	1037
		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	

D.O. CALIBRATION CHECK

CAL. READING POST-CAL. READING /SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
~~N/A~~	—	[ ] WITHIN RANGE	—
8.48 / 8.48	22.2	[X] WITHIN RANGE	1041
/		[ ] WITHIN RANGE	
/		[ ] WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): 20P0074 (EXP. DATE): 9/24 POST-CAL. READING / STANDARD	(LOT #): 21040103 (EXP. DATE): 7/24 POST-CAL. READING / STANDARD	CAL. RANGE	TIME
0.00 ~~N/A~~ 0.00	10.0 / 10.0	[X] WITHIN RANGE	1045
/	/	[ ] WITHIN RANGE	
/	/	[ ] WITHIN RANGE	
/	/	[ ] WITHIN RANGE	

COMMENTS

[ ] AUTOCAL SOLUTION
(LOT #):
(EXP. DATE):

[ ] STANDARD SOLUTION (S)
LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK

CALIBRATED PARAMETERS	CALIBRATION RANGES (1)	
[ ] pH	pH:	+/- 0.2 S.U.
[ ] COND	COND:	+/- 1% OF CAL. STANDARD
[ ] ORP	ORP:	+/- 25 mV
[ ] D.O.	D.O.:	VARIES
[ ] TURB	TURB:	+/- 5% OF CAL. STANDARD
[ ] _____	(1) CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER	
[ ] _____		

NOTES

Separate Turbidity Meter
LaMotte 2020t
project Dedicated

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS

SIGNED [signature] DATE 6/7/24

CHECKED BY [signature] DATE 6-10-24

TRC

WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF 2024 Sampling	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: AW	DATE: 6/6/24	BY: JK	DATE: 6-10-24

SAMPLE ID: MW-16-01 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1247	DATE: 6/6/24	SAMPLE	TIME: 1302	DATE: 6/6/24
PURGE METHOD:	☑ PUMP BLADDER PUMP (DEDICATED) ☐ BAILER		PH: 7.26 SU	CONDUCTIVITY: 1663 umhos/cm	
			ORP: -39.6 mV	DO: 2.83 mg/L	
DEPTH TO WATER: 17.40 T/ PVC			TURBIDITY: 0.92 NTU		
DEPTH TO BOTTOM: NM T/ PVC			☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: NM	☐ LITERS ☐ GALLONS		TEMPERATURE: 12.3 °C	OTHER: -	
VOLUME REMOVED: 4.0	☒ LITERS ☐ GALLONS		COLOR: Clear	ODOR: None	
COLOR: Clear	ODOR: None		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY			FILTRATE COLOR:	FILTRATE ODOR:	
☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD: ☑ GROUND ☐ DRUM ☐ OTHER			COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU) 7.1-8.2	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1242	200	7.23	1624	-13.1	4.15	3.67	11.2	17.70	INITIAL
1247	↓	7.22	1651	-22.3	3.30	2.95	11.2	17.85	1.0
1252		7.21	1689	-26.8	2.80	2.07	12.3	18.00	2.0
1257		7.24	1653	-36.2	2.80	1.38	12.2	18.05	3.0
1302		7.26	1663	-39.6	2.83	0.92	12.3	18.10	4.0
~~1309~~									~~5.0~~

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **5** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
1	500mL	PLASTIC	A	☐ Y ☒ N					☐ Y ☐ N
~~1~~	500mL	PLASTIC	B	☐ Y ☐ N					☐ Y ☐ N
~~1~~	60 mL	PLASTIC	A	☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	Courier	DATE SHIPPED:	6/7/24	AIRBILL NUMBER:	NA
COC NUMBER:	NA	SIGNATURE:	A. Wilmoth	DATE SIGNED:	6/7/24

TRC WATER SAMPLE LOG

PROJECT NAME: DTE: RRLF 2024 Sampling	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: AW	DATE: 6/6/24	BY: JK	DATE: 6-10-24

SAMPLE ID: MW-16-05 | WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1337	DATE: 6/6/24	SAMPLE	TIME: 1417	DATE: 6/6/24
PURGE METHOD: ☑ PUMP BLADDER PUMP (DEDICATED) ☐ BAILER			PH: 8.12 SU	CONDUCTIVITY: 1406 umhos/cm	
			ORP: -0.9 mV	DO: 3.00 mg/L	
DEPTH TO WATER: 26.80 T/ PVC			TURBIDITY: 0.97 NTU		
DEPTH TO BOTTOM: NM T/ PVC			☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: NM ☐ LITERS ☐ GALLONS			TEMPERATURE: 13.6 °C	OTHER: —	
VOLUME REMOVED: 8.0 ☒ LITERS ☐ GALLONS			COLOR: Clear	ODOR: None	
COLOR: Clear ODOR: None			FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY			FILTRATE COLOR:	FILTRATE ODOR:	
☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY			QC SAMPLE: ☐ MS/MSD ☒ DUP- 01		
DISPOSAL METHOD: ☑ GROUND ☐ DRUM ☐ OTHER			COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1337	200	7.89	1477	62.1	6.70	4.99	13.9	27.20	INITIAL
1342		7.94	1471	55.2	3.50	1.60	13.0	27.10	1.0
1347		7.60	1478	44.8	3.42	1.46	12.9		2.0
1352		7.76	1452	33.8	3.21	0.93	12.8		3.0
1357		7.90	1429	24.3	3.11	1.26	13.0		4.0
1402		7.97	1423	16.3	3.05	0.88	13.2		5.0
1407		8.03	1433	10.0	3.00	1.12	13.7		6.0
1412		8.08	1409	3.3	3.00	1.26	13.6		7.0
1417		8.12	1406	-0.9	3.00	0.97	13.6		8.0

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **5** TEMP.: +/- **0.5°C**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	500mL	PLASTIC	A	☐ Y ☒ N					☐ Y ☐ N
2	500mL	PLASTIC	B	☐ Y ☒ N					☐ Y ☐ N
2	60 mL	PLASTIC	A	☐ Y ☒ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: courier	DATE SHIPPED: 6/7/24	AIRBILL NUMBER: NA
COC NUMBER: NA	SIGNATURE: A. Wilmley	DATE SIGNED: 6/7/24

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

MICHIGAN 190

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing

Client Information	Sampler: A. Whaley	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-121203-42306.1
Client Contact: Mr. Vincent Buening	Phone: 734-216-4239	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin: MI	Page: Page 1 of 1
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested: 3 Day			
City: Ann Arbor	TAT Requested (days): 3 Day TAT			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: ~~199485~~ 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF	Project #: 24016807			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:
D - HNO3
N - None
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)	6020 - (MOD) Metals - Ca	9056A_28D - Sulfate	2540C_Calcd - TDS	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	N	X	
MW-16-05	6/6/24	1417	G	Water	N	N	X	X	X	3	3 day turn around time on the samples
DUP-01	6/6/24	—	G	Water	N	N	X	X	X	3	
MW-16-01	6/6/24	1302	G	Water	N	N			X	1	

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) TRC EDD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/6/24 1650	TRC		6/7/24 1323	
2	Relinquished by:	Date/Time: 6/7/24 122	Company TRC	Received by:	Date/Time:	Company
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:

TRC

PROJECT NAME:	DTE: RRLF CCR RRLF Sample & Report
PROJECT NUMBER:	553931.0000.0000
PROJECT MANAGER:	Vince Buening
SITE LOCATION:	China Township, Michigan
DATES OF FIELDWORK:	10/28/2024 TO 10/31/2024
PURPOSE OF FIELDWORK:	Second Semiannual Sampling event 2024
WORK PERFORMED BY:	Elric Rinehart

10/30/24
SIGNED DATE

11/8/24
CHECKED BY DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: CCR RRLF 2024 Sample	DATE: 10-28-24	TIME ARRIVED: 1300
PROJECT NUMBER: 553931.0000.0000	AUTHOR: Jake Krenz	TIME LEFT: 1600

WEATHER

TEMPERATURE: 70 °F WIND: 0-5 MPH VISIBILITY: Clear

WORK / SAMPLING PERFORMED

Split Samples MW-16-01 and MW-16-06 w/ EGLE

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
J. Stanislawski	DTE	check in/out

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
purge water	NM	purged to ground

SIGNED 10-30-24 DATE

CHECKED BY 11/11/24 DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: RRLF CCR RRLF Sampl	DATE: 10/29/24	TIME ARRIVED: 815
PROJECT NUMBER: 553931.0000.0000	AUTHOR: Elric Rinehart	TIME LEFT: 3:20 (1520)

WEATHER

TEMPERATURE: 57 °F WIND: 9 MPH VISIBILITY: Cloudy

WORK / SAMPLING PERFORMED

RRLF water levels, well purge, Sample ~~MW-16~~ FB-01

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN
Sub pump motor losses	Replace Motor

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
Jamie S.	DTE	Site Contact

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
Water	10A	

SIGNED 10/29/24 DATE

CHECKED BY 11/8/24 DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: CCR RRLF 2024 Sample	DATE: 10-29-24	TIME ARRIVED: 1420
PROJECT NUMBER: 553931.0000.0000	AUTHOR: Jake Krenz	TIME LEFT: 1530

WEATHER

TEMPERATURE: 75 °F WIND: 5-10 MPH VISIBILITY: Clear

WORK / SAMPLING PERFORMED

Helped Elric troubleshoot Submersible pump

pumped down MW-16-04 Removed ~22 gallons of water

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN
Voltage not going up on Submersible pump	Hooked to my truck and turned it all the way up, that worked

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
J. Stanislawski	DTE	check in / out

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
purge water	~22 gal	purged to ground

SIGNED 10-30-24 DATE

CHECKED BY 11/11/24 DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: RRLF CCR RRLF Sampl	DATE: 10-30-24	TIME ARRIVED: 740
PROJECT NUMBER: 553931.0000.0000	AUTHOR: Elric Rinehart	TIME LEFT: 1250

WEATHER

TEMPERATURE: 66 °F WIND: 13 MPH VISIBILITY: ~~Clear~~ Fair

WORK / SAMPLING PERFORMED

Sample MW-16-07, MW-16-05, MW-16-03
MW-16-04

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS
Samie S.	DTE	Site Contact

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS

SIGNED 10/30/24 DATE

CHECKED BY 11/8/24 DATE

REVISED 04/2019

TRC

EQUIPMENT SUMMARY

PROJECT NAME:	DTE: RRLF CCR Sample & F	SAMPLER NAME:	Elric Rinehart/Jake Krenz
PROJECT NO.:	553931.0000.0000		

WATER LEVEL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	PROJECT DEDICATED
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PRODUCT LEVEL MEASUREMENTS COLLECTED WITH:

NA	NA
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

DEPTH TO BOTTOM OF WELL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	PROJECT DEDICATED
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PURGING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)

SAMPLING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)
NA	NA
NAME AND MODEL OF FILTERATION DEVICE	FILTER TYPE AND SIZE
DEDICATED TEFLON TUBING	☑ LOW-FLOW SAMPLING EVENT
TUBING TYPE	

PURGE WATER DISPOSAL METHOD

☑ GROUND ☐ DRUM ☐ POTW ☐ POLYTANK ☐ OTHER _____

DECONTAMINATION AND FIELD BLANK WATER SOURCE

STORE BOUGHT	LABORATORY PROVIDED
POTABLE WATER SOURCE	DI WATER SOURCE
[signature] 10-30-24	[signature] 11/11/24
SIGNED DATE	CHECKED BY DATE

REVISED 04/2019

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	DTE: ~~DRPP~~ RRLT 2024 Sample & Report	MODEL: YSI Pro DSS	SAMPLER: JK
PROJECT NO.:	~~553931.0003.0000~~ 553931.0000	SERIAL #: PROJECT	DATE: 10-28-24

PH CALIBRATION CHECK

pH 7 (LOT #): 4GA0629 (EXP. DATE): Jan/26 POST-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 4GB1376 (EXP. DATE): Feb/26 POST-CAL. READING / STANDARD	CAL. RANGE	TIME
7.02 / 7.02	4.00 / 4.00	☒ WITHIN RANGE	0825
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 4GC1196 (EXP. DATE): Mar/25 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
1315 / 1315	22.3	☒ WITHIN RANGE	0820
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): M714 (EXP. DATE): 10-8-24 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
227.3 / 227.3	22.7	☒ WITHIN RANGE	0830
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CAL. READING POST-CAL. READING /SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
8.72 / 8.72	20.5	☒ WITHIN RANGE	0832
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): A3907 (EXP. DATE): APR-25 POST-CAL. READING / STANDARD	(LOT #): (EXP. DATE): POST-CAL. READING / STANDARD	CAL. RANGE	TIME
10.0 / 10.0	/	☐ WITHIN RANGE	0830
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

COMMENTS

☐ AUTOCAL SOLUTION (LOT #): (EXP. DATE):	☑ STANDARD SOLUTION (S) LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK
CALIBRATED PARAMETERS	CALIBRATION RANGES (1)
☐ pH	pH: +/- 0.2 S.U.
☐ COND	COND: +/- 1% OF CAL. STANDARD
☐ ORP	ORP: +/- 25 mV
☐ D.O.	D.O.: VARIES
☐ TURB	TURB: +/- 5% OF CAL. STANDARD
☐ _____	(1) CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER
☐ _____	

NOTES

PROBLEMS ENCOUNTERED / CORRECTIVE ACTIONS

SIGNED _____ DATE 10-30-24

CHECKED BY _____ DATE 11/11/24

REVISED 04/2019

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Sample & Report	MODEL: Aquatrol	SAMPLER: ER
PROJECT NO.:	553931.0000.0000	SERIAL #: PROJECT	DATE: 10/30/24

PH CALIBRATION CHECK

pH 7 (LOT #): 4GE0944 (EXP. DATE): May 26 — POST-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 4GF0044 (EXP. DATE): Jun 26 — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
7.02 / 7.02	4.10 / 4.0	☒ WITHIN RANGE	750
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): (EXP. DATE): — POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
1332 / 1332	22	☒ WITHIN RANGE	808
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 24A100347 (EXP. DATE): 1/11/29 — POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
222.5 / 222.5	21.46	☒ WITHIN RANGE	755
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CAL. READING — POST-CAL. READING /SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
8.04 / 8.04	25.0	☒ WITHIN RANGE	810
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): A3097 (EXP. DATE): Apr 25 — POST-CAL. READING / STANDARD	(LOT #): (EXP. DATE): — POST-CAL. READING / STANDARD	CAL. RANGE	TIME
160 / 100	/	☒ WITHIN RANGE	800
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

COMMENTS

☐ AUTOCAL SOLUTION (LOT #): (EXP. DATE):	☑ STANDARD SOLUTION (S) — LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK
CALIBRATED PARAMETERS	CALIBRATION RANGES [1]
☐ pH	pH: +/- 0.2 S.U.
☐ COND	COND: +/- 1% OF CAL. STANDARD
☐ ORP	ORP: +/- 25 mV
☐ D.O.	D.O.: VARIES
☐ TURB	TURB: +/- 5% OF CAL. STANDARD
☐ _____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER
☐ _____	

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS

SIGNED 10/30/24 DATE

CHECKED BY 11/8/24 DATE

TRC

WATER LEVEL DATA

PROJECT NAME:	DTE: RRLF CCR RRLF Sample & Report	DATE:	10/30/24
PROJECT NUMBER:	553931.0000.0000	AUTHOR:	Javier Jasso, Elric Rinehart

WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
MW-16-01	9:15	TOC	19.09			
MW-16-02	9:05		20.64			
MW-16-03	8:55		19.85			
MW-16-04	8:50		19.27			
MW-16-05	11:55		27.37			
MW-16-06	8:40		23.48			
MW-16-07	9:30		15.76			

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED 10/30/24 DATE

CHECKED 11-8-24 DATE

REVISED 04/2019

TRC WATER SAMPLE LOG

PROJECT NAME: RRLF 2024 Sample Report	PREPARED	CHECKED
PROJECT NUMBER: 553931.0000	BY: JK DATE: 10-28-24	BY: AH DATE: 11/11/24

SAMPLE ID: MW-16-01 WELL DIAMETER: ☑ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1329	DATE: 10-28-24

PURGE METHOD: ☑ PUMP BLADDER PUMP (DEDICATED) ☐ BAILER

DEPTH TO WATER: 18.35 T/ PVC

DEPTH TO BOTTOM: NM T/ PVC

WELL VOLUME: NA ☐ LITERS ☐ GALLONS

VOLUME REMOVED: 7.5 ☒ LITERS ☐ GALLONS

COLOR: Clear ODOR: none

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☒ GROUND ☐ DRUM ☐ OTHER

SAMPLE	TIME: 1357	DATE: 10-28-24

PH: 7.61 SU CONDUCTIVITY: 1767 umhos/cm

ORP: -128.2 mV DO: 0.05 mg/L

TURBIDITY: 2.79 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 11.1 °C OTHER: —

COLOR: Clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP-

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1332	300	7.21	1777	-75.3	0.46	8.26	11.0	18.60	INITIAL
1337	300	7.40	1848	-102.4	0.08	11.20	11.0	18.60	1.5
1342	300	7.50	1804	-116.8	0.05	3.39	11.2	18.60	3.0
1347	300	7.53	1793	-120.3	0.05	1.69	11.1	18.60	4.5
1352	300	7.57	1776	-125.1	0.08	1.59	11.1	18.60	6.0
1357	300	7.61	1767	-128.2	0.05	2.79	11.1	18.60	7.5

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	500mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
		Lab DO off		☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: ~~Lab Courier~~ DATE SHIPPED: 10-31-24 AIRBILL NUMBER: —

COC NUMBER: — SIGNATURE: [signature] DATE SIGNED: 10-30-24

TRC

WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Sample	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 10/27/24	BY: JK	DATE: 11-8-24

SAMPLE ID: MW-16-02 WELL DIAMETER: ☒ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1454	DATE: 10/28/24	SAMPLE	TIME: 1509	DATE: 10/28/24

PURGE METHOD: ☐ PUMP PERISTALTIC PUMP ☑ BAILER

DEPTH TO WATER: 20.76 T/ PVC

DEPTH TO BOTTOM: — T/ PVC

WELL VOLUME: NM ☐ LITERS ☐ GALLONS

VOLUME REMOVED: 3 ☒ LITERS ☐ GALLONS

COLOR: Cloudy ODOR: No

TURBIDITY ☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☒ GROUND ☐ DRUM ☐ OTHER

PH: 8.34 SU CONDUCTIVITY: 1983.5 umhos/cm

ORP: -262.4 mV DO: 0.67 mg/L

TURBIDITY: 0.1 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 10.96 °C OTHER:

COLOR: Clear ODOR: No

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: FILTRATE ODOR:

QC SAMPLE: ☐ MS/MSD ☐ DUP-

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1454	200	7.78	1954.6	41.6	5.89	2.78	13.89	20.76	INITIAL
1459	↓	8.33	1985.5	-219.9	0.73	2.13	11.41	20.76	1
1504	↓	8.34	1982.8	-255.0	0.68	0.7	11.14	—	2
1509	↓	8.34	1983.5	-262.4	0.67	0.1	10.96	—	3

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= ~~10~~ 5 TEMP.: +/- **0.5°C**

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - ____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
3	40 mL	VOA	E	☐ Y ☒ N	1	60ml	Plastic	A	☐ Y ☒ N
1	500mL	PLASTIC	B	☐ Y ☒ N					☐ Y ☐ N
2	250 mL	PLASTIC	A	☐ Y ☒ N					☐ Y ☐ N
1	500ml	Plastic	A	☐ Y ☒ N					☐ Y ☐ N
1	250ml	Plastic	B	☐ Y ☒ N					☐ Y ☐ N

SHIPPING METHOD:	Courier	DATE SHIPPED:	10-31-24	AIRBILL NUMBER:	—
COC NUMBER:	—	SIGNATURE:		DATE SIGNED:	10-30-24

WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Sampl	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 10-30-24	BY: JK	DATE: 11-8-24

SAMPLE ID: MW-16-03 | WELL DIAMETER: ☒ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1031	DATE: 10-30
PURGE METHOD:	☐ PUMP ☐ PERISTALTIC PUMP ☑ BAILER	
DEPTH TO WATER:	19.86 T/ PVC	
DEPTH TO BOTTOM:	NM T/ PVC	
WELL VOLUME:	NM ☐ LITERS ☐ GALLONS	
VOLUME REMOVED:	3.75 ☒ LITERS ☐ GALLONS	
COLOR:	Clear	ODOR: None
TURBIDITY	☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY	
DISPOSAL METHOD:	☒ GROUND ☐ DRUM ☐ OTHER	

SAMPLE	TIME: 1046	DATE: 10-30-24
PH:	8.06 SU	CONDUCTIVITY: 1811.1 umhos/cm
ORP:	-168.4 mV	DO: 0.01 mg/L
TURBIDITY:	1.7 NTU	
	☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY	
TEMPERATURE:	11.92 °C	OTHER:
COLOR:	Clear	ODOR: None
FILTRATE (0.45 um)	☐ YES ☒ NO	
FILTRATE COLOR:		FILTRATE ODOR:
QC SAMPLE:	☐ MS/MSD ☒ DUP- 01	
COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1031	250	7.7	1823.1	-28.3	0.81	1.66	12.84	19.88	INITIAL
1036	↓	8.03	1824.3	-141.2	0.07	0.89	11.73	—	1.25
1041		8.03	1826.8	-158.3	0.07	0.21	11.72	—	2.5
1046		8.06	1811.1	-168.4	0.01	1.7	11.92	—	3.75
									~~5.0~~
									~~6.25~~

PH 8.06 = 8.8

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 0.1 COND.: +/- 10 % ORP: +/- D.O.: +/- TURB: +/- 10 % or </= 10 TEMP.: +/- 0.5°C

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	2	250ml	Plastic	B	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N					☐ Y ☐ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N					☐ Y ☐ N
2	500ml	Plastic	A	☐ Y ☒ N					☐ Y ☐ N
2	60 ml	Plastic	A	☐ Y ☒ N					☐ Y ☐ N

SHIPPING METHOD:	Courier	DATE SHIPPED:	10-31-24	AIRBILL NUMBER:	—
COC NUMBER:	—	SIGNATURE:		DATE SIGNED:	10-30-24

TRC WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Sample	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 10-30-24	BY: JK	DATE: 11-8-24

SAMPLE ID: MW-16-04 | WELL DIAMETER: ☒ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1110	DATE: 10-30	SAMPLE	TIME: 1155	DATE: 10-30
PURGE METHOD: ☐ PUMP PERISTALTIC PUMP ☑ BAILER			PH: 7.89 SU	CONDUCTIVITY: 8387.9 umhos/cm	
			ORP: -141.4 mV	DO: 0.46 mg/L	
DEPTH TO WATER: 19.32 T/ PVC			TURBIDITY: 29.6 NTU		
DEPTH TO BOTTOM: NM T/ PVC			☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME: NM ☐ LITERS ☐ GALLONS			TEMPERATURE: 13.34 °C	OTHER:	
VOLUME REMOVED: 6.75 ☒ LITERS ☐ GALLONS			COLOR: Clear	ODOR: No	
COLOR: Cloudy	ODOR: No		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY			FILTRATE COLOR:	FILTRATE ODOR:	
☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD: ☒ GROUND ☐ DRUM ☐ OTHER			COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1110	150	7.43	8607.6	66.8	10.45	9.72	12.81	19.52	INITIAL
1115		8.36	8578.7	-179.4	1.09	42.1	12.16	19.82	0.75
1120		8.31	8503.8	-189.2	0.93	38.6	13.73	20.32	1.5
1125		8.28	8489.9	-185.2	0.75	98.7	13.65	25.90	2.25
1130		8.19	8332.6	-175.6	0.86	64.6	13.59	26.87	3.0
1135		8.09	7943.5	-163.5	0.74	46.6	13.48	27.84	3.75
1140		8.02	8224.3	-166.5	0.66	37.7	13.21	28.81	4.5
1145		7.95	8413.2	-148.5	0.55	30.5	13.6	29.78	5.25
1150		7.92	7872.3	-142.7	0.49	~~29.6~~ 29.9	13.42	30.75	6.0
1155		7.89	8387.9	-141.4	0.46	29.6	13.34	31.72	6.75

pH 1.6 ↗ 8.6

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 0.1 COND.: +/- 10 % ORP: +/- D.O.: +/- TURB: +/- 10 % or </= 10 TEMP.: +/- 0.5°C

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	250 ml	Plastic	13	☐ Y ☐ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N					☐ Y ☐ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N					☐ Y ☐ N
1	500 ml	Plastic	A	☐ Y ☐ N					☐ Y ☐ N
1	60ml	Plastic	A	☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: Courier	DATE SHIPPED: 10-31-24	AIRBILL NUMBER: ~
COC NUMBER: ~	SIGNATURE:	DATE SIGNED: 10-30-24

WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Sampl	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 10-30	BY: JK	DATE: 11-8-24

SAMPLE ID: MW-16-05 WELL DIAMETER: ☒ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 923	DATE: 10-30-24	SAMPLE	TIME: 1008	DATE: 10-30
PURGE METHOD:	☐ PUMP PERISTALTIC PUMP ☑ BAILER		PH: 8.01 SU	CONDUCTIVITY: 1801.9	umhos/cm
			ORP: -130.4 mV	DO: 0.0	mg/L
DEPTH TO WATER:	27.40 T/ PVC		TURBIDITY: 0.0 NTU		
DEPTH TO BOTTOM:	NM T/ PVC		☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY		
WELL VOLUME:	NM ☐ LITERS ☐ GALLONS		TEMPERATURE: 11.52 °C	OTHER:	
VOLUME REMOVED:	9 ☒ LITERS ☐ GALLONS		COLOR: Clear	ODOR: No	
COLOR:	Cloudy/Clear ODOR: No		FILTRATE (0.45 um) ☐ YES ☑ NO		
TURBIDITY			FILTRATE COLOR:	FILTRATE ODOR:	
☐ NONE ☒ SLIGHT ☐ MODERATE ☐ VERY			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD:	☒ GROUND ☐ DRUM ☐ OTHER		COMMENTS: Air Canister Depleted @ 945 / Swamp		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
923	200	7.08	1908.8	94.7	7.0	11.68	15.22	27.4	INITIAL
928		7.38	1885.8	17.7	0.14	7.77	11.62	27.65	1
933		7.58	1939.3	-23.7	0.08	1.68	11.5	—	2
938		7.79	1917.2	-63.9	0.05	1.02	11.51	—	3
943		7.85	1896.1	-82.8	0.11	6.3	12.74	—	4
948		7.91	1893.3	-98.1	0.05	4.23	11.58	—	5
953		7.88	1900.1	-101.0	0.02	1.87	11.92	—	6
958		7.96	1894.3	-115.2	0.01	0.07	11.54	—	7
1003		8.01	1843.9	-125.7	0.01	0.0	11.51	—	8
1008		8.01	1801.9	-130.4	0.00	0.0	11.52	—	9

Ph 8.0-8.9

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 0.1 COND.: +/- 10 % ORP: +/- D.O.: +/- TURB: +/- 10 % or </= 10 TEMP.: +/- 0.5°C

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
3	40 mL	VOA	E	☐ Y ☐ N					☐ Y ☐ N
1	500mL	PLASTIC	A	☐ Y ☒ N					☐ Y ☐ N
1	250 mL	PLASTIC	B	☐ Y ☒ N					☐ Y ☐ N
1	60ml	Plastic	D	☐ Y ☒ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	Courier	DATE SHIPPED:	10-31-24	AIRBILL NUMBER:	—
COC NUMBER:	—	SIGNATURE:		DATE SIGNED:	10-30-24

TRC

WATER SAMPLE LOG

PROJECT NAME: RRLF 2024 Sample/Report	PREPARED	CHECKED
PROJECT NUMBER: 557931.0000	BY: JK DATE: 10-28-24	BY: ~~JK~~ DATE: ~~11-8-24~~

SAMPLE ID: MW-16-06 WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: 1420	DATE: 10-28-24

PURGE METHOD: ☑ PUMP BLADDER PUMP (DEDICATED) ☐ BAILER

DEPTH TO WATER: 23.68 T/ PVC

DEPTH TO BOTTOM: N/M T/ PVC

WELL VOLUME: NA ☐ LITERS ☐ GALLONS

VOLUME REMOVED: 7.5 ☒ LITERS ☐ GALLONS

COLOR: clear ODOR: none

TURBIDITY ☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☒ GROUND ☐ DRUM ☐ OTHER

SAMPLE	TIME: 1449	DATE: 10-28-24

PH: 7.75 SU CONDUCTIVITY: 1600 umhos/cm

ORP: -139.7 mV DO: 0.00 mg/L

TURBIDITY: 1.22 NTU

☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: 11.4 °C OTHER: —

COLOR: clear ODOR: none

FILTRATE (0.45 um) ☐ YES ☒ NO

FILTRATE COLOR: — FILTRATE ODOR: —

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1424	300	7.31	1578	-72.8	0.65	2.25	11.9	23.75	INITIAL
1429	300	7.62	1630	-109.0	0.21	2.13	11.6	23.75	1.5
1434	300	7.67	1627	-126.0	0.07	1.91	11.6	23.75	3.0
1439	300	7.70	1620	-133.7	0.03	1.56	11.6	23.75	4.5
1444	300	7.73	1598	-139.4	0.03	1.40	11.4	23.75	6.0
1449	300	7.75	1600	-134.7	0.00	~~1.40~~ 1.22	11.4	23.75	7.5
~~1454~~	300								~~9.0~~
~~1459~~	300								~~10.5~~

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 0.1 COND.: +/- 10 % ORP: +/- D.O.: +/- TURB: +/- 10 % or </= 10 TEMP.: +/- 0.5°C

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N	1	500mL	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N	1	500mL	↓	B	☐ Y ☒ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N	1	60mL	↓	A	☐ Y ☒ N
				☐ Y ☐ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD: Lab Drop off	DATE SHIPPED: 10-31-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE: [signature]	DATE SIGNED: 10.30-24

WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Sample	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 10/30/24	BY: JL	DATE: 11-8-24

SAMPLE ID: MW-16-07 | WELL DIAMETER: ☒ 2" ☐ 4" ☐ 6" ☐ OTHER

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER

PURGING	TIME: ~~1537 CDT~~ 817 CST	DATE: 10/30/24	SAMPLE	TIME: 837	DATE: 10/30/24
PURGE METHOD:	☐ PUMP PERISTALTIC PUMP ☑ BAILER		PH: 7.98 SU	CONDUCTIVITY: 1160.2 umhos/cm	
			ORP: -147.7 mV	DO: 0.06 mg/L	
DEPTH TO WATER:	17.0 T/ PVC		TURBIDITY: 152.0 NTU		
DEPTH TO BOTTOM:	NM T/ PVC		☐ NONE ☐ SLIGHT ☒ MODERATE ☐ VERY		
WELL VOLUME:	NM ☐ LITERS ☐ GALLONS		TEMPERATURE: 12.33 °C	OTHER:	
VOLUME REMOVED:	4 ☒ LITERS ☐ GALLONS		COLOR: Cloudy	ODOR: No	
COLOR:	Clear ODOR: No		FILTRATE (0.45 um) ☐ YES ☒ NO		
TURBIDITY			FILTRATE COLOR:	FILTRATE ODOR:	
☒ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY			QC SAMPLE: ☐ MS/MSD ☐ DUP-		
DISPOSAL METHOD: ☒ GROUND ☐ DRUM ☐ OTHER			COMMENTS:		

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
817	200	7.34	1113.5	91.8	0.28	87.72	13.02	17.0	INITIAL
822		7.55	1157.1	26.0	0.69	94.6	12.21	18.05	1
827		7.93	1174.3	-96.3	0.17	168.0	12.03	19.10	2
832		7.98	1157.0	-146.1	0.12	162.0	12.3	20.15	3
837		7.98	1160.2	-147.7	0.06	152.0	12.33	21.20	4

168 - 10 %
152

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 0.1 COND.: +/- 10 % ORP: +/- D.O.: +/- TURB: +/- 10 % or </= 10 TEMP.: +/- 0.5°C

BOTTLES FILLED — PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	~~E~~	☐ Y ☐ N					☐ Y ☐ N
1	500mL	PLASTIC	A	☐ Y ☒ N					☐ Y ☐ N
1	250 mL	PLASTIC	B	☐ Y ☒ N					☐ Y ☐ N
1	60 ml	Plastic	D	☐ Y ☒ N					☐ Y ☐ N
				☐ Y ☐ N					☐ Y ☐ N

SHIPPING METHOD:	Courier	DATE SHIPPED:	10-31-24	AIRBILL NUMBER:	
COC NUMBER:		SIGNATURE:		DATE SIGNED:	10-30-24

TRC WATER SAMPLE LOG

PROJECT NAME: DTE: RRLF CCR RRLF Sampl	PREPARED		CHECKED	
PROJECT NUMBER: 553931.0000.0000	BY: ER	DATE: 10-29-24	BY: SK	DATE: 11-5-24

SAMPLE ID: EB-01 | WELL DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER _____

WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER _____

SAMPLE TYPE: ☑ GW ☐ WW ☐ SW ☐ DI ☐ LEACHATE ☐ OTHER _____

PURGING	TIME: 1500	DATE: 10-29-24	SAMPLE	TIME: 1500	DATE: 10-29-24

PURGE METHOD: ☐ PUMP PERISTALTIC PUMP ☑ BAILER _____

DEPTH TO WATER: _____ T/ PVC

DEPTH TO BOTTOM: _____ T/ PVC

WELL VOLUME: _____ ☐ LITERS ☐ GALLONS

VOLUME REMOVED: _____ ☐ LITERS ☐ GALLONS

COLOR: _____ ODOR: _____

TURBIDITY ☐ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

DISPOSAL METHOD: ☐ GROUND ☐ DRUM ☐ OTHER

PH: _____ SU | CONDUCTIVITY: _____ umhos/cm

ORP: _____ mV | DO: _____ mg/L

TURBIDITY: _____ NTU

☐ NONE ☐ SLIGHT ☐ MODERATE ☐ VERY

TEMPERATURE: _____ °C | OTHER: _____

COLOR: _____ | ODOR: _____

FILTRATE (0.45 um) ☐ YES ☐ NO

FILTRATE COLOR: _____ | FILTRATE ODOR: _____

QC SAMPLE: ☐ MS/MSD ☐ DUP- _____

COMMENTS:

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
									INITIAL
	Equipment			Blank					

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
~~3~~	~~40 mL~~	~~VOA~~	E	☐ Y ☐ N	1	60ml	Plastic	A	☐ Y ☒ N
~~1~~	~~500mL~~	~~PLASTIC~~	~~B~~	☐ Y ☐ N					☐ Y ☐ N
~~2~~	~~250 mL~~	~~PLASTIC~~	~~A~~	☐ Y ☐ N					☐ Y ☐ N
1	500ml	Plastic	A	☐ Y ☒ N					☐ Y ☐ N
1	250ml	Plastic	B	☐ Y ☒ N					☐ Y ☐ N

SHIPPING METHOD: Courier	DATE SHIPPED: 10-31-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE:	DATE SIGNED: 10-30-24

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

18 of 18

Client Information	Sampler: E. Rinehart / S. Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-106957-31929.1
Client Contact: Mr. Vincent Buening	Phone:	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page of
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 #: 214268			
Email: vbuening@trccompanies.com	WO #: 518728.0000			
Project Name: CCR DTE RRLF HMP Uppermost Aquifer	Project #: 24016807			
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)	6010 Bo, 6020 Ca, Fe	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N		
MW-16-07	10-28-24	1509	G	Water							
EB-01	10-29-24	1500	G	Water							
MW-16-07	10-30-24	837	G	Water							
MW-16-05	10-30-24	1008	G	Water							
MW-16-03	10-30-24	1046	G	Water							
MW-16-04	10-30-24	1155	G	Water							
Dup-01	10-30-24	—	G	Water							
MW-16-06	10-28-24	1449	G	Water							
MW-16-01	10-28-24	1357	G	Water							
				Water							

240-214081 COC

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	[signature]	~~10-24~~ 10-31-24 1000	TRC	[signature]	10/31/24 0830	EETA
2	[signature]	10/31/24 0830	EETA	[signature]	11-1-24 800	EC
3						

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

Ver: 01/16/2019

PROJECT NAME:	DTE: RRLF CCR RRLF Verification Sample & Report
PROJECT NUMBER:	553931.0000.0000
PROJECT MANAGER:	Vince Buening
SITE LOCATION:	China Township, Michigan
DATES OF FIELDWORK:	12/11/2024 TO 12/11/2024
PURPOSE OF FIELDWORK:	2SA24 Verification Sampling event 2024
WORK PERFORMED BY:	Elric Rinehart

SIGNED 12/16/24 DATE

CHECKED BY 12/16/24 DATE

TRC

GENERAL NOTES

PROJECT NAME: DTE: RRLF CCR RRLF Verific	DATE: 12/11/24	TIME ARRIVED: 930
PROJECT NUMBER: 553931.0000.0000	AUTHOR: Elric Rinehart	TIME LEFT: 1235

WEATHER		
TEMPERATURE: 34 °F	WIND: 10 MPH	VISIBILITY: Cloudy

WORK / SAMPLING PERFORMED

Ver sample of MW-16-05

PROBLEMS ENCOUNTERED	CORRECTIVE ACTION TAKEN
Air pressure tank ran low	Switched to battery powered Compressor

COMMUNICATION

NAME	REPRESENTING	SUBJECT / COMMENTS

INVESTIGATION DERIVED WASTE SUMMARY

WASTE MATRIX	QUANTITY	COMMENTS
Water	UM	Purge to ground

SIGNED 12/16/24 DATE

CHECKED BY 12-16-24 DATE

REVISED 04/2019

TRC

EQUIPMENT SUMMARY

PROJECT NAME:	DTE: RRLF CCR RRLF Verif	SAMPLER NAME:	Elric Rinehart
PROJECT NO.:	553931.0000.0000		

WATER LEVEL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	PROJECT DEDICATED
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PRODUCT LEVEL MEASUREMENTS COLLECTED WITH:

NA	NA
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

DEPTH TO BOTTOM OF WELL MEASUREMENTS COLLECTED WITH:

HERON DIPPER-T	PROJECT DEDICATED
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)

PURGING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)

SAMPLING METHOD

BLADDER PUMP (DEDICATED)	PROJECT DEDICATED
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)
NA	NA
NAME AND MODEL OF FILTERATION DEVICE	FILTER TYPE AND SIZE
DEDICATED TEFLON TUBING	☑ LOW-FLOW SAMPLING EVENT
TUBING TYPE	

PURGE WATER DISPOSAL METHOD

☑ GROUND ☐ DRUM ☐ POTW ☐ POLYTANK ☐ OTHER _____

DECONTAMINATION AND FIELD BLANK WATER SOURCE

STORE BOUGHT	LABORATORY PROVIDED
POTABLE WATER SOURCE	DI WATER SOURCE
SIGNED 12/16/24 DATE	CHECKED BY 12-16-24 DATE

REVISED 04/2019

TRC

WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Verification Sample & R	MODEL:	Aq Troll 600	SAMPLER:	ER
PROJECT NO.:	553931.0000.0000	SERIAL #:	PROJECT	DATE:	12/11/24

PH CALIBRATION CHECK

pH 7 (LOT #): 4GH0553 (EXP. DATE): Aug/26 POST-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 4G10445 (EXP. DATE): Sep/26 POST-CAL. READING / STANDARD	CAL. RANGE	TIME
7.06 / 7.06	4.0 / 4.0	☑ WITHIN RANGE	950
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

SPECIFIC CONDUCTIVITY CALIBRATION CHECK

CAL. READING (LOT #): 4G10212 (EXP. DATE): Sep-25 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
842.52 / 842.52	4	☑ WITHIN RANGE	1010
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

ORP CALIBRATION CHECK

CAL. READING (LOT #): 23E100250 (EXP. DATE): May/28 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
253 / 253	4	☑ WITHIN RANGE	1005
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

D.O. CALIBRATION CHECK

CAL. READING POST-CAL. READING /SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
12.76 / 12.76	4	☑ WITHIN RANGE	955
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	
/		☐ WITHIN RANGE	

TURBIDITY CALIBRATION CHECK

CALIBRATION READING (NTU) (LOT #): A3097 (EXP. DATE): Apr 25 POST-CAL. READING / STANDARD	(LOT #): (EXP. DATE): POST-CAL. READING / STANDARD	CAL. RANGE	TIME
100 / 100	/	☑ WITHIN RANGE	1000
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	
/	/	☐ WITHIN RANGE	

COMMENTS

☐ AUTOCAL SOLUTION (LOT #): (EXP. DATE):	☑ STANDARD SOLUTION (S) LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK
CALIBRATED PARAMETERS	CALIBRATION RANGES [1]
☐ pH	pH: +/- 0.2 S.U.
☐ COND	COND: +/- 1% OF CAL. STANDARD
☐ ORP	ORP: +/- 25 mV
☐ D.O.	D.O.: VARIES
☐ TURB	TURB: +/- 5% OF CAL. STANDARD
☐ _____	[1] CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER
☐ _____	

NOTES

PROBLEMS ENCOUNTERED	CORRECTIVE ACTIONS

SIGNED 12/11/24 DATE

CHECKED BY 12-16-24 DATE

TRC

WATER LEVEL DATA

PROJECT NAME:	DTE: RRLF CCR RRLF Verification Sample & Report	DATE:	12/11/2024
PROJECT NUMBER:	553931.0000.0000	AUTHOR:	Elric Rinehart

WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
MW-16-05	1030	TOC	27.05	NM	—	—

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED 12/16/24 DATE

CHECKED 12-16-24 DATE

TRC

WATER SAMPLE LOG

PROJECT NAME:	DTE: RRLF CCR RRLF Verifica	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 12/11/2024	BY: AW	DATE: 12-16-24

SAMPLE ID: MW-16-05 | WELL DIAMETER: [X] 2" [ ] 4" [ ] 6" [ ] OTHER

WELL MATERIAL: [✓] PVC [ ] SS [ ] IRON [ ] GALVANIZED STEEL [ ] OTHER

SAMPLE TYPE: [✓] GW [ ] WW [ ] SW [ ] DI [ ] LEACHATE [ ] OTHER

PURGING	TIME: 1033	DATE: 12/11/2024	SAMPLE	TIME: 1223	DATE: 12/11/2024
PURGE METHOD:	[X] PUMP ~~PERISTALTIC PUMP~~ [X] BAILER Bladder pump		PH: 8.02 SU	CONDUCTIVITY: 2106.3 umhos/cm	
			ORP: -141.6 mV	DO: 0.17 mg/L	
DEPTH TO WATER: 27.05 T/ PVC			TURBIDITY: 0.07 NTU		
DEPTH TO BOTTOM: NM T/ PVC			[✓] NONE [ ] SLIGHT [ ] MODERATE [ ] VERY		
WELL VOLUME: NM	[ ] LITERS [ ] GALLONS		TEMPERATURE: 10.37 °C	OTHER:	
VOLUME REMOVED: 26.75	[✓] LITERS [ ] GALLONS		COLOR: Clear	ODOR: No	
COLOR: Clear	ODOR: No		FILTRATE (0.45 um) [ ] YES [ ] NO		
TURBIDITY			FILTRATE COLOR:	FILTRATE ODOR:	
[✓] NONE [ ] SLIGHT [ ] MODERATE [ ] VERY			QC SAMPLE: [ ] MS/MSD	[X] DUP- 01	
DISPOSAL METHOD: [✓] GROUND [ ] DRUM [ ] OTHER			COMMENTS: Air tank ran out of air @1128		

TIME	PURGE RATE (ML/MIN)	PH* (SU)	CONDUCTIVITY* (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY* (NTU)	TEMPERATURE* (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1033	350	6.38	2207.2	157.2	0.57	0.0	10.52	27.05	INITIAL
1038		7.05	2150.2	64.5	0.17	0.53	10.56	27.05	1.75
1043		7.3	2128.8	17.5	0.15	0.17	10.6	—	3.5
1048		7.49	2108.7	-29.0	0.13	0.82	10.59	27.05	5.25
1053		7.6	2104.4	-57.7	0.12	0.0	10.48	—	7.0
1058		7.65	2091.6	-69.9	0.09	0.91	10.77	—	8.75
1103		7.69	2093.6	-80.4	0.09	0.30	10.69	—	10.5
1108		7.71	2100.4	-86.9	0.09	0.19	10.71	27.05	12.25
1113	↓	7.72	2096.2	-90.9	0.09	0.09	10.66	—	14.0
1118	200	7.75	2096.8	-95.3	0.11	0.27	10.16		15.75

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- **0.1** COND.: +/- **10 %** ORP: +/- D.O.: +/- TURB: +/- **10 %** or </= **10** TEMP.: +/- **0.5°C**

BOTTLES FILLED | PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____

NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
2	60mL	PLASTIC	A	[ ] Y [✓] N					[ ] Y [ ] N
		PLASTIC		[ ] Y [✓] N					[ ] Y [ ] N
				[ ] Y [ ] N					[ ] Y [ ] N
				[ ] Y [ ] N					[ ] Y [ ] N
				[ ] Y [ ] N					[ ] Y [ ] N

SHIPPING METHOD: Courier	DATE SHIPPED: 12-16-24	AIRBILL NUMBER: —
COC NUMBER: —	SIGNATURE:	DATE SIGNED: 16/11/24

TRC

WATER SAMPLE LOG

(CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	DTE: RRLF CCR RRLF Verifica	PREPARED		CHECKED	
PROJECT NUMBER:	553931.0000.0000	BY: ER	DATE: 12/11/2024	BY: AW	DATE: 12-16-24

SAMPLE ID: **MW-16-05**

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1123	200	7.71	2075.6	-90.7	0.1	0.27	10.4	27.05	16.75
1128	200	7.66	2101.8	-84.4	0.15	0.43	9.91		
1128-1138		Recalibrate		pH	out	of	range / Swapped Air tank		
1138	200	7.64	2109.8	-77.8	0.17	0.8	9.82	—	17.75
1143		7.72	2117.6	-69.9	0.09	0.38	10.01	27.05	18.75
1148		7.79	2104.2	-101.7	0.1	0.09	10.14	↓	19.75
1153		7.85	2075.7	-111.7	0.09	0.11	10.28		20.75
1158		7.87	2099.0	-117.6	0.11	0.08	10.45	↓	21.75
1203		7.91	2106.1	-123.6	0.13	0.28	10.46	27.05	22.75
1208		7.93	2103.5	-128.5	0.16	0.57	10.46	—	23.75
1213		7.96	2108.5	-133.5	0.18	0.56	10.33	↓	24.75
1218		7.99	2113.4	-136.9	0.16	0.46	10.39	↓	25.75
1223		8.02	2106.3	-141.6	0.17	0.07	10.37	27.05	26.75

SIGNATURE: [signature] DATE SIGNED: 12/11/24

Chain of Custody Record

Eurofins Canton
180 S. Van Buren Ave

Barberton, OH 44203-3543
phone 330.497.9396 fax 330.497.0772

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Eurofins Environment Testing America

Client Contact	Project Manager: Vincent Buening	Site Contact:	Date: 12-11-24	COC No:
TRC Companies	Email: Vbuening@trccompanies.com	Lab Contact: Kris Brooks	Carrier:	1 of 1 COCs
1540 Eisenhower Place	Tel/Fax: 934-904-3302			TALS Project #:
Ann Arbor Michigan, 48108	**Analysis Turnaround Time**			Sampler:
734-971-7080 Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			**For Lab Use Only:**
NA	TAT if different from Below ~~5 Days~~			Walk-in Client:
Project Name: DTE CCR Range Road Landfill HMP Uppermo	☐ 2 weeks 3 Day			Lab Sampling:
Site: Michigan	☐ 1 week			Job / SDG No.:
P O # 214268	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	9056A_28D - Fluoride	Sample Specific Notes:
MW-16-05	12/11	1233	G	GW	1	N	N	X	
DUP-01	12/11	—	G	GW	1	N	N	X	
								1	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: TRC EDD Required

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by:	Company: TRC	Date/Time: 1645	Received by: TRC Storage	Company: TRC	Date/Time: 12/14/24 1140
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Appendix D
Data Quality Reviews

Laboratory Data Quality Review
Groundwater Monitoring Event April 2024
DTE Electric Company Range Road Landfill (DTE RRLF)

Groundwater samples were collected by TRC for the April 2024 sampling event. Samples were analyzed for anions, total metals, and total dissolved solids by Eurofins Cleveland, located in Barberton, Ohio. The laboratory analytical results are reported in laboratory report 240-203326-1.

During the April 2024 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 Boron	SW846 3005A/6010D
Total Calcium and Iron	SW846 3005A/6020B
Total Dissolved Solids (TDS)	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 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. 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), where applicable. 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, where applicable. 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 as well as 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:

- Target analytes were not detected in the equipment blank (EB-01).
- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory QC limits.
- MS/MSD analyses was performed on sample MW-16-07 for total calcium and iron. All criteria were met.
- A laboratory duplicate analysis was performed for TDS on sample EB-01. All criteria were met.
- Samples DUP-01/MW-16-02 were submitted as a field duplicate pair with this data set; all criteria were met.
- The RL for sulfate (5 mg/L) was greater than the QAPP-specified RL (1 mg/L) in sample MW-16-04 due to a 5-fold dilution likely performed due to elevated concentration of chloride.

Laboratory Data Quality Review
Groundwater Monitoring Verification Event June 2024
DTE Electric Company Range Road Landfill (DTE RRLF)

Groundwater samples were collected by TRC for the June 2024 verification sampling event. Samples were analyzed for total calcium, sulfate, and total dissolved solids by Eurofins Cleveland, located in Barberton, Ohio. The laboratory analytical results are reported in laboratory report 240-205902-1.

During the June 2024 verification sampling event, a groundwater sample was collected from each of the following wells:

- MW-16-01
- MW-16-05

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Sulfate	SW846 9056A
Total Calcium	SW846 3005A/6020B
Total Dissolved Solids (TDS)	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 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. 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), where applicable. 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, where applicable. 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.

- The reviewed Appendix III constituents 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:

- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory QC limits.
- MS/MSD analyses was performed on sample MW-16-05 for total calcium. All criteria were met.
- Laboratory duplicate analyses were not performed on a sample from this data set.
- Samples DUP-01/MW-16-05 were submitted as a field duplicate pair with this data set; all criteria were met.

Laboratory Data Quality Review
Groundwater Monitoring Event October 2024
DTE Electric Company Range Road Landfill (DTE RRLF)

Groundwater and stormwater samples were collected by TRC for the October 2024 sampling event. Samples were analyzed for anions, total metals, alkalinity, total suspended solids, and/or total dissolved solids by Eurofins Cleveland, located in Barberton, Ohio. The laboratory analytical results are reported in laboratory reports 240-214081-1 and 240-214176-1 (Revision 1).

During the October 2024 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 one or more of the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	SW846 9056A
Total Boron	SW846 3005A/6010D
Total Calcium and Iron	SW846 3005A/6020B
Total Dissolved Solids (TDS)	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 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. 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), where applicable. 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, where applicable. 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.

- The reviewed Appendix III constituents as well as 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:

- Target analytes were not detected in the equipment blank (EB-01).
- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory QC limits.
- MS/MSD analyses was performed on sample MW-16-05 boron, calcium, and iron, sample EB-01 for anions. All Criteria were met.
- Laboratory duplicate analyses were performed on samples EB-01 and MW-16-06 for TDS. All criteria were met.
- Samples DUP-01/MW-16-03 were submitted as a field duplicate pair with this data set; all criteria were met with the following exception:
  - The result for sulfate was nondetect in sample DUP-01 and was >5x the RL in sample MW-16-03; the absolute difference was greater than the RL. Therefore, the positive and nondetect results for sulfate should be considered estimated in all groundwater samples in this data set, as summarized in the attached table, Attachment A.
- The RL for sulfate (5 mg/L) was greater than the QAPP-specified RL (1 mg/L) in sample MW-16-04 due to a 5-fold dilution likely performed due to elevated concentration of chloride.

Attachment A
Summary of Data Non-Conformances for Groundwater Analytical Data
DTE Electric Company Range Road Landfill
China Township, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
MW-16-02	10/28/2024	Sulfate	Field duplicate variability (one result nondetect and one result >5x the reporting limit [RL]; absolute difference greater than RL); potential uncertainty exists for the listed results.
MW-16-07	10/30/2024		
MW-16-05	10/30/2024		
MW-16-03	10/30/2024		
MW-16-04	10/30/2024		
DUP-01	10/30/2024		
MW-16-06	10/28/2024		
MW-16-01	10/28/2024		

Laboratory Data Quality Review
Groundwater Verification Monitoring Event December 2024
DTE Electric Company Range Road Landfill (DTE RRLF)

A groundwater sample was collected by TRC for the December 2024 sampling event. The sample was analyzed for fluoride by Eurofins Cleveland, located in Barberton, Ohio. The laboratory analytical results are reported in laboratory report 240-216763-1.

During the December 2024 sampling event, a groundwater sample was collected from the following well:

- MW-16-05

The sample was analyzed for the following constituent:

Analyte Group	Method
Fluoride	SW846 9056A

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; 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 constituent 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

- Fluoride was not detected in the method blank.
- A field blank and equipment blank were not submitted with this sample set.
- The LCS recovery for fluoride was within laboratory control limits.
- MS/MSD analyses and laboratory duplicate analyses was not performed on a sample from this data set.
- Samples DUP-01/MW-16-05 were submitted as the field duplicate pair with this data set; all criteria were met.