2021 Annual Groundwater Monitoring Report

Sibley Quarry Coal Combustion Residual Landfill
801 Fort Street
Trenton, Michigan

January 2022

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Executive Summary

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule), as amended. The CCR Rule, which became effective on October 19, 2015 (with amendments in 2018 and 2020), applies to the DTE Electric Company (DTE Electric) Sibley Quarry Landfill (SQLF) 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 Environmental Corporation (TRC), has prepared this Annual Groundwater Monitoring Report for calendar year 2021 activities at the SQLF CCR unit.

DTE Electric remained in detection monitoring at the SQLF CCR Unit in 2021. The semiannual detection monitoring events for 2021 were completed in April and October 2021 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 detection monitoring parameters to determine if concentrations in detection monitoring well samples exceed background levels. Detection monitoring data that has been collected and evaluated in 2021 are presented in this report.

No SSIs were observed throughout the 2021 monitoring period. Potential SSIs over prediction limits were noted for Appendix III constituents in one or more downgradient wells for boron and chloride during the April 2021 monitoring event and chloride during the October 2021 monitoring event. These potential SSIs were evaluated and determined to be a result of natural variability in groundwater quality as documented in an alternative source demonstration (ASD) and not attributable to the SQLF CCR unit.

Based on the hydrogeology at the Site, the uppermost aquifer is in an area where pumping has been performed continuously since before CCR disposal began and will continue to be dewatered, by which a continuous inward hydraulic gradient is maintained. As a result, there is no reasonable probability for the uppermost aquifer perimeter monitoring wells to have been affected by the SQLF CCR unit operations to date, nor could they be in the future under current pumping conditions. Therefore, detection monitoring will be continued at the SQLF 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. The CCR Rule, which became effective on October 19, 2015 (with amendments in 2018 and 2020), applies to the DTE Electric Company (DTE Electric) Sibley Quarry Landfill Coal Combustion Residual Landfill (SQLF) 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 2021 activities at the SQLF CCR unit (2021 Annual Report).

As documented in the *2020 Annual Groundwater Monitoring Report for the Sibley Quarry Landfill* (2020 Annual Report) (TRC, January 2021), potentially statistically significant increases (SSIs) over prediction limits were noted for a few Appendix III constituents in one or more wells during the March and October 2020 semiannual detection monitoring events. These potential SSIs were either not statistically significant (i.e. verification resampling did not confirm the exceedance) or were evaluated and determined to be a result of natural variability in groundwater quality as documented in an alternative source demonstration (ASD) and not attributable to the SQLF CCR unit. As such, DTE Electric continued detection monitoring at the SQLF CCR Unit in 2021 pursuant to §257.94 of the CCR Rule.

This 2021 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 2021 semiannual groundwater monitoring events for the SQLF CCR unit. Detection monitoring for these events continued to be performed in accordance with the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Sibley Quarry Coal Combustion Residual Landfill* (QAPP) (TRC, August 2016; revised March 2017) and statistically evaluated per the *Groundwater Statistical Evaluation Plan – DTE Electric Company Sibley Quarry 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.

1.2 Site Overview

The SQLF is located in Section 7, Township 4 South, Range 11 East, at 801 Fort Street (a.k.a. 502 Quarry Road) in Trenton, Wayne County, Michigan (Figure 1). The SQLF is located about two miles north of the DTE Electric Trenton Power Plant. The SQLF is bounded mostly by Fort Street to the west, Sibley Road to the north, the former Detroit and Toledo Shore Line Railroad and West Jefferson Avenue to the east, and the former Vulcan Mold & Iron Company (now owned by Danou Enterprises) and the DTE Electric Jefferson Substation to the south.

The SQLF is a licensed Coal Ash Landfill owned and operated by DTE Electric. In 2021 the disposal facility received the majority of CCR from the Trenton Channel and Monroe Power Plants. It is anticipated that the SQLF will receive CCR from the Monroe Power Plant Bottom Ash Impoundment closure through 2023. The SQLF is operated under the current operating license number 9602 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 SQLF CCR unit is located approximately one-half mile west of the Detroit River. The Sibley quarry was originally developed to mine limestone beginning in the mid-1800s and was mined to over 300 feet below ground surface (ft bgs) in some areas before mining activities ceased. In 1951, Detroit Edison (now DTE Electric) acquired Sibley Quarry and began to manage CCR in the SQLF. As part of normal operations, the SQLF is continuously dewatered to approximately 300 ft bgs maintaining a water level in the bottom of the quarry by pumping an average of approximately 1.5 million gallons per day.

The SQLF resides in an area characterized by near surface deposits of glacio-lacustrine clay and silt units on top of thick strata of dolomite and limestone bedrock. The SQLF is located in an area where the Dundee Formation (mostly limestone) and the Detroit River Group (limestone, dolostone and some sandstone) underlie the unconsolidated glacial drift and are the uppermost aquifer. At SQLF, the Dundee Formation is overlain by anywhere from less than 15 feet to more than 70 feet of unconsolidated material, most of which is clay-rich soil with some fill. The top of the Dundee Formation limestone/dolostone bedrock was encountered at depths ranging from 16.5 to 74.5 ft bgs and including the underlying Detroit River Group limestone/dolostone/ sandstone, extends to depths ranging from 235 to over 310 ft bgs. The underlying Sylvania Sandstone was encountered at depths ranging from 235 to 300 ft bgs in some locations at the SQLF.

As expected, data show that groundwater levels are significantly lower within the bedrock in monitoring wells that are the closest to the quarry where significant pumping is occurring, with water levels ranging from 120 to more than 250 ft bgs. Groundwater flow is consistently inward toward the base of the quarry due to continuous pumping that hydraulically controls groundwater flow. The pumped water from the quarry is managed in accordance with a National Pollution Discharge Elimination System (NPDES) permit. Quarry dewatering results in all the perimeter uppermost aquifer CCR monitoring wells being upgradient of the SQLF CCR unit.

Because the uppermost aquifer is in an area where pumping has been performed continuously before CCR disposal began, and will be continued to be dewatered, a continuous inward hydraulic gradient is maintained. As a result, there is no reasonable probability for the uppermost aquifer perimeter monitoring wells to have been affected by the SQLF CCR unit operations to date, nor could they be in the future under current pumping conditions.

2.0 Groundwater Monitoring

2.1 Monitoring Well Network

A groundwater monitoring system has been established for the SQLF CCR unit as detailed in the *Groundwater Monitoring System Summary Report – DTE Electric Company Sibley Quarry Coal Combustion Residual Landfill* (GWMS Report) (TRC, October 2017). The detection monitoring well network for the SQLF CCR unit currently consists of eight monitoring wells, MW-101 through MW-107 and MW-108A, which replaced decommissioned monitoring well MW-108 in January 2017. Monitoring wells MW-101 through MW-107 and MW-108A are located around the perimeter of the SQLF and provide data on both background and perimeter groundwater quality that has not been affected by the CCR unit (total of eight background/compliance monitoring wells) given that inward gradients are maintained by continuous dewatering within the quarry. All monitoring wells are screened in the uppermost aquifer. The monitoring well locations are shown on Figure 2.

2.2 Semiannual Groundwater Monitoring

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

2.2.1 Data Summary

The first semiannual groundwater detection monitoring event for 2021 was performed on April 21 and 22, 2021, by TRC personnel and samples were analyzed by Eurofins TestAmerica (Eurofins) in accordance with the QAPP. Static water elevation data were collected at all eight monitoring well locations. Groundwater samples were collected from the eight detection monitoring wells for the Appendix III indicator parameters and field parameters. A summary of the groundwater data collected during the April 2021 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 2021 was performed October 4 and 5, 2021 by TRC personnel and samples were analyzed by Eurofins in accordance with the QAPP. Static water elevation data were collected at all eight monitoring well locations. Groundwater samples were collected from the eight detection monitoring wells for the Appendix III indicator parameters and field parameters. A summary of the groundwater data collected during the October 2021 event is provided on Table 1 (static groundwater elevation data), Table 2 (field data), and Table 4 (analytical results). The laboratory analytical reports are included in Appendix A

2.2.2 Data Quality Review

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

2.2.3 Groundwater Flow Rate and Direction

Groundwater elevation data collected during the April and October 2021 sampling events continue to show that groundwater within the uppermost aquifer flows radially into the quarry as a result of continuous pumping/dewatering at the Site. Groundwater potentiometric surface elevations measured across the site during the April 2021 and the October 2021 sampling events are provided on Table 1 and were used to construct the groundwater potentiometric surface maps shown on Figures 3 and 4, respectively.

The data indicates that current groundwater flow rates and direction are consistent with previous monitoring events. The average hydraulic gradient throughout the site were the same for both 2021 monitoring events and are estimated at 0.088 ft/ft, resulting in an estimated average seepage velocity of approximately 6.0 ft/day or 2,200 ft/year, using the average hydraulic conductivity of 6.8 ft/day (Golder, 2015) and an assumed effective porosity of 0.1.

Given that groundwater flow is maintained inward toward the quarry under active pumping, all of the perimeter monitoring wells in the groundwater monitoring system are located in an upgradient position relative to the landfill. Therefore, there is no potential for groundwater to migrate away from the SQLF CCR unit.

3.0 Statistical Evaluation

3.1 Establishing Background Limits

As discussed in the Stats Plan, intrawell statistical methods for the SQLF were selected because the uppermost aquifer is in an area where pumping has been performed continuously since before CCR disposal began, and will be continued to be dewatered, resulting in a maintained continuous inward hydraulic gradient. Given that groundwater flow is inward under pumping conditions toward the quarry, all of the perimeter monitoring wells in the groundwater monitoring system are located in an up gradient position relative to the landfill. Therefore, monitoring of the SQLF CCR unit using interwell statistical methods (upgradient to downgradient) is not possible. This also supports that the aquifer is unaffected by the CCR unit, where, as a result of the continuously maintained inward gradient, there is no reasonable probability for the perimeter monitoring wells within the uppermost aquifer to have been affected by the SQLF CCR unit operations to date, nor could they be in the future under current pumping conditions. An intrawell statistical approach requires that each of the monitoring wells double as background and compliance wells, 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 eight established detection monitoring wells (MW-101 through MW-107 and MW-108A). 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 SQLF CCR unit by comparing concentrations in the detection monitoring wells to their respective background limits for each Appendix III indicator parameter. Prediction limits are periodically updated to reflect the additional data and additional temporal variability observed over time. The Appendix III prediction limits for the SQLF were updated in December 2021 to incorporate additional data collected since 2017 as presented in the December 15, 2021 Technical Memorandum, *Prediction Limit Update – DTE Electric Company, Sibley Quarry Landfill* included in Appendix C. The updated prediction limits were used to statistically evaluate the Appendix III indicator parameter data for the second semiannual 2021 detection monitoring event.

3.2 Data Comparison to Background Limits – First 2021 Semiannual Event (April 2021)

The concentrations of the indicator parameters in each of the detection monitoring wells (MW-101 through MW-107 and MW-108A) were compared to their respective statistical background limits calculated from the background data collected from each individual well (i.e., monitoring data from MW-101 is compared to the background limit developed using the background dataset from MW-101, and so forth). The comparisons for the April 2021 monitoring event are presented on Table 3. The statistical evaluation of the April 2021 Appendix III indicator parameters showed no initial potential SSIs over background.

The April 2021 data shows the boron and chloride concentrations at MW-101 exceed the statistical prediction limits. However, the boron and chloride concentrations at MW-101 have been demonstrated to be from natural variability and not from the CCR unit as presented in the ASDs, *Alternate Source Demonstration: 2019 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan* and *Alternate Source Demonstration: 2020 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan*, respectively.

3.3 Data Comparison to Background Limits – Second Semiannual Event (October 2021)

The concentrations of the indicator parameters in each of the detection monitoring wells (MW-101 through MW-107 and MW-108A) were compared to their respective statistical background limits calculated from the background data collected from each individual well (i.e., monitoring data from MW-101 is compared to the background limit developed using the background dataset from MW-101, and so forth). The statistical evaluation of the October 2021 Appendix III indicator parameters showed no initial potential SSIs over background.

The October 2021 data shows the chloride concentration at MW-101 exceeds the statistical prediction limit. However, this exceedance has been demonstrated to be from natural variability and not from the CCR unit as presented in the *Alternate Source Demonstration: 2020 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan*. A summary of the analytical results collected during the October 2021 monitoring event are presented on Table 4.

4.0 Conclusions and Recommendations

No SSIs were observed throughout the 2021 monitoring period. No SSIs over background limits were observed during the April 2021 or October 2021 monitoring events.

As discussed above, and in the GWMS Report, because the uppermost aquifer is in an area where pumping has been performed continuously since before CCR disposal began and will be continued to be dewatered as a continuous inward hydraulic gradient is maintained. As a result, there is no reasonable probability for the uppermost aquifer perimeter monitoring wells to have been affected by the SQLF CCR unit operations to date, nor could they be in the future under current pumping conditions. Due to limitations on CCR Rule implementation timelines, the background data sets are of relatively short duration for capturing the occurrence of natural temporal changes in the aquifer being drawn inward toward the SQLF. Therefore, detection monitoring will be continued at the SQLF CCR unit in accordance with §257.94.

No corrective actions were performed in 2021. The next semiannual monitoring event at the SQLF CCR unit is scheduled for the second calendar quarter of 2022.

5.0 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
Sibley Quarry Coal Combustion Residual Landfill
Trenton, Michigan

CERTIFICATION

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

Name: David B. McKenzie, P.E.	Expiration Date: December 17, 2023	
Company: TRC Engineers Michigan, Inc.	Date: January 31, 2022	

January 31, 2022

6.0 References

TRC. August 2016; Revised March 2017. CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company – Sibley Quarry Coal Combustion Residual Landfill, 801 Fort Street, Trenton, Michigan. Prepared for DTE Electric Company.

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TRC. January 2021. 2020 Annual Groundwater Monitoring Report – DTE Electric Company Sibley Quarry Coal Combustion Residual Landfill, 801 Fort Street, Trenton, Michigan. Prepared for DTE Electric Company.

TRC. August 26, 2020. Alternate Source Demonstration: 2020 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan. 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.

Tables

Table 1
Summary of Groundwater Elevation Data – April and October 2021
Sibley Quarry Landfill – RCRA CCR Monitoring Program
Trenton, Michigan

Well ID	MW-101		MW-102		MW-103		MW-104		MW-105		MW-106		MW-107		MW-108A	
Date Installed	7/14/2015		7/16/2015		7/15/2015		7/16/2015		3/30/2016		3/28/2016		4/6/2016		1/24/2017	
TOC Elevation	617.67		615.03		607.23		608.39		593.28		606.75		610.03		594.06	
Geologic Unit of Screened Interval	Limestone Bedrock		Limestone Bedrock		Limestone Bedrock		Limestone Bedrock		Limestone Bedrock		Limestone Bedrock		Limestone Bedrock		Sandstone Bedrock	
Bottom of Open Hole Elevation	295.2		342.6		294.7		296.0		290.7		304.0		336.5		290.5	
Unit	ft BTOC	ft	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	Depth to Water	GW Elevation
04/21/2021	177.30	440.37	238.14	376.89	177.35	429.88	120.13	488.26	23.26	570.02	185.96	420.79	156.15	453.88	55.00	539.06
10/04/2021	175.80	441.87	240.91	374.12	177.38	429.85	119.70	488.69	22.30	570.98	185.15	421.60	155.90	454.13	54.58	539.48

Notes:

Elevations are reported in feet relative to the national geodetic vertical datum of 1929.

ft BTOC - feet below top of casing

Table 2
Summary of Field Data – April and October 2021
Sibley Quarry Landfill – RCRA CCR Monitoring Program
Trenton, Michigan

Sample Location	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Specific Conductivity (umhos/cm)	Temperature (deg C)	Turbidity (NTU)
MW-101	4/22/2021	1.86	76.0	7.0	1,370	8.50	9.00
	10/4/2021	0.22	-166.0	7.0	2,098	12.50	2.16
MW-102	4/22/2021	5.37	75.3	7.0	1,461	10.20	2.13
	10/4/2021	2.19	-70.6	7.0	2,020	13.10	1.06
MW-103	4/22/2021	1.66	-308.2	7.2	2,530	11.20	1.31
	10/4/2021	0.55	-333.8	6.9	3,437	14.00	1.42
MW-104	4/21/2021	1.56	-326.6	7.3	2,304	11.00	0.78
	10/5/2021	0.24	-336.7	6.9	3,317	13.20	2.39
MW-105	4/21/2021	1.54	-11.8	7.0	8,646	11.30	2.19
	10/5/2021	0.29	-175.1	6.9	12,260	13.30	2.38
MW-106	4/22/2021	1.59	-316.4	7.1	249	12.00	2.28
	10/4/2021	0.96	-333.9	6.9	3,337	13.90	2.35
MW-107	4/22/2021	1.36	-307.3	6.9	3,668	10.90	2.51
	10/4/2021	0.34	-334.4	6.8	49,670	13.40	2.55
MW-108A	4/22/2021	1.51	-46.5	6.8	5,394	11.70	1.45
	10/5/2021	0.33	-190.3	6.9	7,936	12.50	1.76

Notes:

mg/L - milligrams per liter.

mV - milliVolt.

SU - standard unit.

umhos/cm - micro-mhos per centimeter.

deg C - degrees celcius.

NTU - nephelometric turbidity units.

Table 3
Comparison of Appendix III Parameter Results to Background Limits – April 2021
Sibley Quarry Landfill – RCRA CCR Monitoring Program
Trenton, Michigan

Sample Location:		MW-101		MW-102		MW-103		MW-104		MW-105		MW-106		MW-107		MW-108A	
Sample Date:		4/22/2021	PL	4/22/2021	PL	4/22/2021	PL	4/21/2021	PL	4/21/2021	PL	4/22/2021	PL	4/22/2021	PL	4/22/2021	PL
Constituent	Unit	Data		Data		Data		Data		Data		Data		Data		Data	
Appendix III																	
Boron	ug/L	**310**[(1)]	280	150	200	740	810	740	970	2,100	2,600	700	810	1,500	1,500	1,300	1,400
Calcium	ug/L	200,000	270,000	230,000	310,000	450,000	630,000	420,000	530,000	660,000	830,000	560,000	650,000	1,200,000	1,500,000	370,000	470,000
Chloride	mg/L	**210**[(2)]	200	180	270	140	160	220	800	3,500	4,800	110	130	19,000	21,000	1,900	1,900
Fluoride	mg/L	2.0	2.1	1.7	1.9	1.9	2.1	1.6	2.8	1.2	5.8	1.7	3.0	< 2.5	2.5	1.1	2.5
pH, Field	SU	7.0	6.8 - 7.8	7.0	6.5 - 7.6	7.2	6.7 - 7.6	7.3	6.8 - 7.9	7.0	6.6 - 7.9	7.1	6.5 - 7.6	6.9	6.5 - 7.6	6.8	6.7 - 6.9
Sulfate	mg/L	520	740	550	770	1,900	2,100	1,700	1,900	1,900	2,000	1,800	2,100	3,100	3,800	1,100	1,100
Total Dissolved Solids	mg/L	1,400	1,400	1,400	1,800	2,900	3,700	2,300	4,100	7,200	9,700	3,100	3,200	36,000	41,000	4,400	4,900

Notes:

ug/L - micrograms per liter.

mg/L - milligrams per liter.

SU - standard units; pH is a field parameter.

-- = not analyzed

All metals were analyzed as total unless otherwise specified.

Bold font indicates an exceedance of the Prediction Limit (PL).

(1) - Concentraton addressed through the Alternate Source Demonstration: 2019 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan

(2) - Concentraton addressed through the Alternate Source Demonstration: 2020 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan

Table 4
Comparison of Appendix III Parameter Results to Background Limits – October 2021
Sibley Quarry Landfill – RCRA CCR Monitoring Program
Trenton, Michigan

Sample Location:		MW-101		MW-102		MW-103		MW-104		MW-105		MW-106		MW-107		MW-108A	
Sample Date:		10/4/2021	PL[1]	10/4/2021	PL[1]	10/4/2021	PL[1]	10/5/2021	PL[1]	10/5/2021	PL[1]	10/4/2021	PL[1]	10/4/2021	PL[1]	10/5/2021	PL[1]
Constituent	Unit	Data		Data		Data		Data		Data		Data		Data		Data	
Appendix III																	
Boron	ug/L	270	320	110	150	600	820	630	950	2,100	2,600	550	2,400	1,100	1,600	1,200	1,400
Calcium	ug/L	200,000	260,000	230,000	300,000	520,000	630,000	440,000	520,000	620,000	790,000	500,000	640,000	1,100,000	1,500,000	420,000	460,000
Chloride	mg/L	**250**[2]	220	160	260	150	160	220	690	3,400	4,500	110	180	20,000	21,000	2,000	2,100
Fluoride	mg/L	1.9	2.0	1.7	1.8	2.0	2.0	1.6	2.3	1.3	5.8	1.7	3.0	< 2.5	2.5	1.2	2.5
pH, Field	SU	7.0	6.8 - 7.8	7.0	6.5 - 7.6	6.9	6.7 - 7.6	6.9	6.8 - 7.9	6.9	6.6 - 7.9	6.9	6.5 - 7.6	6.8	6.5 - 7.6	6.9	6.7 - 7.0
Sulfate	mg/L	540	700	560	720	1,900	2,100	1,700	1,900	1,900	2,200	1,900	2,100	3,200	3,700	1,200	1,200
Total Dissolved Solids	mg/L	1,300	1,400	1,400	1,700	2,900	3,600	2,400	3,700	6,900	9,400	3,000	3,200	34,000	39,000	4,800	4,900

Notes:

ug/L - micrograms per liter.

mg/L - milligrams per liter.

SU - standard units; pH is a field parameter.

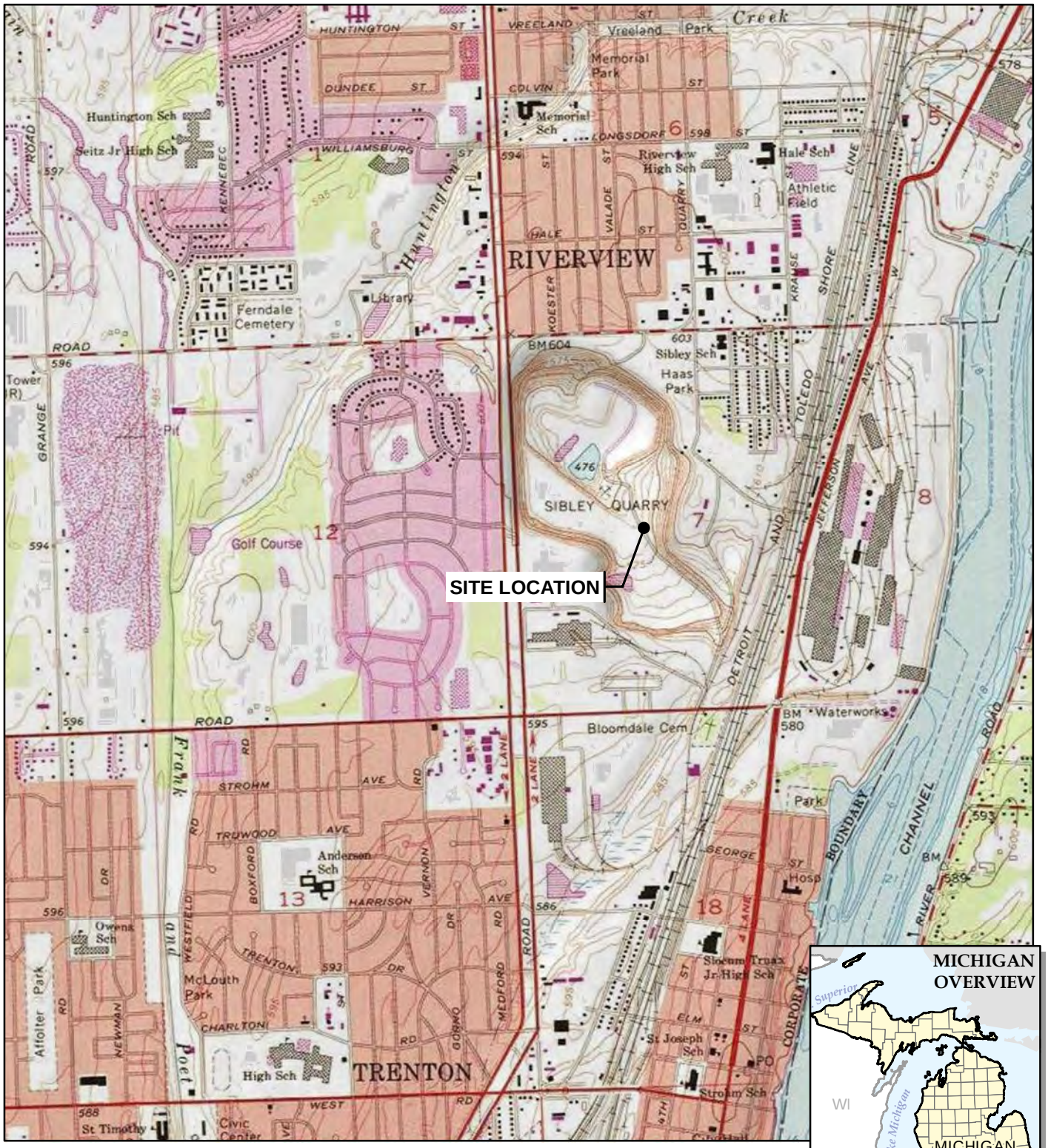
All metals were analyzed as total unless otherwise specified.

Bold font indicates an exceedance of the Prediction Limit (PL).

(1) Prediction limits updated December 15, 2021.

(2) Concentraton addressed through the Alternate Source Demonstration: 2020 First Semiannual Detection Monitoring Sampling Event Sibley Quarry Coal Combustion Residual Landfill, Trenton, Michigan

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
SIBLEY QUARRY LANDFILL
803 FORT STREET
TRENTON, MICHIGAN

TITLE:
SITE LOCATION MAP

DRAWN BY:	A. ADAIR
CHECKED BY:	A. WHALEY
APPROVED BY:	V. BUENING
DATE:	JANUARY 2022
PROJ. NO.:	413591.0002
FILE:	FEDERAL_413591_0002_01_SLM.mxd

FIGURE 1

T:\1-PROJECTS\CCR\413591_Sibley_Quarry_Landfill\2-APRX\FEDERAL_413591_0002_01_SLM.mxd -- Saved By: AADAIR on 1/17/2022, 14:46:38 PM

LEGEND

- MONITORING WELLS
- DECOMMISSIONED MONITORING WELL
- SIBLEY QUARRY PROPERTY LINE
- SOLID WASTE DISPOSAL AREA BOUNDARY
- 1 FILL AREA DESIGNATION

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 3/19/2021.
2. SITE LAYOUT INFORMATION FROM GEOREFERENCED CAD FILE. FEATURES ARE APPROXIMATE.
3. SURVEY PERFORMED BY THE DTE SURVEY GROUP IN AUGUST 2015, MAY 2016 AND JANUARY 2017.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:

DTE ELECTRIC COMPANY
SIBLEY QUARRY LANDFILL
801 FORT STREET
TRENTON, MICHIGAN

TITLE:

MONITORING NETWORK AND SITE PLAN

DRAWN BY:	A. ADAIR	PROJ NO.:	413591.0002
CHECKED BY:	A. WHALEY		
APPROVED BY:	V. BUENING		**FIGURE 2**
DATE:	JANUARY 2022		

TRC
1540 Eisenhower Place
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Phone: 734.971.7080
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FILE NO.: FEDERAL_413591_0002_02_MN.mxd

Plot Date: 1/17/2022, 15:01:10 PM by AADAIR - L:\AYOUT: ANSI B (11"x17")
Path: T:\1-PROJECTS\CCR\413591_Sibley_Quarry_Landfill\2-APRX\FEDERAL_413591_0002_02_MN.mxd
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0
TRC - GIS

LEGEND

- MONITORING WELLS
- DECOMMISSIONED MONITORING WELL
- SIBLEY QUARRY PROPERTY LINE
- SOLID WASTE DISPOSAL AREA BOUNDARY
- 1 — FILL AREA DESIGNATION
- (439.08) — GROUNDWATER ELEVATION (FT NGVD 1929)
- POTENTIOMETRIC SURFACE CONTOUR (50-FT INTERVAL, DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1. BASE MAP IMAGERY PROVIDED BY DTE ENERGY FROM 3/19/2021.
2. SITE LAYOUT INFORMATION FROM GEOREFERENCED CAD FILE. FEATURES ARE APPROXIMATE.
3. SURVEY PERFORMED BY THE DTE SURVEY GROUP IN AUGUST 2015, MAY 2016 AND JANUARY 2017.
4. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
SIBLEY QUARRY LANDFILL
801 FORT STREET
TRENTON, MICHIGAN

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE MAP APRIL 2021

DRAWN BY:	A. ADAIR	PROJ NO.:	413591.0002
CHECKED BY:	A. WHALEY		
APPROVED BY:	V. BUENING		**FIGURE 3**
DATE:	JANUARY 2022		

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
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FILE NO.: FEDERAL_413591_0002_03_AGW.mxd

Plot Date: 1/17/2022, 15:00:19 PM by AADAIR -- LAYOUT: ANSI B (11"x17")
Path: T:\1-PROJECTS\CCR\413591_Sibley_Quarry_Landfill\2-APRX\FEDERAL_413591_0002_03_AGW.mxd
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0
TRC - GIS

LEGEND

- MONITORING WELLS
- DECOMMISSIONED MONITORING WELL
- SIBLEY QUARRY PROPERTY LINE
- SOLID WASTE DISPOSAL AREA BOUNDARY
- 1 — FILL AREA DESIGNATION
- (439.08) — GROUNDWATER ELEVATION (FT NGVD 1929)
- POTENTIOMETRIC SURFACE CONTOUR (50-FT INTERVAL, DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1. BASE MAP IMAGERY PROVIDED BY DTE ENERGY FROM 3/19/2021.
2. SITE LAYOUT INFORMATION FROM GEOREFERENCED CAD FILE. FEATURES ARE APPROXIMATE.
3. SURVEY PERFORMED BY THE DTE SURVEY GROUP IN AUGUST 2015, MAY 2016 AND JANUARY 2017.
4. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
SIBLEY QUARRY LANDFILL
801 FORT STREET
TRENTON, MICHIGAN

TITLE:
GROUNDWATER POTENTIOMETRIC SURFACE MAP OCTOBER 2021

DRAWN BY:	A. ADAIR	PROJ NO.:	413591.0002
CHECKED BY:	A. WHALEY		
APPROVED BY:	V. BUENING		**FIGURE 4**
DATE:	JANUARY 2022		

TRC
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FILE NO.: FEDERAL_413591_0002_04_OGW.mxd

Plot Date: 1/17/2022, 14:59:25 PM by AADAIR -- LAYOUT: ANSI B (11"x17")
Path: T:\1-PROJECTS\CCR\413591_Sibley_Quarry_Landfill\2-APRX\FEDERAL_413591_0002_04_OGW.mxd
Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl (Foot)
Map Rotation: 0
TRC - GIS

Appendix A
Laboratory Reports

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-148098-1
Client Project/Site: CCR DTE Sibley Quarry

For:
TRC Environmental Corporation.
1540 Eisenhower Place
Ann Arbor, Michigan 48108-7080

Attn: Mr. Vincent Buening

Authorized for release by:
5/10/2021 8:16:37 PM

Kris Brooks, Project Manager II
(330)966-9790
Kris.Brooks@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
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: 240-148098-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-148098-1

Comments
No additional comments.

Receipt
The samples were received on 4/24/2021 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 was 0.6º C.

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

General Chemistry
Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-107 (240-148098-7). Elevated reporting limits (RLs) are provided.

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

Method Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

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

Protocol References:

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

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-148098-1	MW-101	Water	04/22/21 08:10	04/24/21 08:00	
240-148098-2	MW-1020	Water	04/22/21 09:10	04/24/21 08:00	
240-148098-3	MW-103	Water	04/22/21 11:20	04/24/21 08:00	
240-148098-4	MW-104	Water	04/21/21 15:05	04/24/21 08:00	
240-148098-5	MW-105	Water	04/21/21 12:50	04/24/21 08:00	
240-148098-6	MW-106	Water	04/22/21 12:15	04/24/21 08:00	
240-148098-7	MW-107	Water	04/22/21 10:30	04/24/21 08:00	
240-148098-8	MW-108A	Water	04/22/21 14:15	04/24/21 08:00	
240-148098-9	QUARRY SUMP	Water	04/22/21 13:10	04/24/21 08:00	
240-148098-10	QUARRY DISCHARGE	Water	04/22/21 12:45	04/24/21 08:00	
240-148098-11	DUP-01	Water	04/21/21 00:00	04/24/21 08:00	

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-101 — Lab Sample ID: 240-148098-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	310		100	23	ug/L	1		6010B	Total Recoverable
Calcium	200000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	110		100	100	ug/L	1		6020	Total Recoverable
Chloride	210		10	10	mg/L	10		9056A	Total/NA
Fluoride	2.0		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	520		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	1400		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-1020 — Lab Sample ID: 240-148098-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	150		100	23	ug/L	1		6010B	Total Recoverable
Calcium	230000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	760		100	100	ug/L	1		6020	Total Recoverable
Chloride	180		10	10	mg/L	10		9056A	Total/NA
Fluoride	1.7		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	550		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	1400		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-103 — Lab Sample ID: 240-148098-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	740		100	23	ug/L	1		6010B	Total Recoverable
Calcium	450000		1000	1000	ug/L	1		6020	Total Recoverable
Chloride	140		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.9		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1900		25	25	mg/L	25		9056A	Total/NA
Total Dissolved Solids	2900		40	40	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-104 — Lab Sample ID: 240-148098-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	740		100	23	ug/L	1		6010B	Total Recoverable
Calcium	420000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	170		100	100	ug/L	1		6020	Total Recoverable
Chloride	220		10	10	mg/L	10		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1700		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2300		40	40	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-105 — Lab Sample ID: 240-148098-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2100		100	23	ug/L	1		6010B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-105 (Continued) — Lab Sample ID: 240-148098-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	660000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	1800		100	100	ug/L	1		6020	Total Recoverable
Chloride	3500		100	100	mg/L	100		9056A	Total/NA
Fluoride	1.2		0.50	0.50	mg/L	10		9056A	Total/NA
Sulfate	1900		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	7200		100	100	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-106 — Lab Sample ID: 240-148098-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	700		100	23	ug/L	1		6010B	Total Recoverable
Calcium	560000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	5600		100	100	ug/L	1		6020	Total Recoverable
Chloride	110		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.7		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1800		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	3100		40	40	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-107 — Lab Sample ID: 240-148098-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1500		100	23	ug/L	1		6010B	Total Recoverable
Calcium	1200000		5000	5000	ug/L	5		6020	Total Recoverable
Iron	190		100	100	ug/L	1		6020	Total Recoverable
Chloride	19000		1000	1000	mg/L	1000		9056A	Total/NA
Sulfate	3100		50	50	mg/L	50		9056A	Total/NA
Total Dissolved Solids	36000		1000	1000	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-108A — Lab Sample ID: 240-148098-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1300		100	23	ug/L	1		6010B	Total Recoverable
Calcium	370000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	550		100	100	ug/L	1		6020	Total Recoverable
Chloride	1900		10	10	mg/L	10		9056A	Total/NA
Fluoride	1.1		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1100		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	4400		50	50	mg/L	1		SM 2540C	Total/NA

Client Sample ID: QUARRY SUMP — Lab Sample ID: 240-148098-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2700		100	23	ug/L	1		6010B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: QUARRY SUMP (Continued) — Lab Sample ID: 240-148098-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	630000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	130		100	100	ug/L	1		6020	Total Recoverable
Chloride	3100		100	100	mg/L	100		9056A	Total/NA
Fluoride	1.6		0.50	0.50	mg/L	10		9056A	Total/NA
Sulfate	2000		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	7800		100	100	mg/L	1		SM 2540C	Total/NA

Client Sample ID: QUARRY DISCHARGE — Lab Sample ID: 240-148098-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2400		100	23	ug/L	1		6010B	Total Recoverable
Calcium	710000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	140		100	100	ug/L	1		6020	Total Recoverable
Chloride	3800		100	100	mg/L	100		9056A	Total/NA
Fluoride	1.6		0.50	0.50	mg/L	10		9056A	Total/NA
Sulfate	2000		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	8800		100	100	mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 240-148098-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2200		100	23	ug/L	1		6010B	Total Recoverable
Calcium	680000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	1800		100	100	ug/L	1		6020	Total Recoverable
Chloride	3500		100	100	mg/L	100		9056A	Total/NA
Fluoride	1.1		0.50	0.50	mg/L	10		9056A	Total/NA
Sulfate	1900		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	7300		100	100	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-101

Date Collected: 04/22/21 08:10
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	310		100	23	ug/L		04/27/21 14:00	04/28/21 14:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200000		1000	1000	ug/L		04/27/21 14:00	04/28/21 22:43	1
Iron	110		100	100	ug/L		04/27/21 14:00	04/28/21 22:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210		10	10	mg/L			05/06/21 11:43	10
Fluoride	2.0		0.050	0.050	mg/L			05/06/21 11:21	1
Sulfate	520		10	10	mg/L			05/06/21 11:43	10
Total Dissolved Solids	1400		20	20	mg/L			04/29/21 10:26	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-1020

Date Collected: 04/22/21 09:10
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	150		100	23	ug/L		04/27/21 14:00	04/28/21 15:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	230000		1000	1000	ug/L		04/27/21 14:00	04/28/21 23:05	1
Iron	760		100	100	ug/L		04/27/21 14:00	04/28/21 23:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	180		10	10	mg/L			05/06/21 13:10	10
Fluoride	1.7		0.050	0.050	mg/L			05/06/21 12:04	1
Sulfate	550		10	10	mg/L			05/06/21 13:10	10
Total Dissolved Solids	1400		20	20	mg/L			04/29/21 10:26	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-103

Date Collected: 04/22/21 11:20
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	740		100	23	ug/L		04/27/21 14:00	04/28/21 15:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	450000		1000	1000	ug/L		04/27/21 14:00	04/28/21 23:10	1
Iron	100	U	100	100	ug/L		04/27/21 14:00	04/28/21 23:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140		1.0	1.0	mg/L			05/07/21 08:42	1
Fluoride	1.9		0.050	0.050	mg/L			05/07/21 08:42	1
Sulfate	1900		25	25	mg/L			05/08/21 14:15	25
Total Dissolved Solids	2900		40	40	mg/L			04/29/21 08:41	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-104

Date Collected: 04/21/21 15:05
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	740		100	23	ug/L		04/27/21 14:00	04/28/21 15:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	420000		1000	1000	ug/L		04/27/21 14:00	04/28/21 23:23	1
Iron	170		100	100	ug/L		04/27/21 14:00	04/28/21 23:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		10	10	mg/L			05/06/21 05:55	10
Fluoride	1.6		0.050	0.050	mg/L			05/06/21 05:35	1
Sulfate	1700		10	10	mg/L			05/06/21 05:55	10
Total Dissolved Solids	2300		40	40	mg/L			04/28/21 08:37	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-105

Date Collected: 04/21/21 12:50
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2100		100	23	ug/L		04/27/21 14:00	04/28/21 15:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	660000		1000	1000	ug/L		04/27/21 14:00	04/30/21 19:51	1
Iron	1800		100	100	ug/L		04/27/21 14:00	04/28/21 23:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3500		100	100	mg/L			05/06/21 06:35	100
Fluoride	1.2		0.50	0.50	mg/L			05/06/21 06:15	10
Sulfate	1900		10	10	mg/L			05/06/21 06:15	10
Total Dissolved Solids	7200		100	100	mg/L			04/28/21 08:37	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-106

Date Collected: 04/22/21 12:15
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-6

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	700		100	23	ug/L		04/27/21 14:00	04/28/21 15:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	560000		1000	1000	ug/L		04/27/21 14:00	04/30/21 19:54	1
Iron	5600		100	100	ug/L		04/27/21 14:00	04/28/21 23:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110		1.0	1.0	mg/L			05/06/21 06:55	1
Fluoride	1.7		0.050	0.050	mg/L			05/06/21 06:55	1
Sulfate	1800		10	10	mg/L			05/06/21 07:16	10
Total Dissolved Solids	3100		40	40	mg/L			04/29/21 08:41	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-107

Date Collected: 04/22/21 10:30
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1500		100	23	ug/L		04/27/21 14:00	04/28/21 15:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1200000		5000	5000	ug/L		04/27/21 14:00	04/28/21 23:36	5
Iron	190		100	100	ug/L		04/27/21 14:00	04/29/21 20:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19000		1000	1000	mg/L			05/06/21 07:56	1000
Fluoride	2.5	U	2.5	2.5	mg/L			05/06/21 07:36	50
Sulfate	3100		50	50	mg/L			05/06/21 07:36	50
Total Dissolved Solids	36000		1000	1000	mg/L			04/29/21 08:41	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-108A

Date Collected: 04/22/21 14:15
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-8

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300		100	23	ug/L		04/27/21 14:00	04/28/21 15:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	370000		1000	1000	ug/L		04/27/21 14:00	04/28/21 23:41	1
Iron	550		100	100	ug/L		04/27/21 14:00	04/28/21 23:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1900		10	10	mg/L			05/06/21 09:16	10
Fluoride	1.1		0.050	0.050	mg/L			05/06/21 08:56	1
Sulfate	1100		10	10	mg/L			05/06/21 09:16	10
Total Dissolved Solids	4400		50	50	mg/L			04/29/21 08:41	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: QUARRY SUMP

Lab Sample ID: 240-148098-9

Date Collected: 04/22/21 13:10

Matrix: Water

Date Received: 04/24/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2700		100	23	ug/L		04/27/21 14:00	04/28/21 15:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	630000		1000	1000	ug/L		04/27/21 14:00	04/30/21 19:56	1
Iron	130		100	100	ug/L		04/27/21 14:00	04/28/21 23:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3100		100	100	mg/L			05/06/21 09:56	100
Fluoride	1.6		0.50	0.50	mg/L			05/06/21 09:36	10
Sulfate	2000		10	10	mg/L			05/06/21 09:36	10
Total Dissolved Solids	7800		100	100	mg/L			04/29/21 08:41	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: QUARRY DISCHARGE

Lab Sample ID: 240-148098-10

Date Collected: 04/22/21 12:45
Date Received: 04/24/21 08:00

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2400		100	23	ug/L		04/27/21 14:00	04/28/21 15:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	710000		1000	1000	ug/L		04/27/21 14:00	04/30/21 19:59	1
Iron	140		100	100	ug/L		04/27/21 14:00	04/28/21 23:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3800		100	100	mg/L			05/06/21 10:37	100
Fluoride	1.6		0.50	0.50	mg/L			05/06/21 10:16	10
Sulfate	2000		10	10	mg/L			05/06/21 10:16	10
Total Dissolved Solids	8800		100	100	mg/L			04/29/21 08:41	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: DUP-01

Date Collected: 04/21/21 00:00
Date Received: 04/24/21 08:00

Lab Sample ID: 240-148098-11

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2200		100	23	ug/L		04/27/21 14:00	04/28/21 16:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	680000		1000	1000	ug/L		04/27/21 14:00	04/30/21 20:01	1
Iron	1800		100	100	ug/L		04/27/21 14:00	04/28/21 23:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3500		100	100	mg/L			05/06/21 11:17	100
Fluoride	1.1		0.50	0.50	mg/L			05/06/21 10:57	10
Sulfate	1900		10	10	mg/L			05/06/21 10:57	10
Total Dissolved Solids	7300		100	100	mg/L			04/28/21 08:37	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-483009/1-A
Matrix: Water
Analysis Batch: 483346

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 483009

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	23	ug/L		04/27/21 14:00	04/28/21 13:41	1

Lab Sample ID: LCS 240-483009/2-A
Matrix: Water
Analysis Batch: 483346

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 483009

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

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-483009/1-A
Matrix: Water
Analysis Batch: 483340

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 483009

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000	1000	ug/L		04/27/21 14:00	04/28/21 22:34	1
Iron	100	U	100	100	ug/L		04/27/21 14:00	04/28/21 22:34	1

Lab Sample ID: LCS 240-483009/3-A
Matrix: Water
Analysis Batch: 483340

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 483009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25000	22500		ug/L		90	80 - 120
Iron	5000	4820		ug/L		96	80 - 120

Lab Sample ID: 240-148098-1 MS
Matrix: Water
Analysis Batch: 483340

Client Sample ID: MW-101
Prep Type: Total Recoverable
Prep Batch: 483009

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	200000		25000	221000	4	ug/L		99	75 - 125
Iron	110		5000	4810		ug/L		94	75 - 125

Lab Sample ID: 240-148098-1 MSD
Matrix: Water
Analysis Batch: 483340

Client Sample ID: MW-101
Prep Type: Total Recoverable
Prep Batch: 483009

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	200000		25000	223000	4	ug/L		106	75 - 125	1	20
Iron	110		5000	4810		ug/L		94	75 - 125	0	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-484295/3
Matrix: Water
Analysis Batch: 484295

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0	1.0	mg/L			05/06/21 04:55	1
Fluoride	0.050	U	0.050	0.050	mg/L			05/06/21 04:55	1
Sulfate	1.0	U	1.0	1.0	mg/L			05/06/21 04:55	1

Lab Sample ID: LCS 240-484295/4
Matrix: Water
Analysis Batch: 484295

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	50.5		mg/L		101	90 - 110
Fluoride	2.50	2.58		mg/L		103	90 - 110
Sulfate	50.0	50.3		mg/L		101	90 - 110

Lab Sample ID: MB 240-484299/3
Matrix: Water
Analysis Batch: 484299

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0	1.0	mg/L			05/06/21 09:54	1
Fluoride	0.050	U	0.050	0.050	mg/L			05/06/21 09:54	1
Sulfate	1.0	U	1.0	1.0	mg/L			05/06/21 09:54	1

Lab Sample ID: LCS 240-484299/4
Matrix: Water
Analysis Batch: 484299

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
Fluoride	2.50	2.67		mg/L		107	90 - 110
Sulfate	50.0	50.9		mg/L		102	90 - 110

Lab Sample ID: 240-148098-2 MS
Matrix: Water
Analysis Batch: 484299

Client Sample ID: MW-1020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.7		2.50	4.31		mg/L		103	80 - 120

Lab Sample ID: 240-148098-2 MS
Matrix: Water
Analysis Batch: 484299

Client Sample ID: MW-1020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	180		500	667		mg/L		97	80 - 120
Sulfate	550		500	1020		mg/L		94	80 - 120

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

Lab Sample ID: 240-148098-2 MSD
Matrix: Water
Analysis Batch: 484299

Client Sample ID: MW-1020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	1.7		2.50	4.38		mg/L		105	80 - 120	1	15

Lab Sample ID: 240-148098-2 MSD
Matrix: Water
Analysis Batch: 484299

Client Sample ID: MW-1020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	180		500	670		mg/L		98	80 - 120	0	15
Sulfate	550		500	1020		mg/L		94	80 - 120	0	15

Lab Sample ID: MB 240-484498/3
Matrix: Water
Analysis Batch: 484498

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0	1.0	mg/L			05/07/21 02:33	1
Fluoride	0.050	U	0.050	0.050	mg/L			05/07/21 02:33	1
Sulfate	1.0	U	1.0	1.0	mg/L			05/07/21 02:33	1

Lab Sample ID: LCS 240-484498/4
Matrix: Water
Analysis Batch: 484498

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	50.5		mg/L		101	90 - 110
Fluoride	2.50	2.68		mg/L		107	90 - 110
Sulfate	50.0	51.0		mg/L		102	90 - 110

Lab Sample ID: MB 240-484730/3
Matrix: Water
Analysis Batch: 484730

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0	1.0	mg/L			05/08/21 13:35	1
Fluoride	0.050	U	0.050	0.050	mg/L			05/08/21 13:35	1
Sulfate	1.0	U	1.0	1.0	mg/L			05/08/21 13:35	1

Lab Sample ID: LCS 240-484730/4
Matrix: Water
Analysis Batch: 484730

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	50.7		mg/L		101	90 - 110
Fluoride	2.50	2.61		mg/L		104	90 - 110
Sulfate	50.0	50.6		mg/L		101	90 - 110

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

Lab Sample ID: MB 240-483163/1
Matrix: Water
Analysis Batch: 483163

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	10	mg/L			04/28/21 08:37	1

Lab Sample ID: LCS 240-483163/2
Matrix: Water
Analysis Batch: 483163

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	683	660		mg/L		97	80 - 120

Lab Sample ID: MB 240-483359/1
Matrix: Water
Analysis Batch: 483359

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	10	mg/L			04/29/21 08:41	1

Lab Sample ID: LCS 240-483359/2
Matrix: Water
Analysis Batch: 483359

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	683	649		mg/L		95	80 - 120

Lab Sample ID: MB 240-483388/1
Matrix: Water
Analysis Batch: 483388

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	10	mg/L			04/29/21 10:26	1

Lab Sample ID: LCS 240-483388/2
Matrix: Water
Analysis Batch: 483388

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	683	704		mg/L		103	80 - 120

Lab Sample ID: 240-148098-1 DU
Matrix: Water
Analysis Batch: 483388

Client Sample ID: MW-101
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1400		1410		mg/L		2	20

Metals

Prep Batch: 483009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-1	MW-101	Total Recoverable	Water	3005A	
240-148098-2	MW-1020	Total Recoverable	Water	3005A	
240-148098-3	MW-103	Total Recoverable	Water	3005A	
240-148098-4	MW-104	Total Recoverable	Water	3005A	
240-148098-5	MW-105	Total Recoverable	Water	3005A	
240-148098-6	MW-106	Total Recoverable	Water	3005A	
240-148098-7	MW-107	Total Recoverable	Water	3005A	
240-148098-8	MW-108A	Total Recoverable	Water	3005A	
240-148098-9	QUARRY SUMP	Total Recoverable	Water	3005A	
240-148098-10	QUARRY DISCHARGE	Total Recoverable	Water	3005A	
240-148098-11	DUP-01	Total Recoverable	Water	3005A	
MB 240-483009/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-483009/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-483009/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-148098-1 MS	MW-101	Total Recoverable	Water	3005A	
240-148098-1 MSD	MW-101	Total Recoverable	Water	3005A	

Analysis Batch: 483340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-1	MW-101	Total Recoverable	Water	6020	483009
240-148098-2	MW-1020	Total Recoverable	Water	6020	483009
240-148098-3	MW-103	Total Recoverable	Water	6020	483009
240-148098-4	MW-104	Total Recoverable	Water	6020	483009
240-148098-5	MW-105	Total Recoverable	Water	6020	483009
240-148098-6	MW-106	Total Recoverable	Water	6020	483009
240-148098-7	MW-107	Total Recoverable	Water	6020	483009
240-148098-8	MW-108A	Total Recoverable	Water	6020	483009
240-148098-9	QUARRY SUMP	Total Recoverable	Water	6020	483009
240-148098-10	QUARRY DISCHARGE	Total Recoverable	Water	6020	483009
240-148098-11	DUP-01	Total Recoverable	Water	6020	483009
MB 240-483009/1-A	Method Blank	Total Recoverable	Water	6020	483009
LCS 240-483009/3-A	Lab Control Sample	Total Recoverable	Water	6020	483009
240-148098-1 MS	MW-101	Total Recoverable	Water	6020	483009
240-148098-1 MSD	MW-101	Total Recoverable	Water	6020	483009

Analysis Batch: 483346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-1	MW-101	Total Recoverable	Water	6010B	483009
240-148098-2	MW-1020	Total Recoverable	Water	6010B	483009
240-148098-3	MW-103	Total Recoverable	Water	6010B	483009
240-148098-4	MW-104	Total Recoverable	Water	6010B	483009
240-148098-5	MW-105	Total Recoverable	Water	6010B	483009
240-148098-6	MW-106	Total Recoverable	Water	6010B	483009
240-148098-7	MW-107	Total Recoverable	Water	6010B	483009
240-148098-8	MW-108A	Total Recoverable	Water	6010B	483009
240-148098-9	QUARRY SUMP	Total Recoverable	Water	6010B	483009
240-148098-10	QUARRY DISCHARGE	Total Recoverable	Water	6010B	483009
240-148098-11	DUP-01	Total Recoverable	Water	6010B	483009
MB 240-483009/1-A	Method Blank	Total Recoverable	Water	6010B	483009
LCS 240-483009/2-A	Lab Control Sample	Total Recoverable	Water	6010B	483009

Metals

Analysis Batch: 483539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-7	MW-107	Total Recoverable	Water	6020	483009

Analysis Batch: 483693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-5	MW-105	Total Recoverable	Water	6020	483009
240-148098-6	MW-106	Total Recoverable	Water	6020	483009
240-148098-9	QUARRY SUMP	Total Recoverable	Water	6020	483009
240-148098-10	QUARRY DISCHARGE	Total Recoverable	Water	6020	483009
240-148098-11	DUP-01	Total Recoverable	Water	6020	483009

General Chemistry

Analysis Batch: 483163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-4	MW-104	Total/NA	Water	SM 2540C	
240-148098-5	MW-105	Total/NA	Water	SM 2540C	
240-148098-11	DUP-01	Total/NA	Water	SM 2540C	
MB 240-483163/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-483163/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 483359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-3	MW-103	Total/NA	Water	SM 2540C	
240-148098-6	MW-106	Total/NA	Water	SM 2540C	
240-148098-7	MW-107	Total/NA	Water	SM 2540C	
240-148098-8	MW-108A	Total/NA	Water	SM 2540C	
240-148098-9	QUARRY SUMP	Total/NA	Water	SM 2540C	
240-148098-10	QUARRY DISCHARGE	Total/NA	Water	SM 2540C	
MB 240-483359/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-483359/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 483388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-1	MW-101	Total/NA	Water	SM 2540C	
240-148098-2	MW-1020	Total/NA	Water	SM 2540C	
MB 240-483388/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-483388/2	Lab Control Sample	Total/NA	Water	SM 2540C	
240-148098-1 DU	MW-101	Total/NA	Water	SM 2540C	

Analysis Batch: 484295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-4	MW-104	Total/NA	Water	9056A	
240-148098-4	MW-104	Total/NA	Water	9056A	
240-148098-5	MW-105	Total/NA	Water	9056A	
240-148098-5	MW-105	Total/NA	Water	9056A	
240-148098-6	MW-106	Total/NA	Water	9056A	
240-148098-6	MW-106	Total/NA	Water	9056A	
240-148098-7	MW-107	Total/NA	Water	9056A	
240-148098-7	MW-107	Total/NA	Water	9056A	
240-148098-8	MW-108A	Total/NA	Water	9056A	
240-148098-8	MW-108A	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 484295 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-9	QUARRY SUMP	Total/NA	Water	9056A	
240-148098-9	QUARRY SUMP	Total/NA	Water	9056A	
240-148098-10	QUARRY DISCHARGE	Total/NA	Water	9056A	
240-148098-10	QUARRY DISCHARGE	Total/NA	Water	9056A	
240-148098-11	DUP-01	Total/NA	Water	9056A	
240-148098-11	DUP-01	Total/NA	Water	9056A	
MB 240-484295/3	Method Blank	Total/NA	Water	9056A	
LCS 240-484295/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 484299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-1	MW-101	Total/NA	Water	9056A	
240-148098-1	MW-101	Total/NA	Water	9056A	
240-148098-2	MW-1020	Total/NA	Water	9056A	
240-148098-2	MW-1020	Total/NA	Water	9056A	
MB 240-484299/3	Method Blank	Total/NA	Water	9056A	
LCS 240-484299/4	Lab Control Sample	Total/NA	Water	9056A	
240-148098-2 MS	MW-1020	Total/NA	Water	9056A	
240-148098-2 MS	MW-1020	Total/NA	Water	9056A	
240-148098-2 MSD	MW-1020	Total/NA	Water	9056A	
240-148098-2 MSD	MW-1020	Total/NA	Water	9056A	

Analysis Batch: 484498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-3	MW-103	Total/NA	Water	9056A	
MB 240-484498/3	Method Blank	Total/NA	Water	9056A	
LCS 240-484498/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 484730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-148098-3	MW-103	Total/NA	Water	9056A	
MB 240-484730/3	Method Blank	Total/NA	Water	9056A	
LCS 240-484730/4	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-101

Lab Sample ID: 240-148098-1
Date Collected: 04/22/21 08:10
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 14:26	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 22:43	RKT	TAL CAN
Total/NA	Analysis	9056A		1	484299	05/06/21 11:21	JWW	TAL CAN
Total/NA	Analysis	9056A		10	484299	05/06/21 11:43	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483388	04/29/21 10:26	AJ	TAL CAN

Client Sample ID: MW-1020

Lab Sample ID: 240-148098-2
Date Collected: 04/22/21 09:10
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:13	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:05	RKT	TAL CAN
Total/NA	Analysis	9056A		1	484299	05/06/21 12:04	JWW	TAL CAN
Total/NA	Analysis	9056A		10	484299	05/06/21 13:10	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483388	04/29/21 10:26	AJ	TAL CAN

Client Sample ID: MW-103

Lab Sample ID: 240-148098-3
Date Collected: 04/22/21 11:20
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:18	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:10	RKT	TAL CAN
Total/NA	Analysis	9056A		1	484498	05/07/21 08:42	JWW	TAL CAN
Total/NA	Analysis	9056A		25	484730	05/08/21 14:15	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	483359	04/29/21 08:41	AJ	TAL CAN

Client Sample ID: MW-104

Lab Sample ID: 240-148098-4
Date Collected: 04/21/21 15:05
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:22	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:23	RKT	TAL CAN
Total/NA	Analysis	9056A		1	484295	05/06/21 05:35	JWW	TAL CAN

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-104

Lab Sample ID: 240-148098-4

Date Collected: 04/21/21 15:05

Matrix: Water

Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	484295	05/06/21 05:55	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483163	04/28/21 08:37	KLR	TAL CAN

Client Sample ID: MW-105

Lab Sample ID: 240-148098-5

Date Collected: 04/21/21 12:50

Matrix: Water

Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:27	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:27	RKT	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483693	04/30/21 19:51	DTN	TAL CAN
Total/NA	Analysis	9056A		10	484295	05/06/21 06:15	JWW	TAL CAN
Total/NA	Analysis	9056A		100	484295	05/06/21 06:35	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483163	04/28/21 08:37	KLR	TAL CAN

Client Sample ID: MW-106

Lab Sample ID: 240-148098-6

Date Collected: 04/22/21 12:15

Matrix: Water

Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:31	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:32	RKT	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483693	04/30/21 19:54	DTN	TAL CAN
Total/NA	Analysis	9056A		1	484295	05/06/21 06:55	JWW	TAL CAN
Total/NA	Analysis	9056A		10	484295	05/06/21 07:16	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483359	04/29/21 08:41	AJ	TAL CAN

Client Sample ID: MW-107

Lab Sample ID: 240-148098-7

Date Collected: 04/22/21 10:30

Matrix: Water

Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:44	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		5	483340	04/28/21 23:36	RKT	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483539	04/29/21 20:18	RKT	TAL CAN

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: MW-107

Lab Sample ID: 240-148098-7
Date Collected: 04/22/21 10:30
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	484295	05/06/21 07:36	JWW	TAL CAN
Total/NA	Analysis	9056A		1000	484295	05/06/21 07:56	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483359	04/29/21 08:41	AJ	TAL CAN

Client Sample ID: MW-108A

Lab Sample ID: 240-148098-8
Date Collected: 04/22/21 14:15
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:48	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:41	RKT	TAL CAN
Total/NA	Analysis	9056A		1	484295	05/06/21 08:56	JWW	TAL CAN
Total/NA	Analysis	9056A		10	484295	05/06/21 09:16	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483359	04/29/21 08:41	AJ	TAL CAN

Client Sample ID: QUARRY SUMP

Lab Sample ID: 240-148098-9
Date Collected: 04/22/21 13:10
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:53	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:45	RKT	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483693	04/30/21 19:56	DTN	TAL CAN
Total/NA	Analysis	9056A		10	484295	05/06/21 09:36	JWW	TAL CAN
Total/NA	Analysis	9056A		100	484295	05/06/21 09:56	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483359	04/29/21 08:41	AJ	TAL CAN

Client Sample ID: QUARRY DISCHARGE

Lab Sample ID: 240-148098-10
Date Collected: 04/22/21 12:45
Matrix: Water
Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 15:58	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:50	RKT	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483693	04/30/21 19:59	DTN	TAL CAN
Total/NA	Analysis	9056A		10	484295	05/06/21 10:16	JWW	TAL CAN

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-148098-1

Client Sample ID: QUARRY DISCHARGE

Lab Sample ID: 240-148098-10

Date Collected: 04/22/21 12:45

Matrix: Water

Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100	484295	05/06/21 10:37	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483359	04/29/21 08:41	AJ	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-148098-11

Date Collected: 04/21/21 00:00

Matrix: Water

Date Received: 04/24/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	483346	04/28/21 16:02	KLC	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483340	04/28/21 23:54	RKT	TAL CAN
Total Recoverable	Prep	3005A			483009	04/27/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	483693	04/30/21 20:01	DTN	TAL CAN
Total/NA	Analysis	9056A		10	484295	05/06/21 10:57	JWW	TAL CAN
Total/NA	Analysis	9056A		100	484295	05/06/21 11:17	JWW	TAL CAN
Total/NA	Analysis	SM 2540C		1	483163	04/28/21 08:37	KLR	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: TRC Environmental Corporation. Job ID: 240-148098-1
Project/Site: CCR DTE Sibley Quarry

Laboratory: Eurofins TestAmerica, Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-22
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21 *
Kentucky (UST)	State	112225	02-23-21 *
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

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

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

U5/10.6

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing America

Client Information	Sampler: Jake + Katy	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-82223-31882.1
Client Contact: Jacob Krenz	Phone:	E-Mail: Kris.Brooks@Eurofinset.com	State of Origin: MI	Page: Page 1 of 2
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 #: TBD			
Email: JKrenz@trccompanies.com	WO #: 370029.0002			
Project Name: CCR DTE Sibley Quarry	Project #: 24016805			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd TDS, 9056A_28D Chloride, Sulfate, Fluoride	6010B Boron, 6020 Calcium, Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
MW-101	4/22/21	8:10am	G	Water	W	N	X	X		
MW-102	4/22/21	9:10am	G	Water			X	X		
MW-103	4/22/21	11:20am	G	Water			X	X		
MW-104	4/21/21	3:05pm	G	Water			X	X		
MW-105	4/21/21	12:50pm	G	Water			X	X		
MW-106	4/22/21	12:15pm	G	Water			X	X		
MW-107	4/22/21	10:30am	G	Water			X	X		
MW-108A	4/22/21	2:15pm	G	Water			X	X		
QUARRY SUMP	4/22/21	1:10pm	G	Water			X	X		
QUARRY DISHCARGE	4/22/21	12:45pm	G	Water			X	X		
DUP-01	4/21/21	—	G	Water	V	V	X	X		

240-148098 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		4/23/21 0740	TRC	TRC Storage	4/23/21 0740	
2		4-23-21 9:25			4/23/21 9:25	ETA
3		4/23/21 12:44	ETA		4-24-21 800	ETA

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

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

5/10/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 148098
Canton Facility

Client TRC Site Name ____ Cooler unpacked by: MattSmith
Cooler Received on 4-24-21 Opened on 4-24-21
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other ____

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

TestAmerica Cooler # TA Foam Box Client Cooler Box Other ____
Packing material used: Bubble Wrap Foam Plastic Bag None Other ____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 0.5 °C Corrected Cooler Temp. 0.6 °C
IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 — Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC022887**
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: ____

WI-NC-099

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-157478-1
Client Project/Site: CCR DTE Sibley Quarry

For:
TRC Environmental Corporation.
1540 Eisenhower Place
Ann Arbor, Michigan 48108-7080

Attn: Mr. Vincent Buening

Authorized for release by:
10/18/2021 9:00:51 PM

Kris Brooks, Project Manager II
(330)966-9790
Kris.Brooks@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
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: 240-157478-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-157478-1

Comments
No additional comments.

Receipt
The samples were received on 10/6/2021 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 was 1.4º C.

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

General Chemistry
Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-107 (240-157478-7). Elevated reporting limits (RLs) are provided.

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

Method Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

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

Protocol References:

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

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-157478-1	MW-101	Water	10/04/21 12:50	10/06/21 08:00
240-157478-2	MW-102	Water	10/04/21 12:00	10/06/21 08:00
240-157478-3	MW-103	Water	10/04/21 13:45	10/06/21 08:00
240-157478-4	MW-104	Water	10/05/21 09:05	10/06/21 08:00
240-157478-5	MW-105	Water	10/05/21 10:00	10/06/21 08:00
240-157478-6	MW-106	Water	10/04/21 14:25	10/06/21 08:00
240-157478-7	MW-107	Water	10/04/21 10:50	10/06/21 08:00
240-157478-8	MW-108A	Water	10/05/21 11:35	10/06/21 08:00
240-157478-9	QUARRY SUMP	Water	10/05/21 10:35	10/06/21 08:00
240-157478-10	QUARRY DISCHARGE	Water	10/05/21 11:00	10/06/21 08:00
240-157478-11	DUP-01	Water	10/04/21 00:00	10/06/21 08:00

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-101 — Lab Sample ID: 240-157478-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	270		100	57	ug/L	1		6010B	Total Recoverable
Calcium	200000		1000	1000	ug/L	1		6020	Total Recoverable
Chloride	250		10	10	mg/L	10		9056A	Total/NA
Fluoride	1.9		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	540		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	1300		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-102 — Lab Sample ID: 240-157478-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	110		100	57	ug/L	1		6010B	Total Recoverable
Calcium	230000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	300		100	100	ug/L	1		6020	Total Recoverable
Chloride	160		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.7		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	560		5.0	5.0	mg/L	5		9056A	Total/NA
Total Dissolved Solids	1400		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-103 — Lab Sample ID: 240-157478-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	600		100	57	ug/L	1		6010B	Total Recoverable
Calcium	520000		1000	1000	ug/L	1		6020	Total Recoverable
Chloride	150		5.0	5.0	mg/L	5		9056A	Total/NA
Fluoride	2.0		0.25	0.25	mg/L	5		9056A	Total/NA
Sulfate	1900		20	20	mg/L	20		9056A	Total/NA
Total Dissolved Solids	2900		40	40	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-104 — Lab Sample ID: 240-157478-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	630		100	57	ug/L	1		6010B	Total Recoverable
Calcium	440000		1000	1000	ug/L	1		6020	Total Recoverable
Chloride	220		10	10	mg/L	10		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1700		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2400		40	40	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-105 — Lab Sample ID: 240-157478-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2100		100	57	ug/L	1		6010B	Total Recoverable
Calcium	620000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	1200		100	100	ug/L	1		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-105 (Continued) — Lab Sample ID: 240-157478-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3400		50	50	mg/L	50		9056A	Total/NA
Fluoride	1.3		0.25	0.25	mg/L	5		9056A	Total/NA
Sulfate	1900		50	50	mg/L	50		9056A	Total/NA
Total Dissolved Solids	6900		100	100	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-106 — Lab Sample ID: 240-157478-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	550		100	57	ug/L	1		6010B	Total Recoverable
Calcium	500000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	10000		100	100	ug/L	1		6020	Total Recoverable
Chloride	110		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.7		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1900		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	3000		40	40	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-107 — Lab Sample ID: 240-157478-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1100		100	57	ug/L	1		6010B	Total Recoverable
Calcium	1100000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	780		100	100	ug/L	1		6020	Total Recoverable
Chloride	20000		1000	1000	mg/L	1000		9056A	Total/NA
Sulfate	3200		50	50	mg/L	50		9056A	Total/NA
Total Dissolved Solids	34000		1000	1000	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-108A — Lab Sample ID: 240-157478-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1200		100	57	ug/L	1		6010B	Total Recoverable
Calcium	420000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	660		100	100	ug/L	1		6020	Total Recoverable
Chloride	2000		20	20	mg/L	20		9056A	Total/NA
Fluoride	1.2		0.25	0.25	mg/L	5		9056A	Total/NA
Sulfate	1200		20	20	mg/L	20		9056A	Total/NA
Total Dissolved Solids	4800		50	50	mg/L	1		SM 2540C	Total/NA

Client Sample ID: QUARRY SUMP — Lab Sample ID: 240-157478-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2400		100	57	ug/L	1		6010B	Total Recoverable
Calcium	620000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	110		100	100	ug/L	1		6020	Total Recoverable
Chloride	2000		25	25	mg/L	25		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: QUARRY SUMP (Continued) — Lab Sample ID: 240-157478-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.5		0.25	0.25	mg/L	5		9056A	Total/NA
Sulfate	2000		25	25	mg/L	25		9056A	Total/NA
Total Dissolved Solids	5700		50	50	mg/L	1		SM 2540C	Total/NA

Client Sample ID: QUARRY DISCHARGE — Lab Sample ID: 240-157478-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2300		100	57	ug/L	1		6010B	Total Recoverable
Calcium	660000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	140		100	100	ug/L	1		6020	Total Recoverable
Chloride	3400		50	50	mg/L	50		9056A	Total/NA
Fluoride	1.6		0.25	0.25	mg/L	5		9056A	Total/NA
Sulfate	2000		50	50	mg/L	50		9056A	Total/NA
Total Dissolved Solids	7900		100	100	mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 240-157478-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1200		100	57	ug/L	1		6010B	Total Recoverable
Calcium	1200000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	750		100	100	ug/L	1		6020	Total Recoverable
Chloride	20000		1000	1000	mg/L	1000		9056A	Total/NA
Sulfate	3200		50	50	mg/L	50		9056A	Total/NA
Total Dissolved Solids	36000		1000	1000	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-101

Date Collected: 10/04/21 12:50
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	270		100	57	ug/L		10/07/21 15:03	10/08/21 21:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200000		1000	1000	ug/L		10/07/21 15:03	10/08/21 13:32	1
Iron	100	U	100	100	ug/L		10/07/21 15:03	10/08/21 13:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	250		10	10	mg/L			10/16/21 17:44	10
Fluoride	1.9		0.050	0.050	mg/L			10/16/21 17:24	1
Sulfate	540		10	10	mg/L			10/16/21 17:44	10
Total Dissolved Solids	1300		20	20	mg/L			10/08/21 07:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-102

Date Collected: 10/04/21 12:00
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	110		100	57	ug/L		10/07/21 15:03	10/08/21 21:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	230000		1000	1000	ug/L		10/07/21 15:03	10/08/21 13:34	1
Iron	300		100	100	ug/L		10/07/21 15:03	10/08/21 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		1.0	1.0	mg/L			10/16/21 18:04	1
Fluoride	1.7		0.050	0.050	mg/L			10/16/21 18:04	1
Sulfate	560		5.0	5.0	mg/L			10/16/21 18:24	5
Total Dissolved Solids	1400		20	20	mg/L			10/08/21 07:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-103

Date Collected: 10/04/21 13:45
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	600		100	57	ug/L		10/07/21 15:03	10/08/21 21:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	520000		1000	1000	ug/L		10/07/21 15:03	10/08/21 13:47	1
Iron	100	U	100	100	ug/L		10/07/21 15:03	10/08/21 13:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		5.0	5.0	mg/L			10/16/21 18:44	5
Fluoride	2.0		0.25	0.25	mg/L			10/16/21 18:44	5
Sulfate	1900		20	20	mg/L			10/16/21 19:45	20
Total Dissolved Solids	2900		40	40	mg/L			10/08/21 07:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-104

Date Collected: 10/05/21 09:05
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	630		100	57	ug/L		10/07/21 15:03	10/08/21 21:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	440000		1000	1000	ug/L		10/07/21 15:03	10/08/21 13:54	1
Iron	100	U	100	100	ug/L		10/07/21 15:03	10/08/21 13:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		10	10	mg/L			10/16/21 20:25	10
Fluoride	1.6		0.050	0.050	mg/L			10/16/21 20:05	1
Sulfate	1700		10	10	mg/L			10/16/21 20:25	10
Total Dissolved Solids	2400		40	40	mg/L			10/11/21 16:05	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-105

Date Collected: 10/05/21 10:00
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2100		100	57	ug/L		10/07/21 15:03	10/08/21 21:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	620000		1000	1000	ug/L		10/07/21 15:03	10/08/21 13:57	1
Iron	1200		100	100	ug/L		10/07/21 15:03	10/08/21 13:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3400		50	50	mg/L			10/16/21 21:05	50
Fluoride	1.3		0.25	0.25	mg/L			10/16/21 20:45	5
Sulfate	1900		50	50	mg/L			10/16/21 21:05	50
Total Dissolved Solids	6900		100	100	mg/L			10/11/21 16:05	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-106

Date Collected: 10/04/21 14:25
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-6

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	550		100	57	ug/L		10/07/21 15:03	10/08/21 21:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	500000		1000	1000	ug/L		10/07/21 15:03	10/08/21 13:59	1
Iron	10000		100	100	ug/L		10/07/21 15:03	10/08/21 13:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110		1.0	1.0	mg/L			10/16/21 21:25	1
Fluoride	1.7		0.050	0.050	mg/L			10/16/21 21:25	1
Sulfate	1900		10	10	mg/L			10/16/21 21:46	10
Total Dissolved Solids	3000		40	40	mg/L			10/08/21 07:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-107

Date Collected: 10/04/21 10:50
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1100		100	57	ug/L		10/07/21 15:03	10/08/21 21:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1100000		1000	1000	ug/L		10/07/21 15:03	10/08/21 14:02	1
Iron	780		100	100	ug/L		10/07/21 15:03	10/08/21 14:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20000		1000	1000	mg/L			10/16/21 22:26	1000
Fluoride	2.5	U	2.5	2.5	mg/L			10/16/21 22:06	50
Sulfate	3200		50	50	mg/L			10/16/21 22:06	50
Total Dissolved Solids	34000		1000	1000	mg/L			10/08/21 07:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-108A

Date Collected: 10/05/21 11:35
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-8

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1200		100	57	ug/L		10/07/21 15:03	10/08/21 21:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	420000		1000	1000	ug/L		10/07/21 15:03	10/08/21 14:04	1
Iron	660		100	100	ug/L		10/07/21 15:03	10/08/21 14:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2000		20	20	mg/L			10/16/21 23:46	20
Fluoride	1.2		0.25	0.25	mg/L			10/16/21 22:46	5
Sulfate	1200		20	20	mg/L			10/16/21 23:46	20
Total Dissolved Solids	4800		50	50	mg/L			10/08/21 07:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: QUARRY SUMP

Lab Sample ID: 240-157478-9

Date Collected: 10/05/21 10:35
Date Received: 10/06/21 08:00

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2400		100	57	ug/L		10/07/21 15:03	10/08/21 21:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	620000		1000	1000	ug/L		10/07/21 15:03	10/08/21 14:07	1
Iron	110		100	100	ug/L		10/07/21 15:03	10/08/21 14:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2000		25	25	mg/L			10/17/21 00:27	25
Fluoride	1.5		0.25	0.25	mg/L			10/17/21 00:06	5
Sulfate	2000		25	25	mg/L			10/17/21 00:27	25
Total Dissolved Solids	5700		50	50	mg/L			10/08/21 07:28	1

Client Sample Results

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: QUARRY DISCHARGE

Lab Sample ID: 240-157478-10

Date Collected: 10/05/21 11:00
Matrix: Water
Date Received: 10/06/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2300		100	57	ug/L		10/07/21 15:03	10/08/21 22:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	660000		1000	1000	ug/L		10/07/21 15:03	10/08/21 14:09	1
Iron	140		100	100	ug/L		10/07/21 15:03	10/08/21 14:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3400		50	50	mg/L			10/17/21 01:07	50
Fluoride	1.6		0.25	0.25	mg/L			10/17/21 00:47	5
Sulfate	2000		50	50	mg/L			10/17/21 01:07	50
Total Dissolved Solids	7900		100	100	mg/L			10/08/21 07:28	1

Client Sample Results

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: DUP-01

Date Collected: 10/04/21 00:00
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-11

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1200		100	57	ug/L		10/07/21 15:03	10/08/21 22:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1200000		1000	1000	ug/L		10/07/21 15:03	10/08/21 14:12	1
Iron	750		100	100	ug/L		10/07/21 15:03	10/08/21 14:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20000		1000	1000	mg/L			10/17/21 01:47	1000
Fluoride	50	U	50	50	mg/L			10/17/21 01:47	1000
Sulfate	3200		50	50	mg/L			10/17/21 01:27	50
Total Dissolved Solids	36000		1000	1000	mg/L			10/07/21 08:25	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-507172/1-A
Matrix: Water
Analysis Batch: 507397

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	57	ug/L		10/07/21 15:03	10/08/21 20:43	1

Lab Sample ID: LCS 240-507172/2-A
Matrix: Water
Analysis Batch: 507397

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	998		ug/L		100	80 - 120

Lab Sample ID: 240-157478-1 MS
Matrix: Water
Analysis Batch: 507397

Client Sample ID: MW-101
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	270		1000	1320		ug/L		105	75 - 125

Lab Sample ID: 240-157478-1 MSD
Matrix: Water
Analysis Batch: 507397

Client Sample ID: MW-101
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	270		1000	1130		ug/L		86	75 - 125	16	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-507172/1-A
Matrix: Water
Analysis Batch: 507589

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000	1000	ug/L		10/07/21 15:03	10/08/21 13:27	1
Iron	100	U	100	100	ug/L		10/07/21 15:03	10/08/21 13:27	1

Lab Sample ID: LCS 240-507172/3-A
Matrix: Water
Analysis Batch: 507589

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25000	23800		ug/L		95	80 - 120
Iron	5000	5130		ug/L		103	80 - 120

Lab Sample ID: 240-157478-2 MS
Matrix: Water
Analysis Batch: 507589

Client Sample ID: MW-102
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	230000		25000	244000	4	ug/L		38	75 - 125
Iron	300		5000	5180		ug/L		98	75 - 125

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

Lab Sample ID: 240-157478-2 MSD
Matrix: Water
Analysis Batch: 507589

Client Sample ID: MW-102
Prep Type: Total Recoverable
Prep Batch: 507172

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	230000		25000	248000	4	ug/L		53	75 - 125	2	20
Iron	300		5000	5410		ug/L		102	75 - 125	4	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-508534/3
Matrix: Water
Analysis Batch: 508534

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0	1.0	mg/L			10/16/21 11:42	1
Fluoride	0.050	U	0.050	0.050	mg/L			10/16/21 11:42	1
Sulfate	1.0	U	1.0	1.0	mg/L			10/16/21 11:42	1

Lab Sample ID: LCS 240-508534/4
Matrix: Water
Analysis Batch: 508534

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	50.5		mg/L		101	90 - 110
Fluoride	2.50	2.59		mg/L		104	90 - 110
Sulfate	50.0	50.9		mg/L		102	90 - 110

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

Lab Sample ID: MB 240-507135/1
Matrix: Water
Analysis Batch: 507135

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	10	mg/L			10/07/21 08:25	1

Lab Sample ID: LCS 240-507135/2
Matrix: Water
Analysis Batch: 507135

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	422	400		mg/L		95	80 - 120

Lab Sample ID: MB 240-507332/1
Matrix: Water
Analysis Batch: 507332

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	10	mg/L			10/08/21 07:28	1

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

Lab Sample ID: LCS 240-507332/2
Matrix: Water
Analysis Batch: 507332

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	422	429		mg/L		102	80 - 120

Lab Sample ID: MB 240-507704/1
Matrix: Water
Analysis Batch: 507704

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	10	mg/L			10/11/21 16:05	1

Lab Sample ID: LCS 240-507704/2
Matrix: Water
Analysis Batch: 507704

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	422	400		mg/L		95	80 - 120

Metals

Prep Batch: 507172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-1	MW-101	Total Recoverable	Water	3005A	
240-157478-2	MW-102	Total Recoverable	Water	3005A	
240-157478-3	MW-103	Total Recoverable	Water	3005A	
240-157478-4	MW-104	Total Recoverable	Water	3005A	
240-157478-5	MW-105	Total Recoverable	Water	3005A	
240-157478-6	MW-106	Total Recoverable	Water	3005A	
240-157478-7	MW-107	Total Recoverable	Water	3005A	
240-157478-8	MW-108A	Total Recoverable	Water	3005A	
240-157478-9	QUARRY SUMP	Total Recoverable	Water	3005A	
240-157478-10	QUARRY DISCHARGE	Total Recoverable	Water	3005A	
240-157478-11	DUP-01	Total Recoverable	Water	3005A	
MB 240-507172/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-507172/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-507172/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-157478-1 MS	MW-101	Total Recoverable	Water	3005A	
240-157478-1 MSD	MW-101	Total Recoverable	Water	3005A	
240-157478-2 MS	MW-102	Total Recoverable	Water	3005A	
240-157478-2 MSD	MW-102	Total Recoverable	Water	3005A	

Analysis Batch: 507397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-1	MW-101	Total Recoverable	Water	6010B	507172
240-157478-2	MW-102	Total Recoverable	Water	6010B	507172
240-157478-3	MW-103	Total Recoverable	Water	6010B	507172
240-157478-4	MW-104	Total Recoverable	Water	6010B	507172
240-157478-5	MW-105	Total Recoverable	Water	6010B	507172
240-157478-6	MW-106	Total Recoverable	Water	6010B	507172
240-157478-7	MW-107	Total Recoverable	Water	6010B	507172
240-157478-8	MW-108A	Total Recoverable	Water	6010B	507172
240-157478-9	QUARRY SUMP	Total Recoverable	Water	6010B	507172
240-157478-10	QUARRY DISCHARGE	Total Recoverable	Water	6010B	507172
240-157478-11	DUP-01	Total Recoverable	Water	6010B	507172
MB 240-507172/1-A	Method Blank	Total Recoverable	Water	6010B	507172
LCS 240-507172/2-A	Lab Control Sample	Total Recoverable	Water	6010B	507172
240-157478-1 MS	MW-101	Total Recoverable	Water	6010B	507172
240-157478-1 MSD	MW-101	Total Recoverable	Water	6010B	507172

Analysis Batch: 507589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-1	MW-101	Total Recoverable	Water	6020	507172
240-157478-2	MW-102	Total Recoverable	Water	6020	507172
240-157478-3	MW-103	Total Recoverable	Water	6020	507172
240-157478-4	MW-104	Total Recoverable	Water	6020	507172
240-157478-5	MW-105	Total Recoverable	Water	6020	507172
240-157478-6	MW-106	Total Recoverable	Water	6020	507172
240-157478-7	MW-107	Total Recoverable	Water	6020	507172
240-157478-8	MW-108A	Total Recoverable	Water	6020	507172
240-157478-9	QUARRY SUMP	Total Recoverable	Water	6020	507172
240-157478-10	QUARRY DISCHARGE	Total Recoverable	Water	6020	507172
240-157478-11	DUP-01	Total Recoverable	Water	6020	507172
MB 240-507172/1-A	Method Blank	Total Recoverable	Water	6020	507172

Metals (Continued)

Analysis Batch: 507589 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-507172/3-A	Lab Control Sample	Total Recoverable	Water	6020	507172
240-157478-2 MS	MW-102	Total Recoverable	Water	6020	507172
240-157478-2 MSD	MW-102	Total Recoverable	Water	6020	507172

General Chemistry

Analysis Batch: 507135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-11	DUP-01	Total/NA	Water	SM 2540C	
MB 240-507135/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-507135/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 507332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-1	MW-101	Total/NA	Water	SM 2540C	
240-157478-2	MW-102	Total/NA	Water	SM 2540C	
240-157478-3	MW-103	Total/NA	Water	SM 2540C	
240-157478-6	MW-106	Total/NA	Water	SM 2540C	
240-157478-7	MW-107	Total/NA	Water	SM 2540C	
240-157478-8	MW-108A	Total/NA	Water	SM 2540C	
240-157478-9	QUARRY SUMP	Total/NA	Water	SM 2540C	
240-157478-10	QUARRY DISCHARGE	Total/NA	Water	SM 2540C	
MB 240-507332/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-507332/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 507704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-4	MW-104	Total/NA	Water	SM 2540C	
240-157478-5	MW-105	Total/NA	Water	SM 2540C	
MB 240-507704/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-507704/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 508534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-1	MW-101	Total/NA	Water	9056A	
240-157478-1	MW-101	Total/NA	Water	9056A	
240-157478-2	MW-102	Total/NA	Water	9056A	
240-157478-2	MW-102	Total/NA	Water	9056A	
240-157478-3	MW-103	Total/NA	Water	9056A	
240-157478-3	MW-103	Total/NA	Water	9056A	
240-157478-4	MW-104	Total/NA	Water	9056A	
240-157478-4	MW-104	Total/NA	Water	9056A	
240-157478-5	MW-105	Total/NA	Water	9056A	
240-157478-5	MW-105	Total/NA	Water	9056A	
240-157478-6	MW-106	Total/NA	Water	9056A	
240-157478-6	MW-106	Total/NA	Water	9056A	
240-157478-7	MW-107	Total/NA	Water	9056A	
240-157478-7	MW-107	Total/NA	Water	9056A	
240-157478-8	MW-108A	Total/NA	Water	9056A	
240-157478-8	MW-108A	Total/NA	Water	9056A	
240-157478-9	QUARRY SUMP	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 508534 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-157478-9	QUARRY SUMP	Total/NA	Water	9056A	
240-157478-10	QUARRY DISCHARGE	Total/NA	Water	9056A	
240-157478-10	QUARRY DISCHARGE	Total/NA	Water	9056A	
240-157478-11	DUP-01	Total/NA	Water	9056A	
240-157478-11	DUP-01	Total/NA	Water	9056A	
MB 240-508534/3	Method Blank	Total/NA	Water	9056A	
LCS 240-508534/4	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-101

Lab Sample ID: 240-157478-1
Matrix: Water
Date Collected: 10/04/21 12:50
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:00	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 13:32	AJC	TAL CAN
Total/NA	Analysis	9056A		1	508534	10/16/21 17:24	JMB	TAL CAN
Total/NA	Analysis	9056A		10	508534	10/16/21 17:44	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: MW-102

Lab Sample ID: 240-157478-2
Matrix: Water
Date Collected: 10/04/21 12:00
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:16	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 13:34	AJC	TAL CAN
Total/NA	Analysis	9056A		1	508534	10/16/21 18:04	JMB	TAL CAN
Total/NA	Analysis	9056A		5	508534	10/16/21 18:24	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: MW-103

Lab Sample ID: 240-157478-3
Matrix: Water
Date Collected: 10/04/21 13:45
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:21	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 13:47	AJC	TAL CAN
Total/NA	Analysis	9056A		5	508534	10/16/21 18:44	JMB	TAL CAN
Total/NA	Analysis	9056A		20	508534	10/16/21 19:45	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: MW-104

Lab Sample ID: 240-157478-4
Matrix: Water
Date Collected: 10/05/21 09:05
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:25	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 13:54	AJC	TAL CAN
Total/NA	Analysis	9056A		1	508534	10/16/21 20:05	JMB	TAL CAN

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-104

Lab Sample ID: 240-157478-4

Date Collected: 10/05/21 09:05

Matrix: Water

Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	508534	10/16/21 20:25	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507704	10/11/21 16:05	JMB	TAL CAN

Client Sample ID: MW-105

Lab Sample ID: 240-157478-5

Date Collected: 10/05/21 10:00

Matrix: Water

Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:30	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 13:57	AJC	TAL CAN
Total/NA	Analysis	9056A		5	508534	10/16/21 20:45	JMB	TAL CAN
Total/NA	Analysis	9056A		50	508534	10/16/21 21:05	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507704	10/11/21 16:05	JMB	TAL CAN

Client Sample ID: MW-106

Lab Sample ID: 240-157478-6

Date Collected: 10/04/21 14:25

Matrix: Water

Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:34	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 13:59	AJC	TAL CAN
Total/NA	Analysis	9056A		1	508534	10/16/21 21:25	JMB	TAL CAN
Total/NA	Analysis	9056A		10	508534	10/16/21 21:46	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: MW-107

Lab Sample ID: 240-157478-7

Date Collected: 10/04/21 10:50

Matrix: Water

Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:38	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 14:02	AJC	TAL CAN
Total/NA	Analysis	9056A		50	508534	10/16/21 22:06	JMB	TAL CAN
Total/NA	Analysis	9056A		1000	508534	10/16/21 22:26	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: MW-108A

Lab Sample ID: 240-157478-8
Date Collected: 10/05/21 11:35
Matrix: Water
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:51	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 14:04	AJC	TAL CAN
Total/NA	Analysis	9056A		5	508534	10/16/21 22:46	JMB	TAL CAN
Total/NA	Analysis	9056A		20	508534	10/16/21 23:46	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: QUARRY SUMP

Lab Sample ID: 240-157478-9
Date Collected: 10/05/21 10:35
Matrix: Water
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 21:56	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 14:07	AJC	TAL CAN
Total/NA	Analysis	9056A		5	508534	10/17/21 00:06	JMB	TAL CAN
Total/NA	Analysis	9056A		25	508534	10/17/21 00:27	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: QUARRY DISCHARGE

Lab Sample ID: 240-157478-10
Date Collected: 10/05/21 11:00
Matrix: Water
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 22:01	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 14:09	AJC	TAL CAN
Total/NA	Analysis	9056A		5	508534	10/17/21 00:47	JMB	TAL CAN
Total/NA	Analysis	9056A		50	508534	10/17/21 01:07	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507332	10/08/21 07:28	AJ	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-157478-11
Date Collected: 10/04/21 00:00
Matrix: Water
Date Received: 10/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6010B		1	507397	10/08/21 22:05	KLC	TAL CAN
Total Recoverable	Prep	3005A			507172	10/07/21 15:03	MRL	TAL CAN
Total Recoverable	Analysis	6020		1	507589	10/08/21 14:12	AJC	TAL CAN
Total/NA	Analysis	9056A		50	508534	10/17/21 01:27	JMB	TAL CAN

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Sibley Quarry

Job ID: 240-157478-1

Client Sample ID: DUP-01

Date Collected: 10/04/21 00:00
Date Received: 10/06/21 08:00

Lab Sample ID: 240-157478-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1000	508534	10/17/21 01:47	JMB	TAL CAN
Total/NA	Analysis	SM 2540C		1	507135	10/07/21 08:25	AJ	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: TRC Environmental Corporation.
Job ID: 240-157478-1
Project/Site: CCR DTE Sibley Quarry

Laboratory: Eurofins TestAmerica, Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Phone (330) 497-0772

1.3 | 1.4

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing America

Client Information	Sampler: B. YELEN	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-87283-31882.1
Client Contact: Jacob Krenz + V. BUENING	Phone:	E-Mail: Kris.Brooks@Eurofinset.com	State of Origin:	Page: Page 1 of 2
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 #: ~~TBD~~ 164685			
Email: JKrenz@trccompanies.com, vbuening@trccompanies.com	WO #: 330039.0002			
Project Name: CCR DTE Sibley Quarry	Project #: 24016805			
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, Z - other (specify)

Other:

Sample Identification	Sample Date (2021)	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd, 9056A_28D	6010B, 6020	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
MW-101	10.4	1250	G	Water	N	N	X	X		
MW-102	10.4	1200		Water			X	X		
MW-103	10.4	1345		Water			X	X		
MW-104	10.5	0905		Water			X	X		
MW-105	10.5	1000		Water			X	X		
MW-106	10.4	1425		Water			X	X		
MW-107	10.4	1050		Water			X	X		
MW-108A	10.5	1135		Water			X	X		
QUARRY SUMP	10.5	1035		Water			X	X		
QUARRY DISHCARGE	10.5	1100		Water			X	X		
DUP-01	10.4			Water			X	X		

240-157478 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	B. YELEN	10.5.21 1300	TRC		10/5/21 1300	
2		10/5/21 1545			10-6-21 0800	ETA
3						

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

Ver: 01/16/2019

10/18/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 157478

Client TRC Site Name

Cooler Received on 10-6-21 Opened on 10-6-21

Cooler unpacked by: Justin H

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # T4 Foam Box Client Cooler Box Other

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp. 1.3 °C Corrected Cooler Temp. 1.4 °C
   IR GUN #IR-15 (CF +0.2°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	(No)
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11. Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	Yes	(No)
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	(Yes)	No NA pH Strip Lot# **HC157842**
14. Were VOAs on the COC?	(Yes)	(No) JWH 10-6-21
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	(No) NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	(No)
17. Was a LL Hg or Me Hg trip blank present?	Yes	(No)

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

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____

VOA Sample Preservation - Date/Time VOAs Frozen: ____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservative Added (mls)	Lot #
MW-101	240-157478-B-1	Plastic 500ml - with Nitric Acid	<2			
MW-102	240-157478-B-2	Plastic 500ml - with Nitric Acid	<2			
MW-103	240-157478-B-3	Plastic 500ml - with Nitric Acid	<2			
MW-104	240-157478-B-4	Plastic 500ml - with Nitric Acid	<2			
MW-105	240-157478-B-5	Plastic 500ml - with Nitric Acid	<2			
MW-106	240-157478-B-6	Plastic 500ml - with Nitric Acid	<2			
MW-107	240-157478-B-7	Plastic 500ml - with Nitric Acid	<2			
MW-108A	240-157478-B-8	Plastic 500ml - with Nitric Acid	<2			
QUARRY SUMP	240-157478-B-9	Plastic 500ml - with Nitric Acid	<2			
QUARRY DISCHARGE	240-157478-B-10	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-157478-B-11	Plastic 500ml - with Nitric Acid	<2			

Appendix B
Data Quality Review

Laboratory Data Quality Review
Groundwater Monitoring Event April 2021 (Detection Monitoring)
DTE Electric Company Sibley Quarry Landfill (DTE SQLF)

Groundwater samples were collected by TRC for the April 2021 sampling event. Samples were analyzed for anions, total boron, iron, and calcium, and total dissolved solids by Eurofins-Test America Laboratories, Inc. (Eurofins-TA), located in North Canton, Ohio. The laboratory analytical results are reported in laboratory report 240-148098-1.

During the April 2021 sampling event, a groundwater sample was collected from each of the following wells and locations:

- MW-101
- MW-102
- MW-103
- MW-104
- MW-105
- MW-106
- MW-107
- MW-108A

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	SW846 9056A
Total Boron	SW846 3005A/6010B
Total Calcium	SW846 3005A/6020
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, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs). The LCSs are used to assess the accuracy of the analytical method using a clean matrix;
- Data for matrix spike and matrix spike duplicate samples (MS/MSDs), 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 method blanks.
- LCS recoveries for target analytes were within laboratory control limits.
- MS/MSD analyses were performed on sample MW-101 for calcium and iron, and on sample MW-102 for chloride, sulfate, and fluoride; all criteria were met.
    - MS/MSD analyses were not performed for boron on a sample from this data set. Per the project quality assurance project plan (QAPP), MS/MSD analyses are required for boron at a frequency of 1 per 20 samples.
- Laboratory duplicate analysis was performed on sample MW-101 for TDS; all criteria were met.
- Dup-01 corresponds with MW-105; relative percent differences (RPDs) between the parent and duplicate sample were within the QC limits.
- The reporting limit (2.5 mg/L) for the nondetect fluoride result in sample MW-107 was above the QAPP-specified RL (0.05 mg/L) due to a 50-fold dilution as a result of matrix interference (i.e., the elevated concentration of chloride).

Laboratory Data Quality Review
Groundwater Monitoring Event October 2021 (Detection Monitoring)
DTE Electric Company Sibley Quarry Landfill (DTE SQLF)

Groundwater samples were collected by TRC for the October 2021 sampling event. Samples were analyzed for anions, total recoverable metals, and total dissolved solids by Eurofins-Test America Laboratories, Inc. (Eurofins-TA), located in North Canton, Ohio. The laboratory analytical results are reported in laboratory report 240-157478-1.

During the October 2021 sampling event, a groundwater sample was collected from each of the following wells:

- MW-101
- MW-102
- MW-103
- MW-104
- MW-105
- MW-106
- MW-107
- MW-108A
- DUP-01

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	SW846 9056A
Total Recoverable Boron	SW846 3005A/6010B
Total Recoverable Calcium	SW846 3005A/6020
Total Dissolved Solids	SM 2540C

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks and equipment blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs). The LCSs are used to assess the accuracy of the analytical method using a clean matrix;
- Data for matrix spike and matrix spike duplicate samples (MS/MSDs), 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 and iron will be utilized for the purposes of a detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.

QA/QC Sample Summary

- An equipment blank was not collected with this dataset.
- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD analyses were performed on sample MW-101 for total recoverable boron and MW-102 for total recoverable calcium and iron; the percent recoveries and relative percent differences (RPDs) were within criteria with the following exception. The recoveries of calcium were outside of the control limits in the MS and MSD analyses performed on samples MW-102. The results for calcium in the parent samples were >4x the spike concentration; therefore, the MS/MSD recoveries are not applicable.
- The field duplicate pair samples were MW-107 and DUP-01; RPDs between the parent and duplicate samples were within the QC limits.
- The RL for boron was below the RL specified in the quality assurance project plan (QAPP) of 200 ug/L. Sample MW-102 detected boron below the QAPP RL at 110 ug/L.

Appendix C
Prediction Limit Update – DTE Electric Company, Sibley Quarry Landfill

1540 Eisenhower Pl.
Ann Arbor, MI 48108

T 734.971.7080
TRCcompanies.com

Technical Memorandum

Date:	December 15, 2021
To:	Chris Scieszka, DTE Electric Company
From:	Vince Buening, TRC Sarah Holmstrom, TRC Kristin Lowery, TRC
Project No.:	413591.0002.0000 Phase 1 Task 1
Subject:	Prediction Limit Update – DTE Electric Company, Sibley Quarry Landfill

Statistical background limits for the DTE Electric Company (DTE Electric) Monroe Power Plant Sibley Quarry Landfill (SQLF) coal combustion residual (CCR) unit were initially established in the January 15, 2018 Technical Memorandum titled "Background Statistical Evaluation" pursuant to the United States Environmental Protection Agency's (U.S. EPA's) Resource Conservation and Recovery Act (RCRA) Federal Final Rule for Hazardous and Solid Waste Management System Disposal of Coal Combustion Residuals from Electric Utilities (herein after "the CCR Rule") promulgated on April 17, 2015, as amended. As described in the initial statistical limit calculation, background was established under a constrained schedule that captured limited natural temporal trends in groundwater quality. In addition, DTE Electric has since established the Hydrogeological Monitoring Plan for the DTE Electric Company Sibley Quarry Landfill (HMP) (TRC, November 4, 2019, Revised March 17, 2020), to provide a means to comply with applicable monitoring requirements described in the Part 115 of the Natural Resources and Environmental Protection Act, PA 451 of 1994, as amended (Part 115) and the CCR Rule. The HMP was approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on May 15, 2020.

As such, DTE Electric is updating the background statistical limits for the SQLF to include the additional rounds of semiannual monitoring data collected subsequent to the initial statistical limit calculation in 2017. This memorandum presents the updated background statistical limits derived for the SQLF in accordance with the HMP.

Per the HMP, the groundwater monitoring system for the SQLF consists of the following locations for detection monitoring:

- MW-101
- MW-102
- MW-103
- MW-104
- MW-105
- MW-106
- MW-107
- MW-108A

And, per the HMP, statistical analysis is performed for the following detection monitoring parameters:

- Boron
- Calcium
- Chloride
- Fluoride
- Iron
- pH
- Sulfate
- Total Dissolved Solids (TDS)

Due to the limited implementation timeline of the CCR Rule, background data was collected during sampling events spaced one to two months apart to allow the minimum of eight sampling events to be completed before October 17, 2017. The short duration of the background sampling events limits the ability of the statistical analysis to capture the natural temporal variations in the groundwater quality at the SQLF. This limited temporal variability can only be corrected with the collection of additional groundwater data, and the inclusion of the additional data in the background data set updated in the future, as long as data continue to show no impacts from the CCR unit. As a result of site-specific geologic conditions presented in the 2017, 2018, 2019, and 2020 Annual Reports (TRC, January 2018, January 2019, January 2020, and January 2021), migration of CCR related constituents beyond the solid waste boundary is not expected due to the ongoing pumping that is conducted to maintain the water level in the quarry, and groundwater data continue to show no impacts from the CCR unit. Therefore, the seven additional rounds of detection monitoring data and the verification sample results[1] have been incorporated into the background dataset and the prediction limit calculations have been updated using data collected from August 2016 through October 2020 as detailed below, with the exception of iron. Iron was recently added to the monitoring program to align with Part 115. Background limits for iron will be calculated once a minimum of eight background data points have been collected.

The background data for the SQLF were evaluated in accordance with the *Groundwater Statistical Evaluation Plan* (Stats Plan) (TRC, October 2017, Revised March 2020). Background data were evaluated in ChemStat™ statistical software. ChemStat™ is a software tool that is commercially available for performing statistical evaluation consistent with procedures outlined in U.S. EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance; UG). Within the ChemStat™ statistical program (and the UG), prediction limits (PLs) were selected to perform the statistical calculation for background limits. Use of PLs is recommended by the UG to provide high statistical power and is an acceptable approach for intrawell detection monitoring under the CCR Rule. PLs were calculated for each of the constituents included in Appendix III of the CCR Rule (total boron, total calcium, chloride, fluoride, pH, sulfate, and total dissolved solids). The following narrative describes the methods employed and the results obtained and the ChemStat™ output files are included as an attachment.

The set of background wells utilized for SQLF includes MW-101 through MW-108A. The background evaluation included the following steps:

- Review of data quality checklists for the baseline/background data sets for CCR Appendix III constituents;
- Graphical representation of the baseline data as time versus concentration (T v. C) by well/constituent pair;

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

- Outlier testing of individual data points that appear from the graphical representations as potential outliers;
- Evaluation of percentage of nondetects for each baseline/background well-constituent (w/c) pair;
- Distribution of the data; and
- Calculation of the upper PLs for each cumulative baseline/background data set (upper and lower PLs were calculated for field pH).

The results of these evaluations are presented and discussed below.

Data Quality

Data from each sampling round were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The review was completed using the following quality control (QC) information which at a minimum included chain-of-custody forms, investigative sample results including blind field duplicates, and, as provided by the laboratory, method blanks, laboratory control spikes, laboratory duplicates. The data were found to be complete and usable for the purposes of the CCR monitoring program.

Time versus Concentration Graphs

The time versus concentration (T v. C) graphs (Attachment A) show potential or suspect outliers for anions (chloride, fluoride, and sulfate) at MW-101 on 1/19/2017, for fluoride at MW-105 on 8/10/2016, for total dissolved solids (TDS) at MW-106 on 4/24/2017, and sulfate at MW-107 on 3/26/2020.

While variations in results are present, the graphs show consistent baseline data and do not suggest that data sets, as a whole, likely have overall trending or seasonality. However, due to limitations on CCR Rule implementation timelines, the data sets are of relatively short duration for making such observations regarding overall trending or seasonality.

Outlier Testing

Outlier removal from the background data set is summarized in Table 1. Probability plots (Attachment A) were used to further evaluate the potential outliers in anion data for MW-101, fluoride data for MW-105, TDS data for MW-106, and sulfate data at MW-107 that were identified in the T v. C graphs (Attachment A). In general, probability plots of the data residuals for MW-101 show that anion data collected on 1/19/2017 were from a different distribution than the remaining data. Probability plots of the data residuals for MW-106 show that the TDS data collected on 4/24/2017 were from a different distribution than the remaining data. Probability plots of the data residuals for MW-107 show that the sulfate data collected on 3/26/2020 were from a different distribution than the remaining data. Probability plots of the data residuals for MW-105 do not confirm that the fluoride data collected on 8/10/2016 were from a different distribution than the remaining data. Fluoride data for MW-105 exhibited a non-normal distribution before and after the potential outlier removal. Prior to outlier removal, the anion parameters for MW-101 and TDS for MW-106 exhibited a non-normal distribution. The data sets for most of the parameters exhibited a normal distribution after the removal of these outliers. As such, anion data collected from monitoring well MW-101 on 1/19/2017, TDS data collected from monitoring well MW-106 on 4/24/2017, and sulfate data collected form monitoring well MW-107 on 3/26/2020 were removed from the background data set used to calculate the statistical limits.

Distribution of the Data Sets

ChemStat™ was utilized to evaluate each data set for normality. If the skewness coefficient was calculated to be between negative one and one, then the data were assumed to be approximately normally distributed. If the skewness coefficient was calculated as greater than one (or less than negative one) then the calculation was performed on the natural log (Ln) of the data. If the Ln of the data still determined that the data appeared to be skewed, then the Shapiro-Wilk test of normality (Shapiro-Wilk) was performed. The Shapiro-Wilk statistic was calculated on both non-transformed data and the Ln-transformed data. If the Shapiro-Wilk statistic indicated that normal distributional assumptions were not valid, then the parameter was considered a candidate for non-parametric statistical evaluation. The data distributions are summarized in Table 2.

Prediction Limits

Table 2 presents the calculated PLs for the background/baseline data sets. For normal and lognormal distributions, PLs are calculated for 95 percent confidence using parametric methods. For nonnormal background datasets, a nonparametric PL is utilized, resulting in the highest value from the background dataset as the PL. The achieved confidence levels for nonparametric prediction limits depend entirely on the number of background data points, which are shown in the ChemStat™ outputs. Verification resampling (1 of 2) is recommended per the Stats Plan and UG to achieve performance standards specified in the CCR Rule.

Attachments

Table 1 – Summary of Outlier Evaluation
Table 2 – Summary of Descriptive Statistics and Prediction Limit Calculations
Attachment A – ChemStat™ Prediction Limit Outputs

Tables

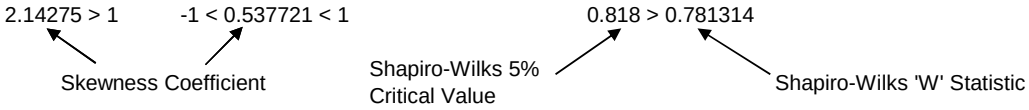
Table 1
Summary of Outlier Evaluation
Background Statistical Evaluation
DTE Electric Company – Sibley Quarry Landfill

Parameter	Units	Monitoring Well	Sample Date	Data Outlier	Basis for Removal of Outlier
Chloride	mg/L	MW-101	01/19/17	31	Anion analysis for this sample had anomalously low results.
Fluoride	mg/L	MW-101	01/19/17	0.34	Anion analysis for this sample had anomalously low results.
Sulfate	mg/L	MW-101	01/19/17	110	Anion analysis for this sample had anomalously low results.
	mg/L	MW-107	03/26/20	7,800	Anomalously high concentration.
Total Dissolved Solids	mg/L	MW-106	04/24/17	6,100	Anomalously high concentration.

Table 2
Summary of Descriptive Statistics and Prediction Limit Calculations
Background Statistical Evaluation
DTE Electric Company – Sibley Quarry Landfill

Monitoring Well	Skewness Test		Shapiro-Wilks Test (5% Critical Value)		Outliers Removed	Prediction Limit Test	Prediction Limit
	Un-Transformed Data	Natural Log Transformed Data	Un-Transformed Data	Natural Log Transformed Data			
Appendix III							
Boron (ug/L)							
MW-101	-1 < 0.135883 < 1	--	--	--	N	Parametric	320
MW-102	-1.18159 < -1	-1.45141 < -1	0.887 > 0.846807	0.887 > 0.802327	N	Non-Parametric	150
MW-103	-1 < -0.651 < 1	--	--	--	N	Parametric	820
MW-104	1 < 1.55567	1 < 1.33447	0.887 > 0.798611	0.887 > 0.836748	N	Non-Parametric	950
MW-105	-1 < 0.361478 < 1	--	--	--	N	Parametric	2,600
MW-106	1 < 1.73976	1 < 1.34373	0.892 > 0.681881	0.892 > 0.789193	N	Non-Parametric	2,400
MW-107	-1 < -0.658055 < 1	--	--	--	N	Parametric	1,600
MW-108A	-1 < -0.512031 < 1	--	--	--	N	Parametric	1,400
Calcium (ug/L)							
MW-101	-1 < 0.644681 < 1	--	--	--	N	Parametric	260,000
MW-102	-1 < -0.0493733 < 1	--	--	--	N	Parametric	300,000
MW-103	-1.48957 < -1	-1.75727 < -1	0.887 > 0.863308	0.887 > 0.815782	N	Non-Parametric	630,000
MW-104	-1 < -0.438178 < 1	--	--	--	N	Parametric	520,000
MW-105	-1 < 0.697987 < 1	--	--	--	N	Parametric	790,000
MW-106	-1 < -0.213005 < 1	--	--	--	N	Parametric	640,000
MW-107	-1 < 0.116629 < 1	--	--	--	N	Parametric	1,500,000
MW-108A	-1 < 0.19126 < 1	--	--	--	N	Parametric	460,000
Chloride (mg/L)							
MW-101	-1 < -0.172643 < 1	--	--	--	Y	Parametric	220
MW-102	-1 < 0.622864 < 1	--	--	--	N	Parametric	260
MW-103	-1 < -0.380765 < 1	--	--	--	N	Parametric	160
MW-104	1 < 2.10709	1 < 1.81566	0.887 > 0.593694	0.887 > 0.686849	N	Non-Parametric	690
MW-105	-1 < 0.143521 < 1	--	--	--	N	Parametric	4,500
MW-106	1 < 1.39295	1 < 1.10775	0.892 > 0.823012	0.892 > 0.863737	N	Non-Parametric	180
MW-107	-1 < -0.499361 < 1	--	--	--	N	Parametric	21,000
MW-108A	-1 < -0.0830039 < 1	--	--	--	N	Parametric	2,100
Fluoride (mg/L)							
MW-101	-1 < -0.824828 < 1	--	--	--	Y	Parametric	2.0
MW-102	-1.11051 < -1	-1.36463 < -1	0.892 > 0.849522	0.892 > 0.805952	N	Non-Parametric	1.8
MW-103	-1 < -0.354379 < 1	--	--	--	N	Parametric	2.0
MW-104	1 < 1.70628	-1 < 0.939141 < 1	--	--	N	Parametric	2.3
MW-105	1 < 3.7264	1 < 6.29954	0.887 > 0.733374	0.887 > 0.849474	N	Non-Parametric	5.8
MW-106	1 < 2.83894	1 < 2.26615	0.892 > 0.631736	0.892 > 0.738891	N	Non-Parametric	3.0
MW-107	> 50% Non-Detect	--	--	--	N	Non-Parametric	2.5
MW-108A	1 < 2.54302	1 < 71.1236	0.887 . 0.536273	0.887 > 0.653439	N	Non-Parametric	2.5

Notes:

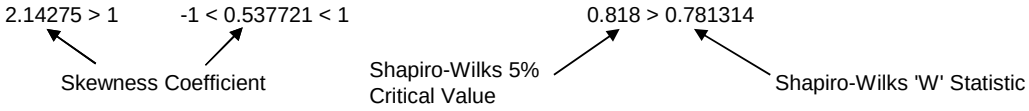


ug/L = micrograms per liter
mg/L = milligrams per liter
SU = standard units

Table 2
Summary of Descriptive Statistics and Prediction Limit Calculations
Background Statistical Evaluation
DTE Electric Company – Sibley Quarry Landfill

Monitoring Well	Skewness Test		Shapiro-Wilks Test (5% Critical Value)		Outliers Removed	Prediction Limit Test	Prediction Limit
	Un-Transformed Data	Natural Log Transformed Data	Un-Transformed Data	Natural Log Transformed Data			
pH, Field (SU)							
MW-101	1 < 2.36381	1 < 2.29819	0.887 > 0.651441	0.887 > 0.665476	N	Non-Parametric	6.8 - 7.8
MW-102	1 < 1.62095	1 < 1.46055	0.892 > 0.82897	0.892 > 0.845928	N	Non-Parametric	6.5 - 7.6
MW-103	1 < 1.694	1 < 1.64566	0.887 > 0.741835	0.887 > 0.751634	N	Non-Parametric	6.7 - 7.6
MW-104	1 < 2.18132	1 < 2.09104	0.887 > 0.720378	0.887 > 0.737549	N	Non-Parametric	6.8 - 7.9
MW-105	1 < 2.94984	1 < 2.84991	0.887 > 0.580923	0.887 > 0.603182	N	Non-Parametric	6.6 - 7.9
MW-106	1 < 1.58473	1 < 1.44035	0.892 > 0.821866	0.892 > 0.837641	N	Non-Parametric	6.5 - 7.6
MW-107	1 < 2.22813	1 < 2.149	0.892 > 0.702751	0.892 > 0.718979	N	Non-Parametric	6.5 - 7.6
MW-108A	-1 < -0.872589 < 1	--	--	--	N	Parametric	6.7 - 7.0
Sulfate (mg/L)							
MW-101	-1 < 0.416249 < 1	--	--	--	Y	Parametric	700
MW-102	-1.20173 < -1	-1.69557 < -1	0.892 > 0.883703	0.892 > 0.805849	N	Non-Parametric	720
MW-103	-1 < -0.176566 < 1	--	--	--	N	Parametric	2,100
MW-104	-1 < -0.358646 < 1	--	--	--	N	Parametric	1,900
MW-105	-1 < -0.870368 < 1	--	--	--	N	Parametric	2,200
MW-106	-1 < 0.390323 < 1	--	--	--	N	Parametric	2,100
MW-107	-1 < 0.862612 < 1	--	--	--	Y	Parametric	3,700
MW-108A	-1 < 0.186117 < 1	--	--	--	N	Parametric	1,200
Total Dissolved Solids (mg/L)							
MW-101	-1 < 0 < 1	--	--	--	N	Parametric	1,400
MW-102	-1 < -0.924486 < 1	--	--	--	N	Parametric	1,700
MW-103	-1 < 0.12819 < 1	--	--	--	N	Parametric	3,600
MW-104	-1 < 0.769387 < 1	--	--	--	N	Parametric	3,700
MW-105	-1 < 0.4650863 < 1	--	--	--	N	Parametric	9,400
MW-106	-1.28906 < -1	-1.4308 < -1	0.887 > 0.818342	0.887 > 0.799044	Y	Non-Parametric	3,200
MW-107	-1 < 0.248479 < 1	--	--	--	N	Parametric	39,000
MW-108A	-1 < -1.00949	-1.23568 < -1	0.887 < 0.912892	--	N	Parametric	4,900

Notes:

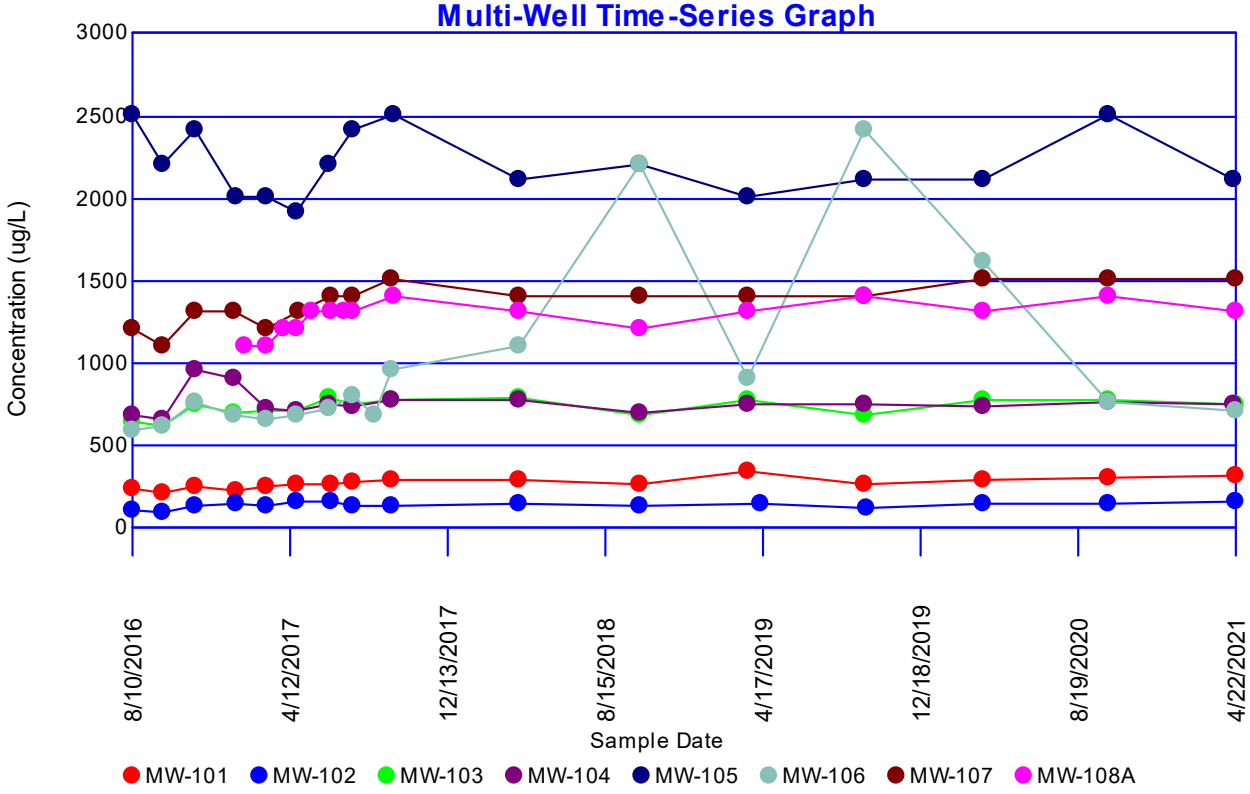


ug/L = micrograms per liter
mg/L = milligrams per liter
SU = standard units

Attachment A
ChemStat™ Prediction Limit Outputs

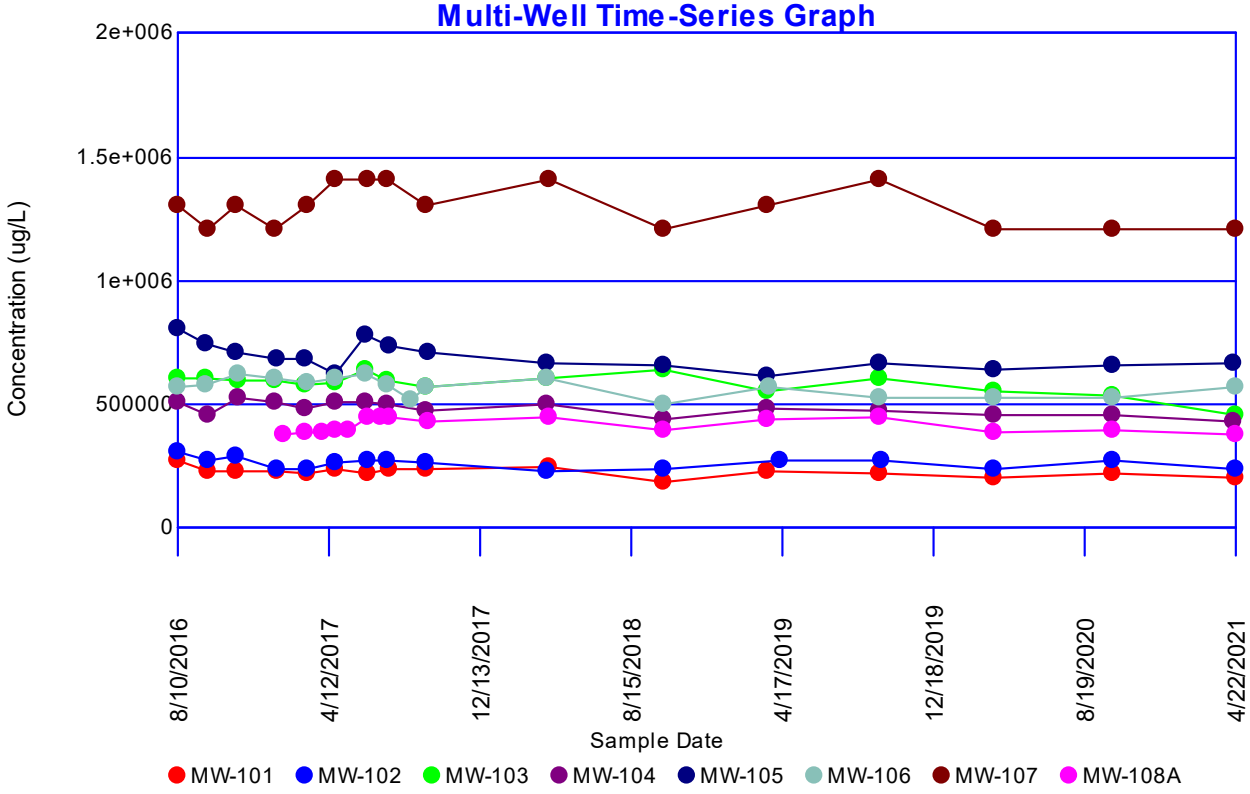
Boron

Multi-Well Time-Series Graph



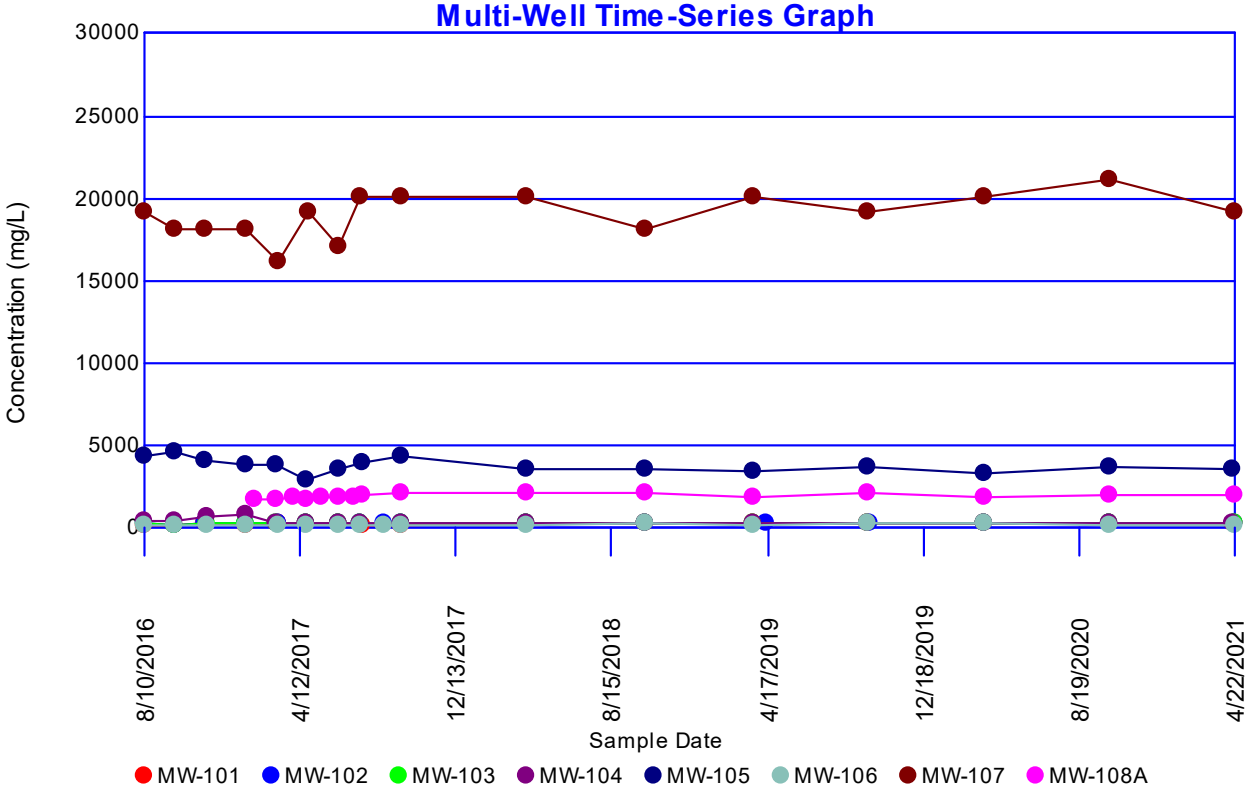
Calcium

Multi-Well Time-Series Graph



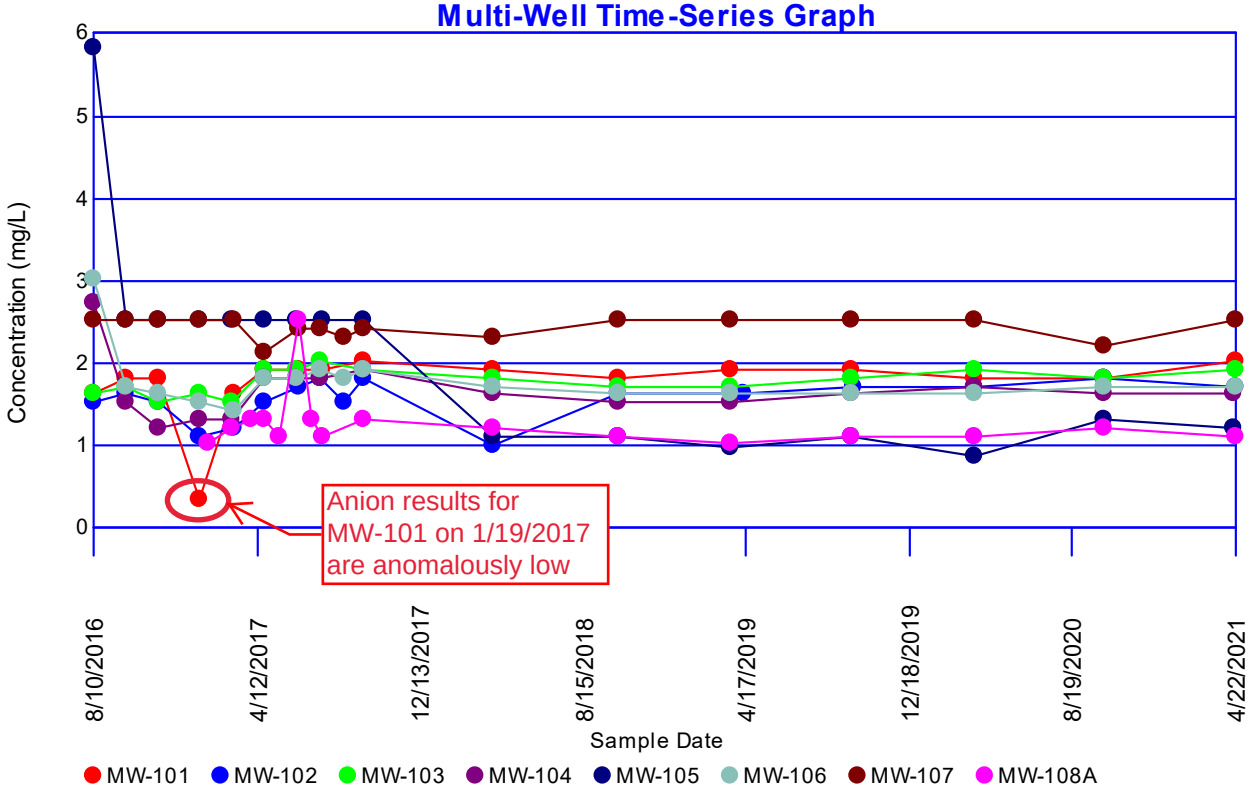
Chloride

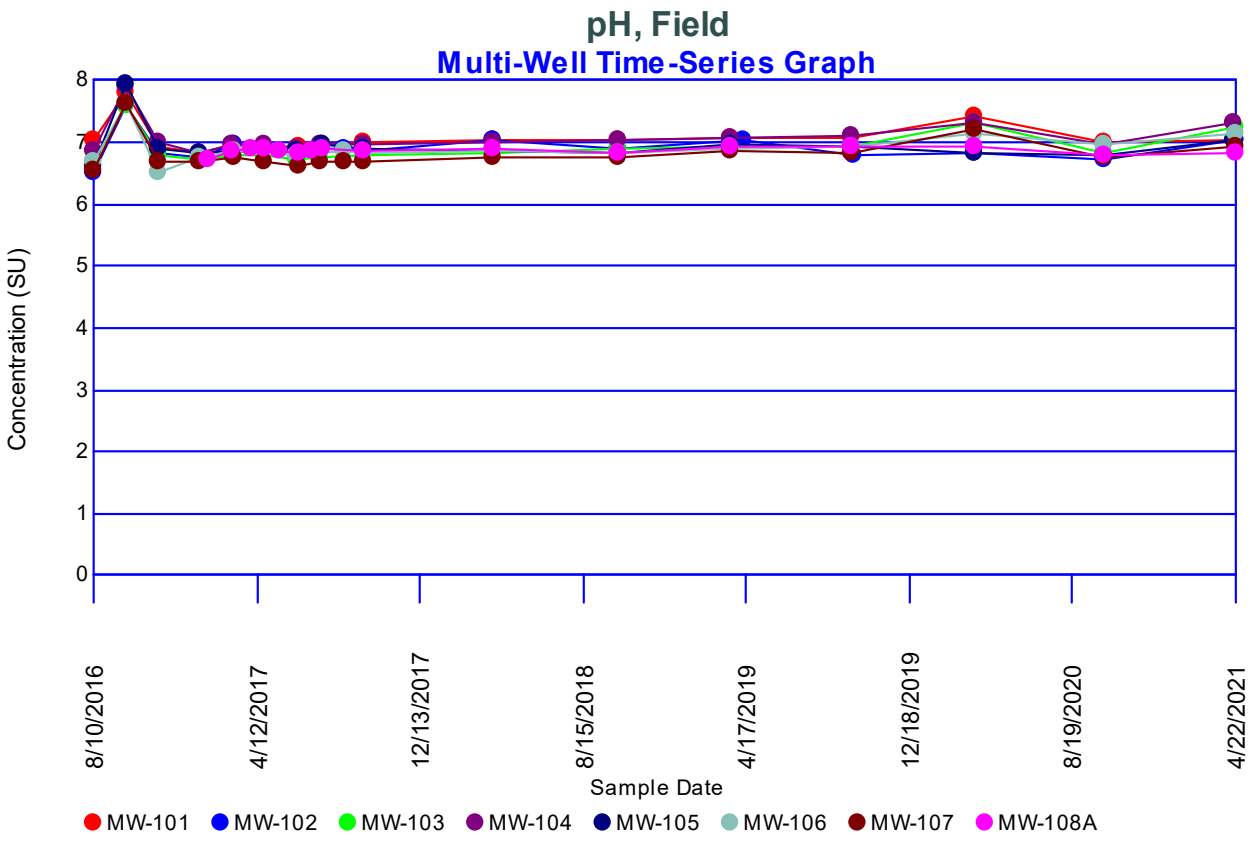
Multi-Well Time-Series Graph

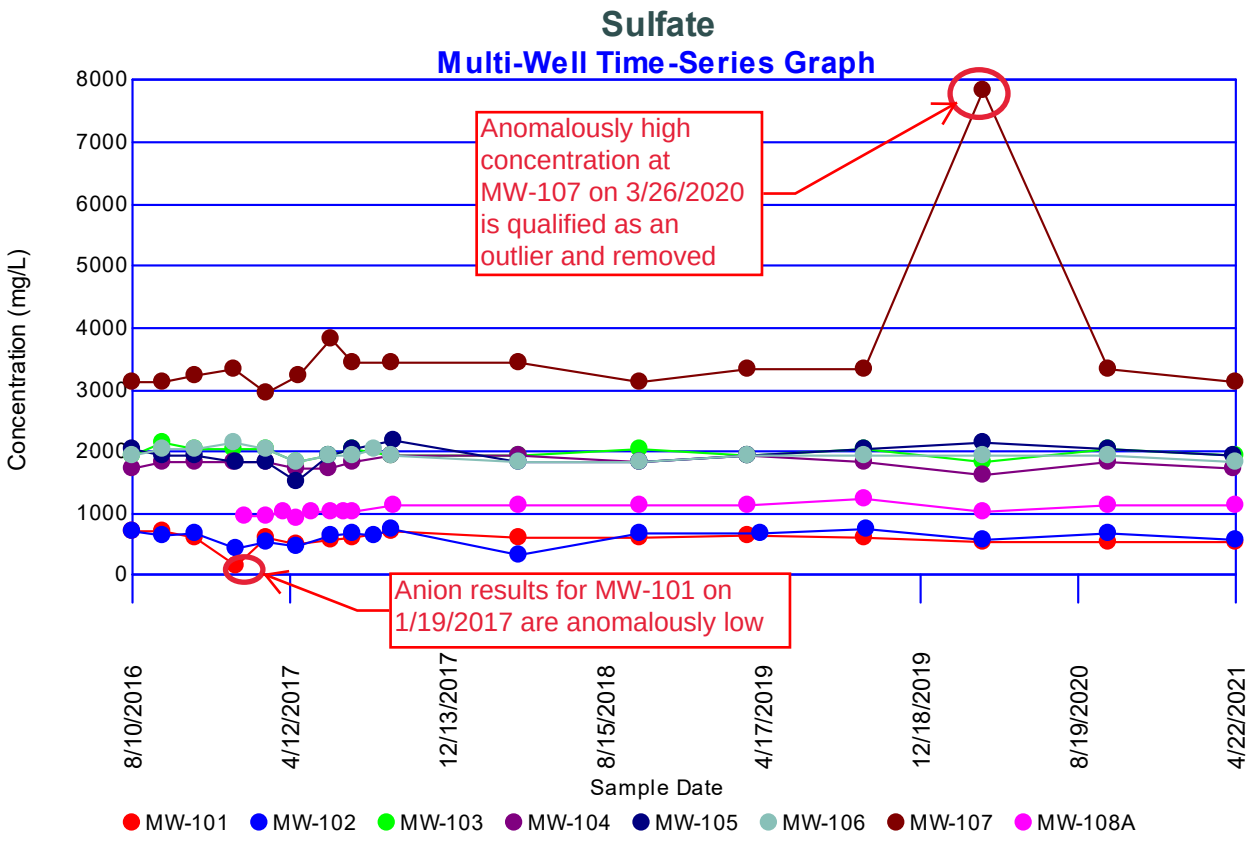


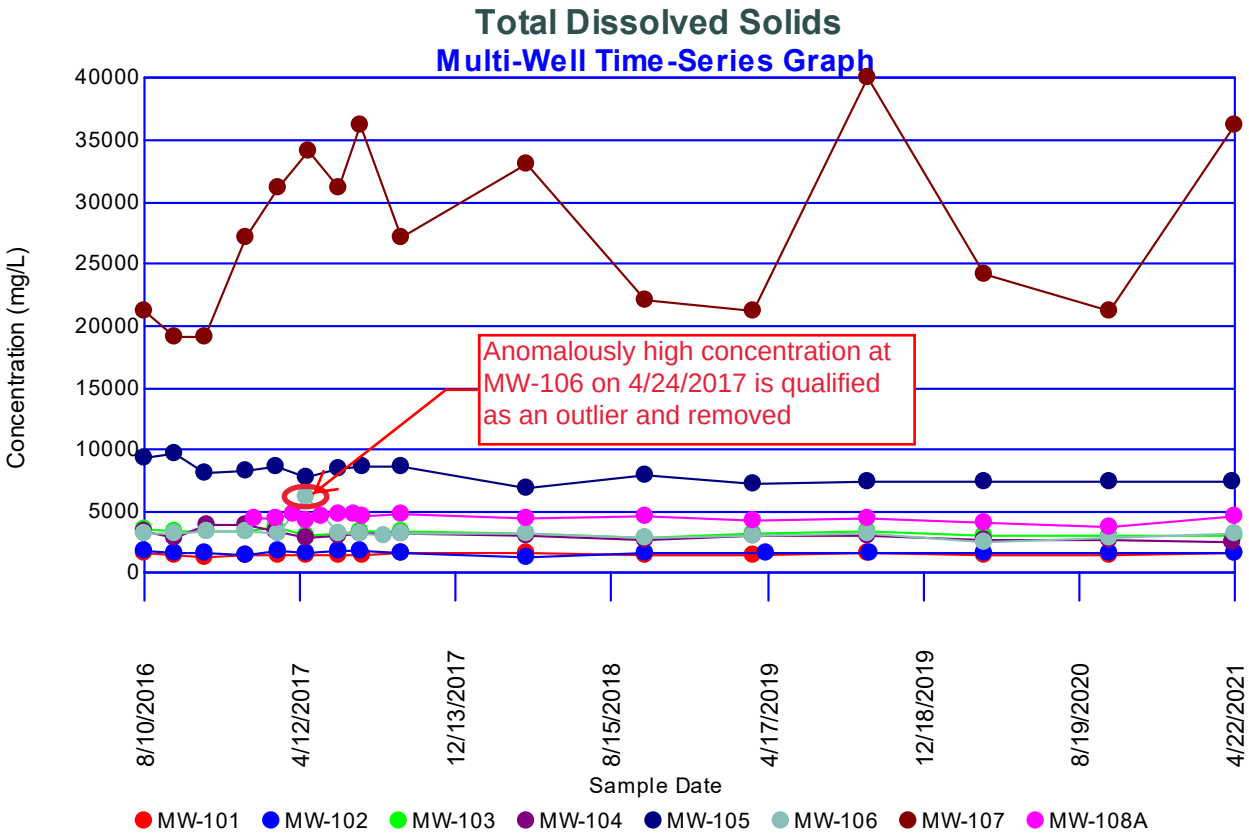
Fluoride

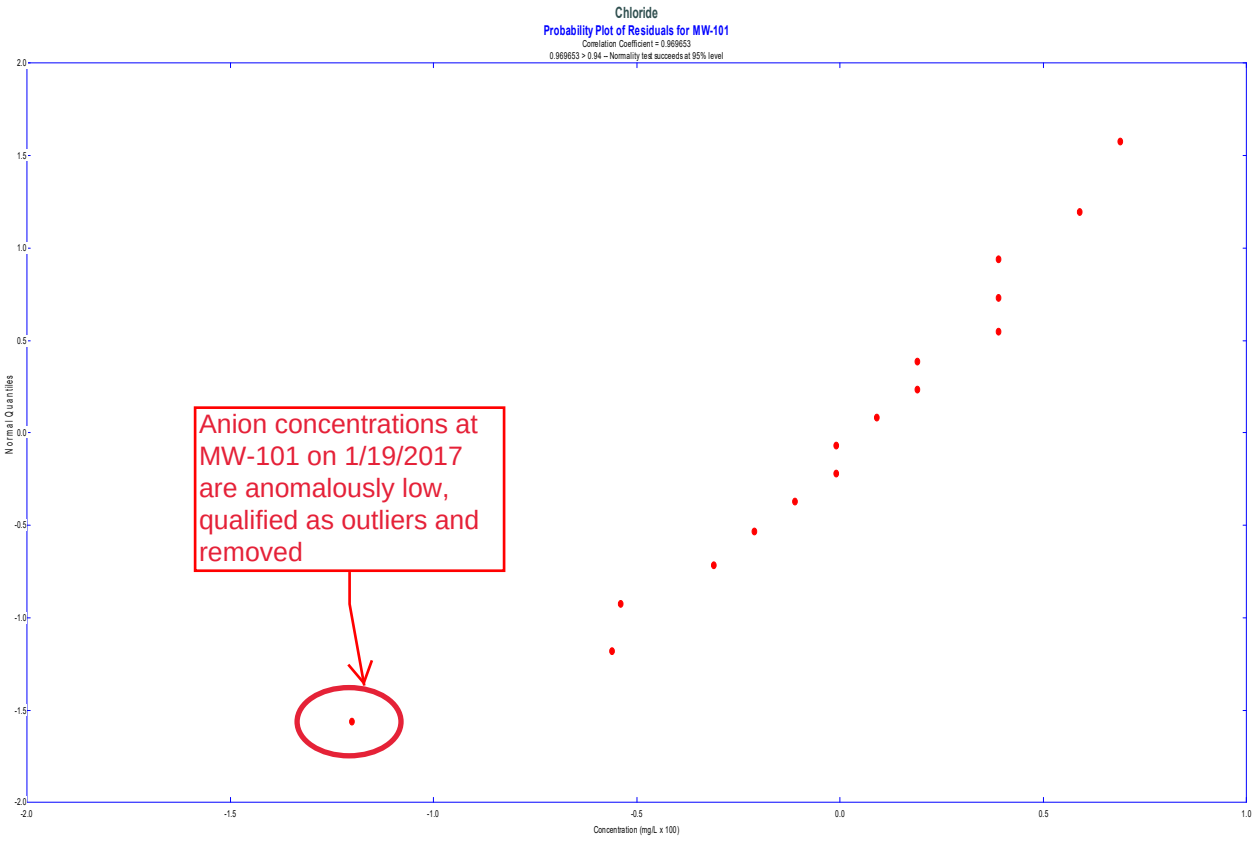
Multi-Well Time-Series Graph



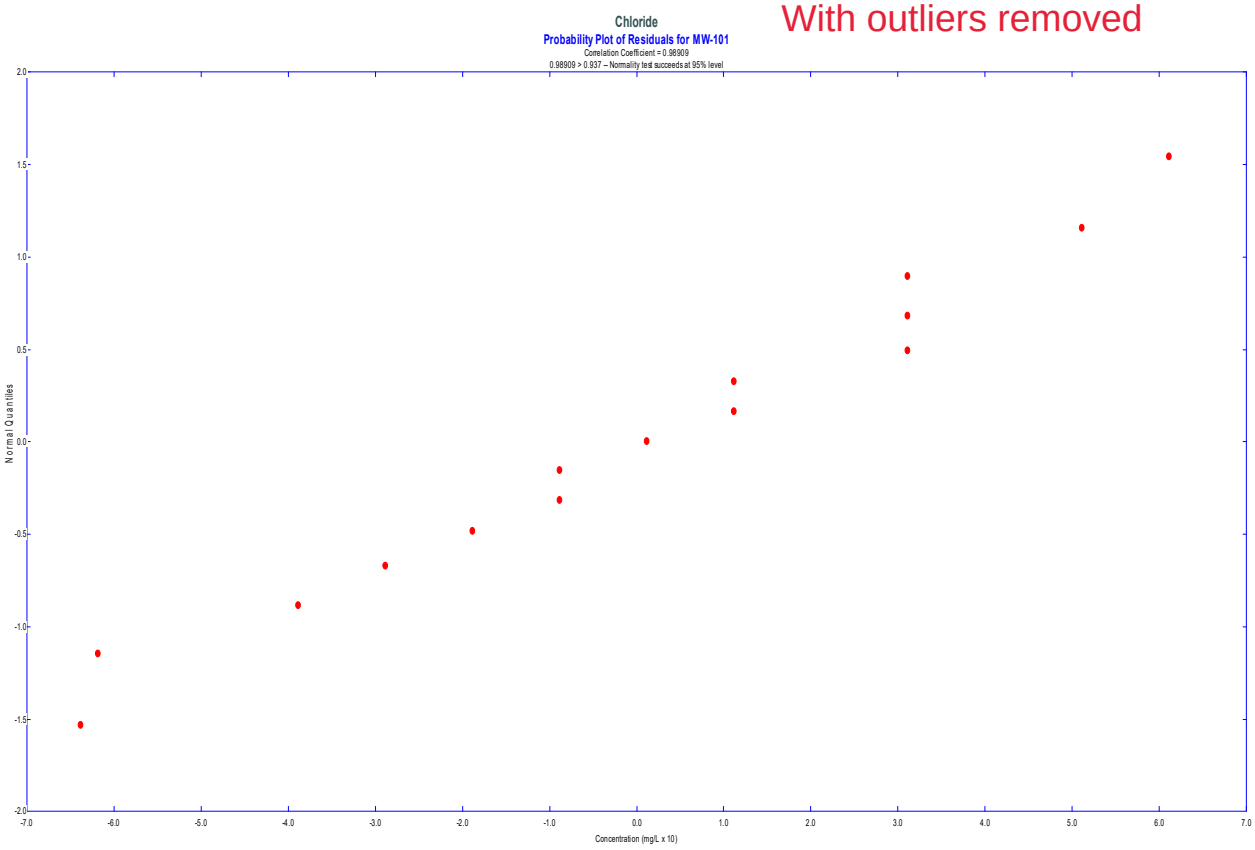

pH, Field
Multi-Well Time-Series Graph
Concentration (SU)
8
7
6
5
4
3
2
1
0
8/10/2016
4/12/2017
12/13/2017
8/15/2018
4/17/2019
12/18/2019
8/19/2020
4/22/2021
Sample Date
MW-101
MW-102
MW-103
MW-104
MW-105
MW-106
MW-107
MW-108A

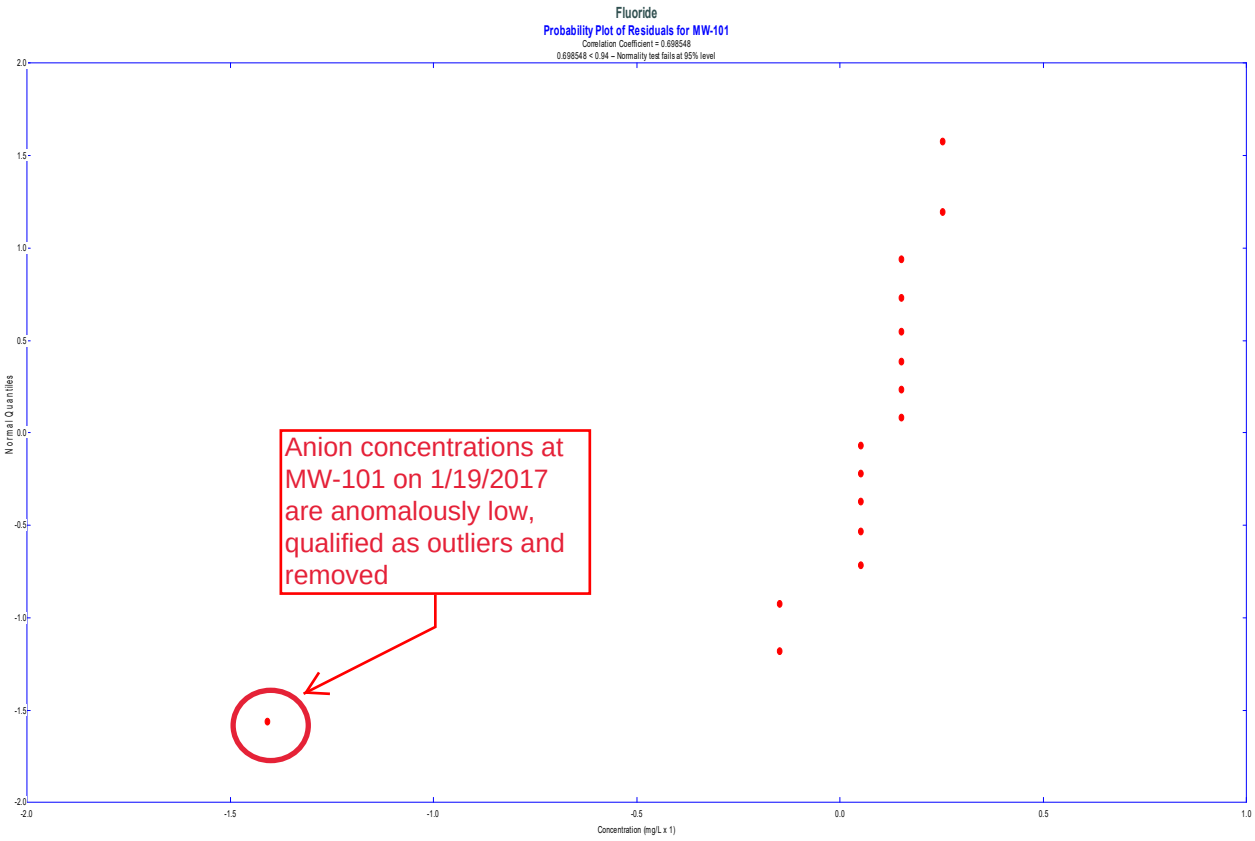

Sulfate
Multi-Well Time-Series Graph
Concentration (mg/L)
8000
7000
6000
5000
4000
3000
2000
1000
0
Anomalously high concentration at MW-107 on 3/26/2020 is qualified as an outlier and removed
Anion results for MW-101 on 1/19/2017 are anomalously low
8/10/2016
4/12/2017
12/13/2017
8/15/2018
4/17/2019
12/18/2019
8/19/2020
4/22/2021
Sample Date
MW-101
MW-102
MW-103
MW-104
MW-105
MW-106
MW-107
MW-108A


Total Dissolved Solids
Multi-Well Time-Series Graph
Concentration (mg/L)
40000
35000
30000
25000
20000
15000
10000
5000
0
Anomalously high concentration at MW-106 on 4/24/2017 is qualified as an outlier and removed
8/10/2016
4/12/2017
12/13/2017
8/15/2018
4/17/2019
12/18/2019
8/19/2020
4/22/2021
Sample Date
MW-101
MW-102
MW-103
MW-104
MW-105
MW-106
MW-107
MW-108A

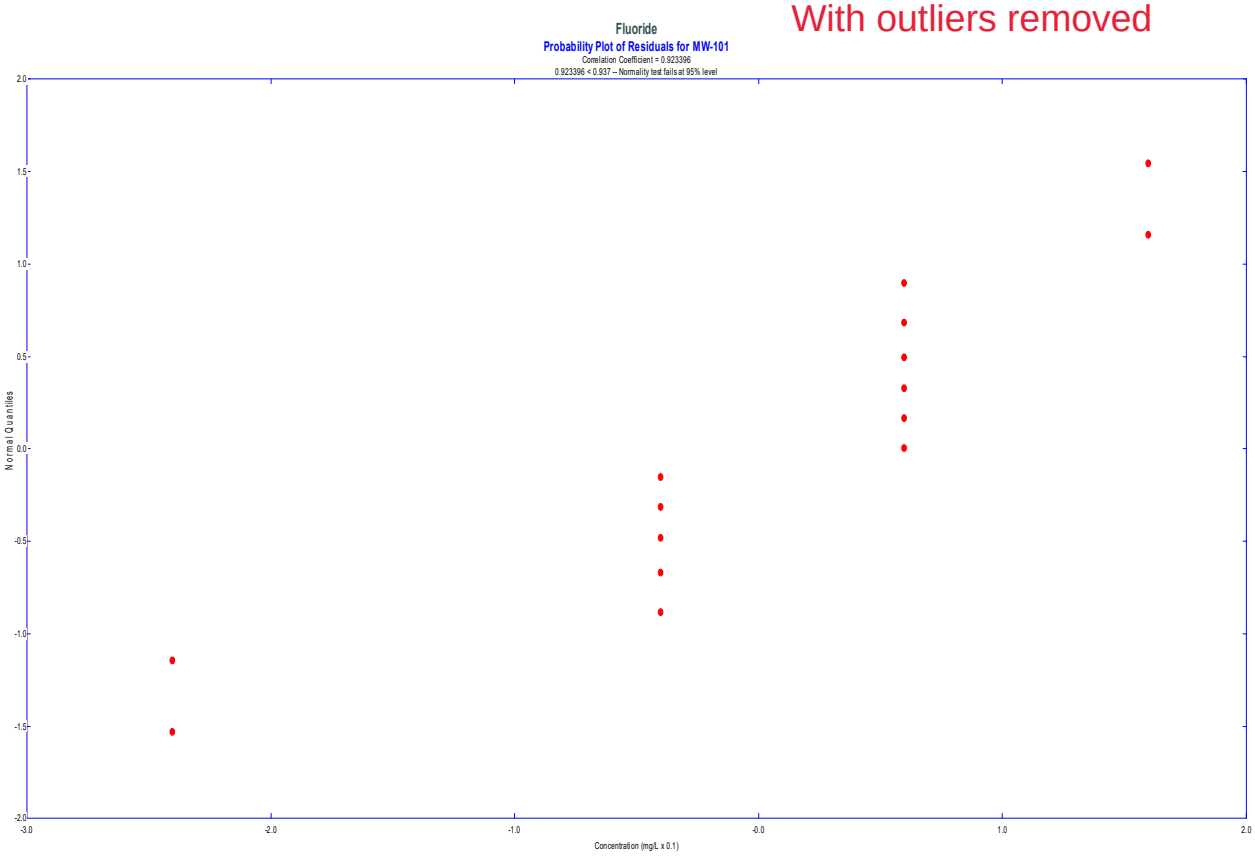

Chloride
Probability Plot of Residuals for MW-101
Correlation Coefficient = 0.969653
0.969653 > 0.94 – Normality test succeeds at 95% level
Normal Quantiles
Concentration (mg/L x 100)
Anion concentrations at MW-101 on 1/19/2017 are anomalously low, qualified as outliers and removed

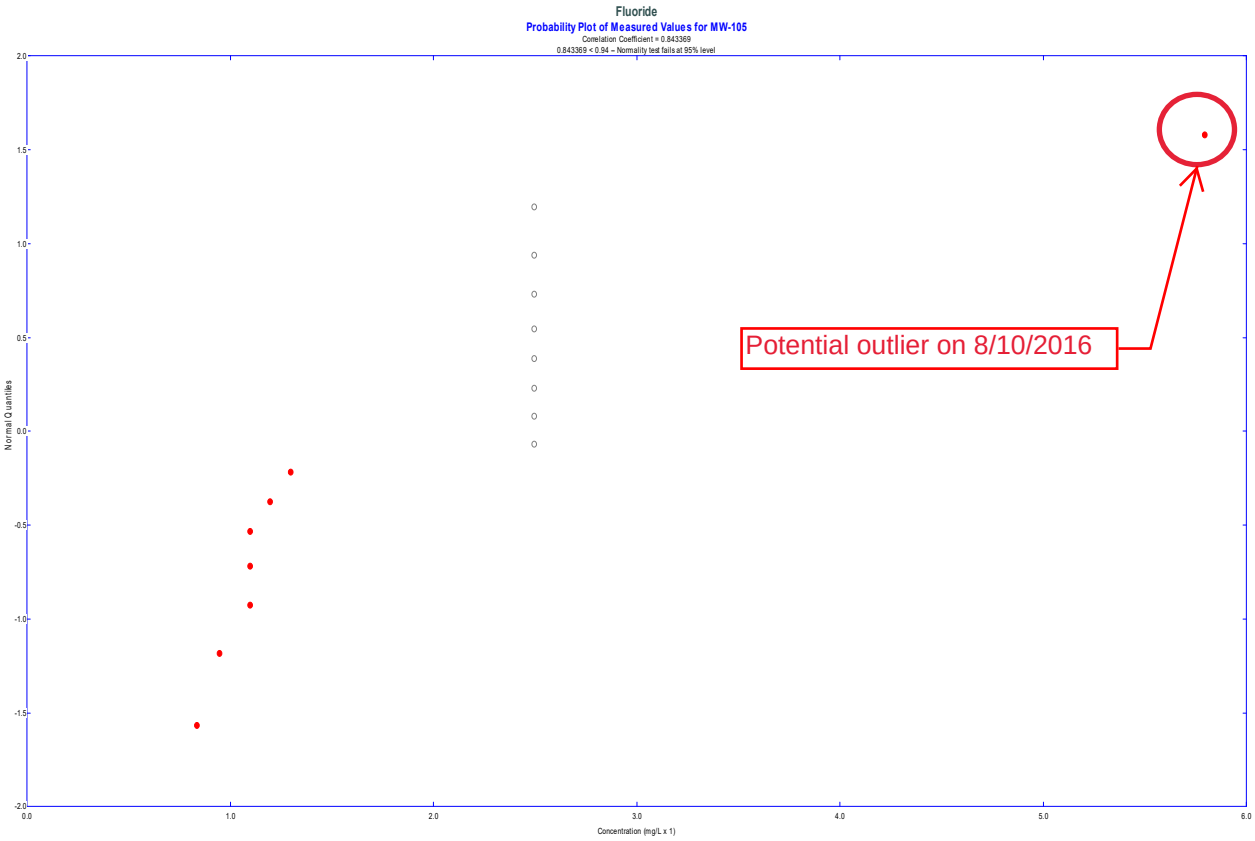
With outliers removed

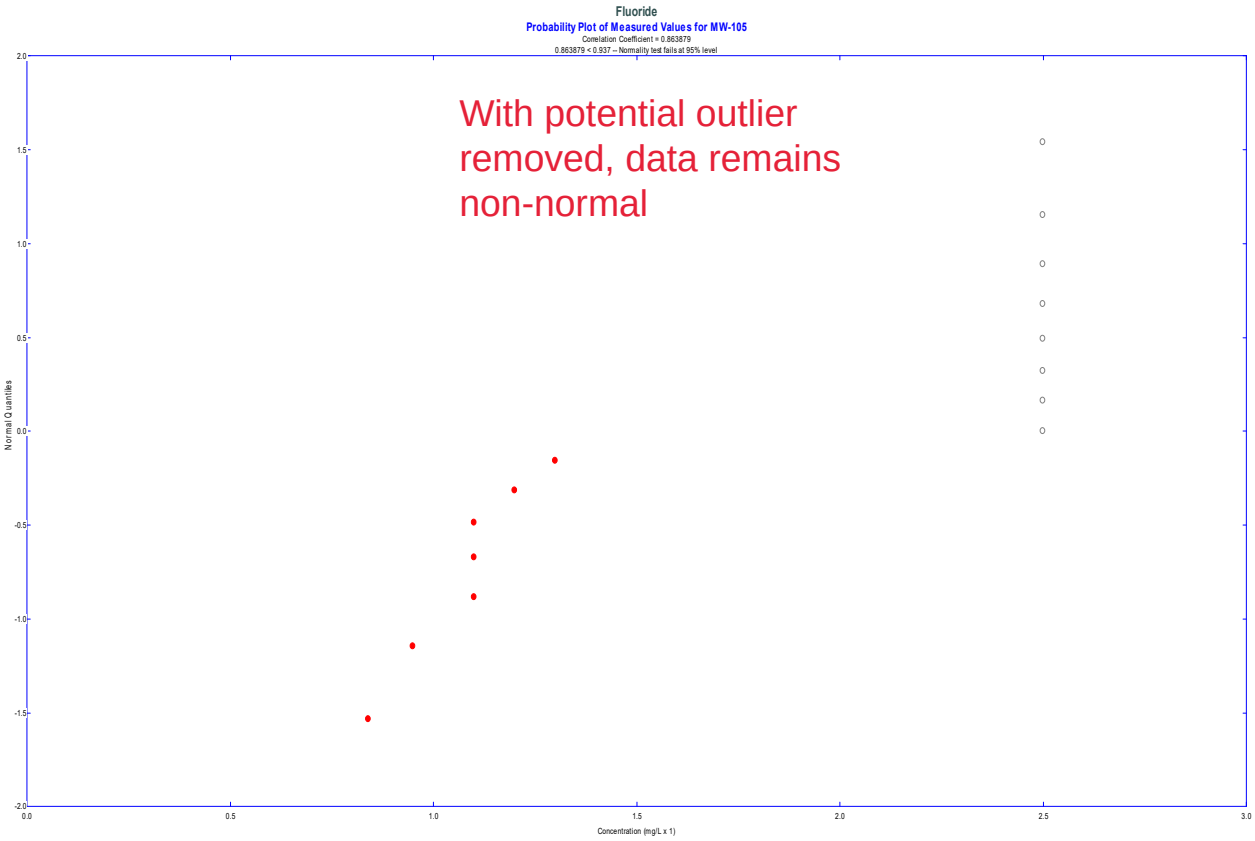


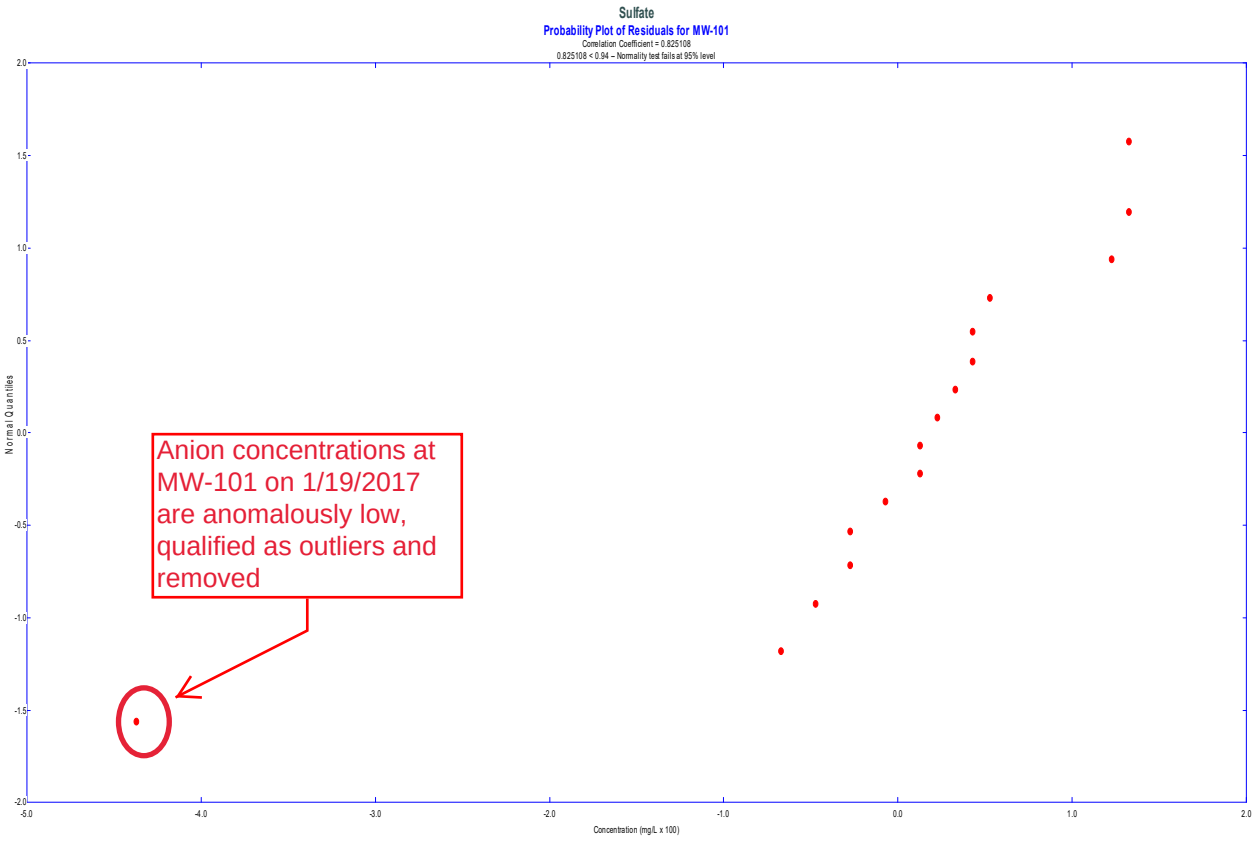

Fluoride
Probability Plot of Residuals for MW-101
Correlation Coefficient = 0.698548
0.698548 < 0.94 – Normality test fails at 95% level
Normal Quantiles
Concentration (mg/L x 1)
Anion concentrations at MW-101 on 1/19/2017 are anomalously low, qualified as outliers and removed

With outliers removed

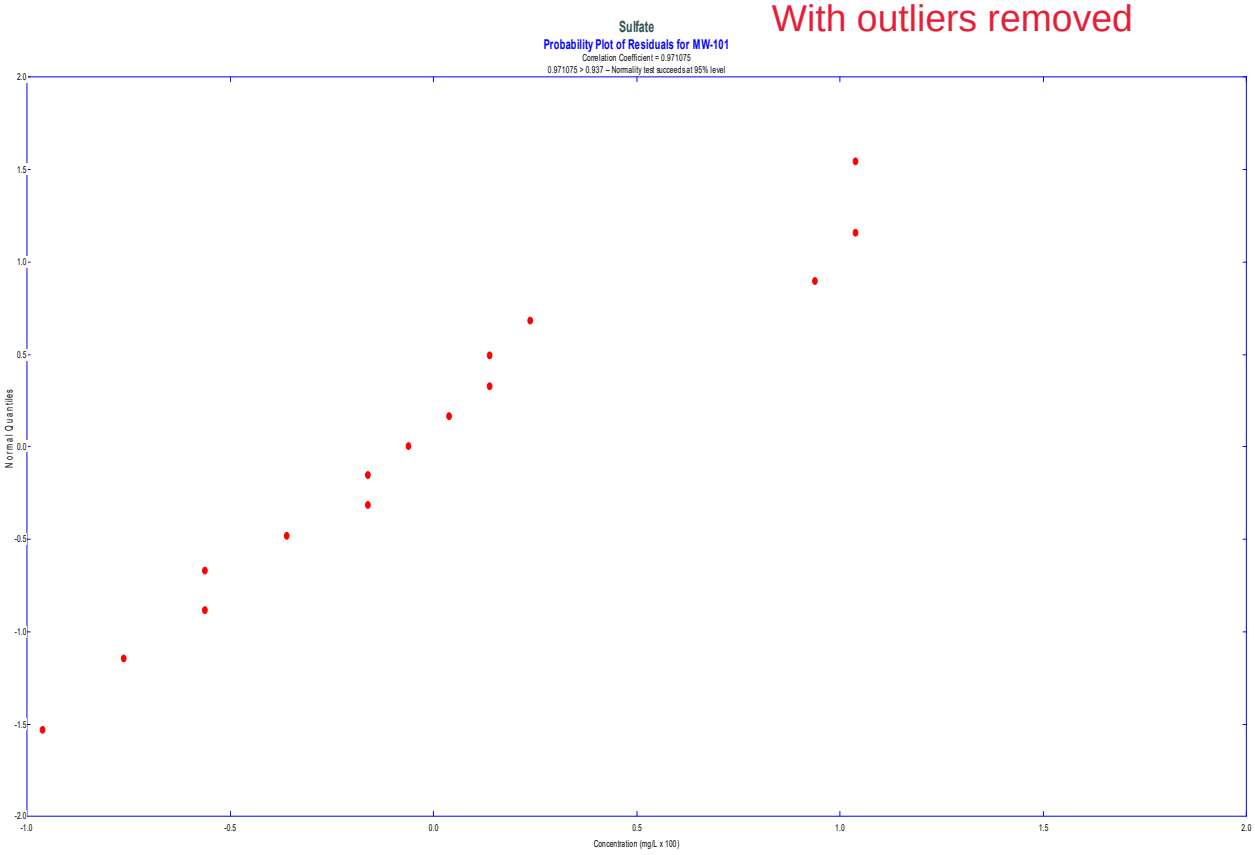


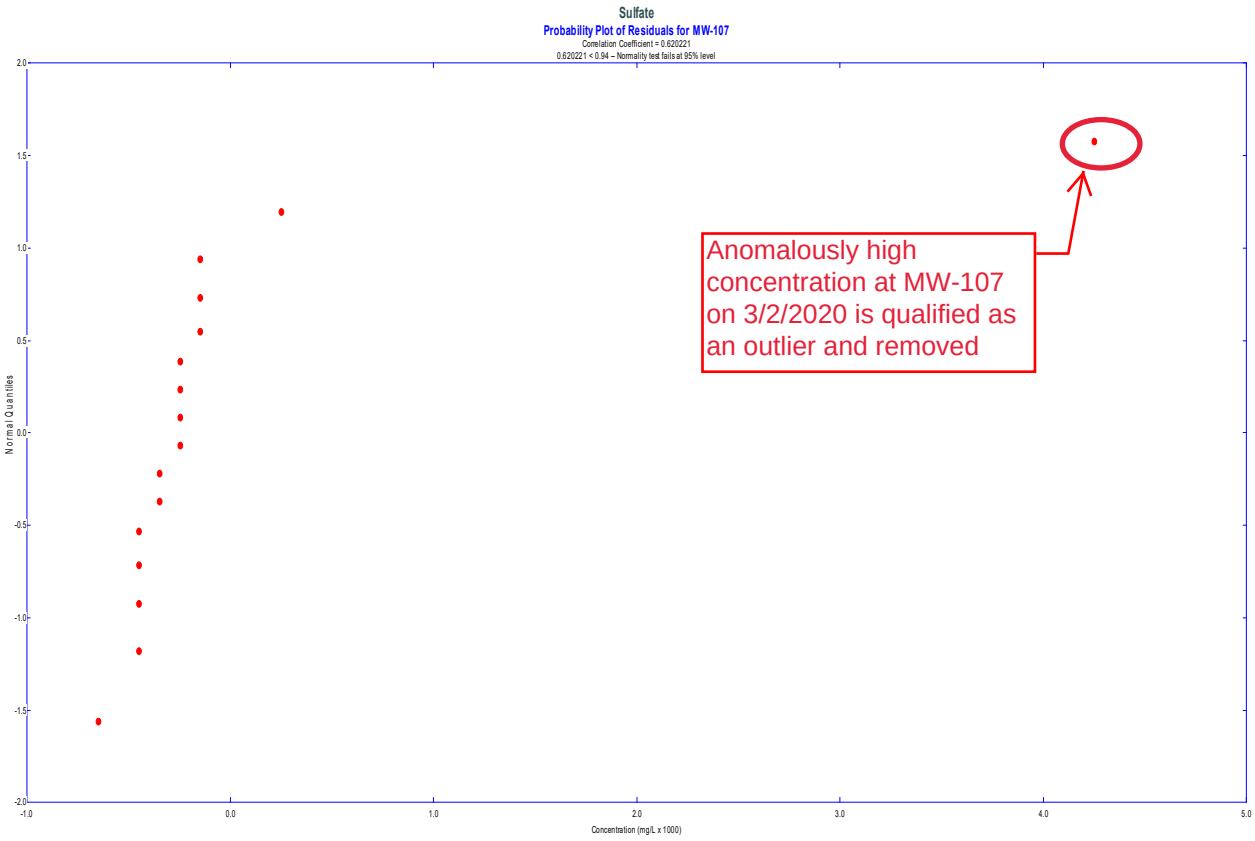

Fluoride
Probability Plot of Measured Values for MW-105
Correlation Coefficient = 0.843369
0.843369 < 0.94 – Normality test fails at 95% level
Normal Q uantiles
Concentration (mg/L x 1)
Potential outlier on 8/10/2016


Fluoride
Probability Plot of Measured Values for MW-105
Correlation Coefficient = 0.863879
0.863879 < 0.937 -- Normality test fails at 95% level
With potential outlier removed, data remains non-normal
Normal Q uantiles
Concentration (mg/L x 1)
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0

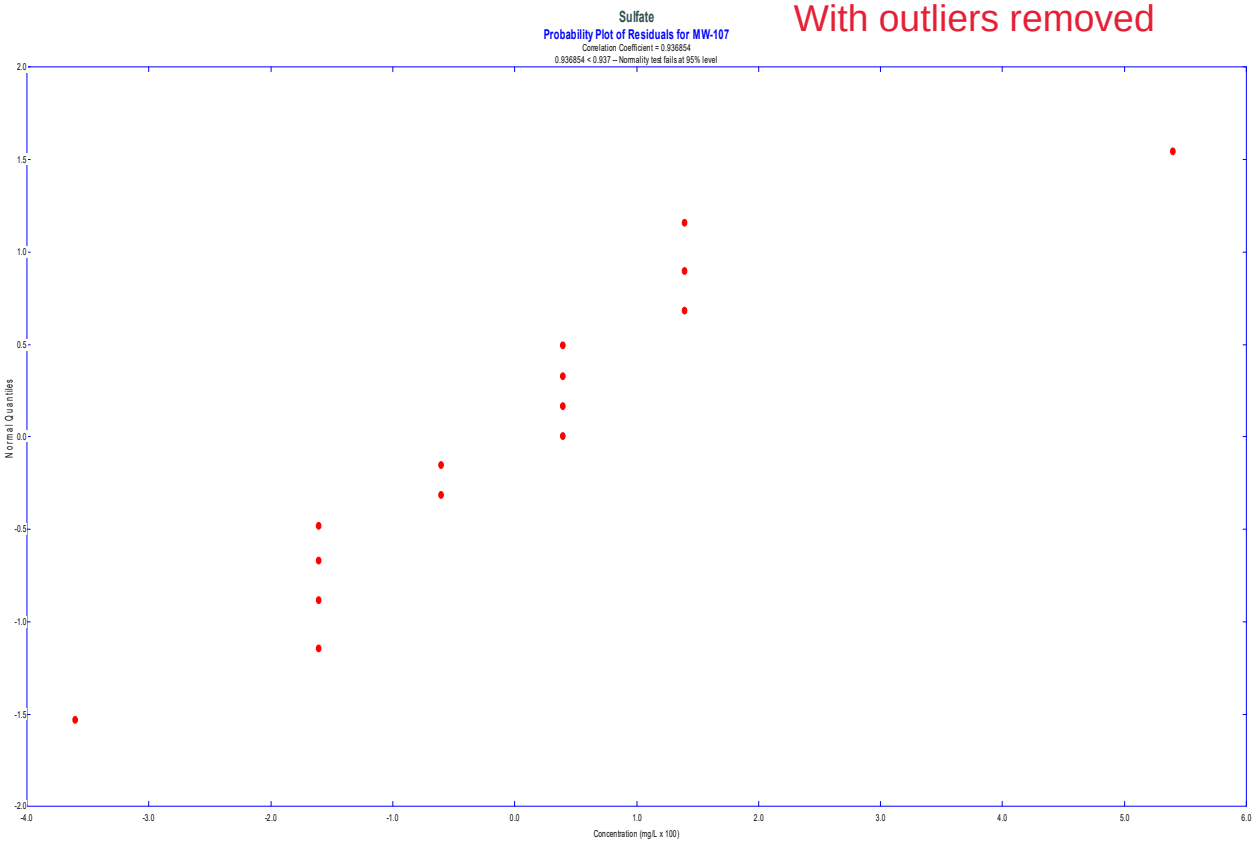

Sulfate
Probability Plot of Residuals for MW-101
Correlation Coefficient = 0.825108
0.825108 < 0.94 – Normality test fails at 95% level
Normal Quantiles
Concentration (mg/L x 100)
Anion concentrations at MW-101 on 1/19/2017 are anomalously low, qualified as outliers and removed

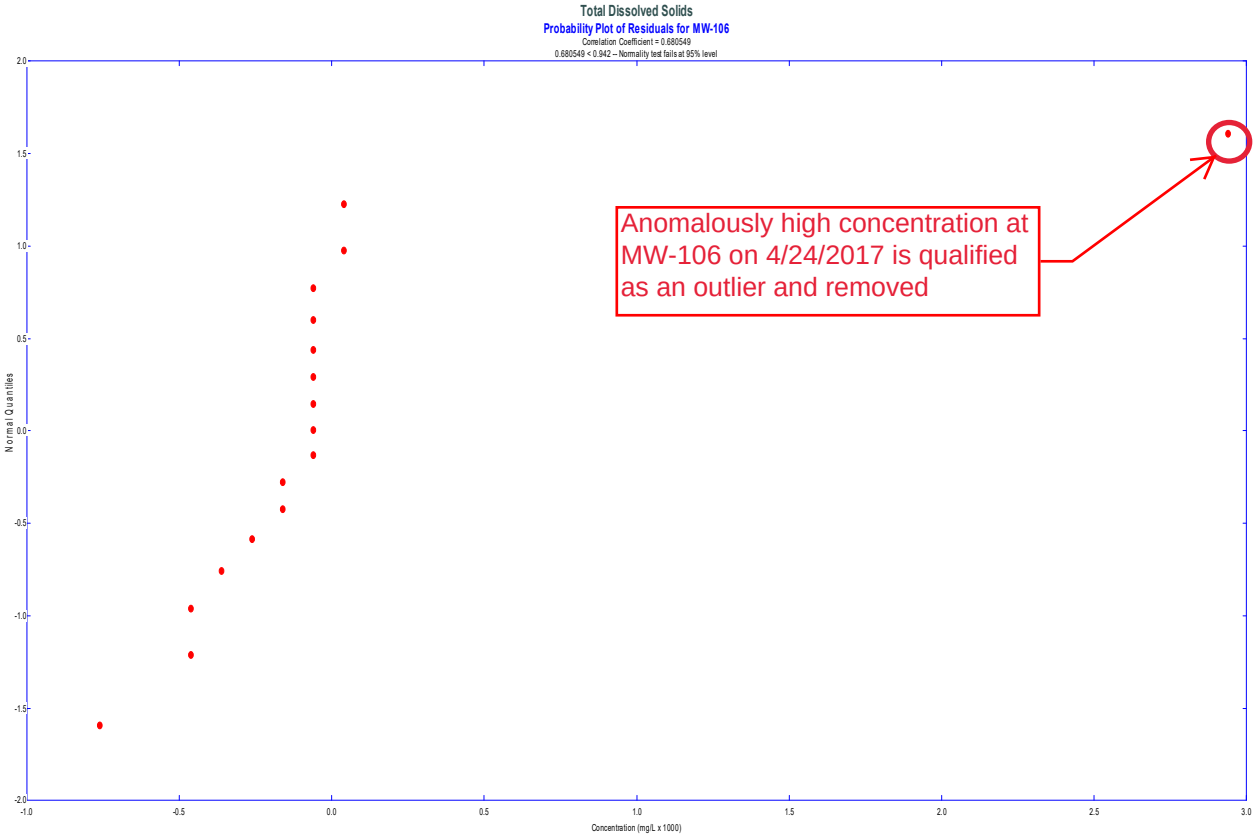
With outliers removed



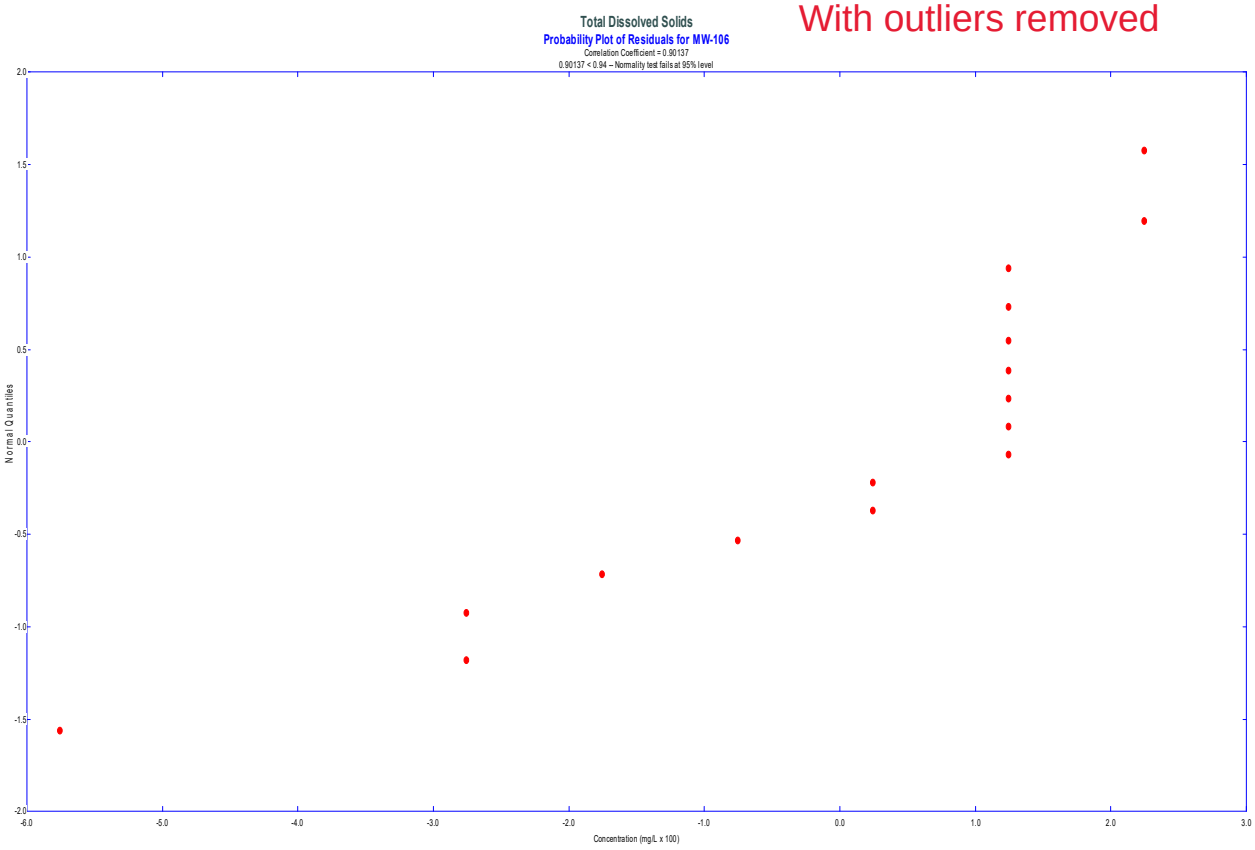

Sulfate
Probability Plot of Residuals for MW-107
Correlation Coefficient = 0.620221
0.620221 < 0.94 – Normality test fails at 95% level
Normal Quantiles
Concentration (mg/L x 1000)
Anomalously high concentration at MW-107 on 3/2/2020 is qualified as an outlier and removed

With outliers removed




Total Dissolved Solids
Probability Plot of Residuals for MW-106
Correlation Coefficient = 0.680549
0.680549 < 0.942 -- Normality test fails at 95% level
Normal Quantiles
Concentration (mg/L x 1000)
Anomalously high concentration at MW-106 on 4/24/2017 is qualified as an outlier and removed

With outliers removed



Skewness Coefficient

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	262.5	33.1662	0.135883
MW-102	16	129.813	19.5012	**-1.18159**
MW-103	16	720	51.6398	-0.651
MW-104	16	748.75	76.0592	**1.55567**
MW-105	16	2200	200	0.361478
MW-106	17	982.941	552.944	**1.73976**
MW-107	16	1362.5	120.416	-0.658055
MW-108A	16	1275	93.0949	-0.512031

All Locations

Obs.	Mean	Std. Dev.	Skewness
129	960.364	656.85	0.676591

Skewness Coefficient

Parameter: Boron

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	5.5627	0.127453	-0.184704
MW-102	16	4.85377	0.168649	**-1.45141**
MW-103	16	6.57675	0.0736881	-0.756718
MW-104	16	6.61396	0.0953478	**1.33447**
MW-105	16	7.69239	0.0899385	0.267287
MW-106	17	6.78457	0.435575	**1.34373**
MW-107	16	7.21324	0.0915917	-0.814075
MW-108A	16	7.14813	0.0747308	-0.650624

All Locations

Obs.	Mean	Std. Dev.	Skewness
129	6.55746	0.886242	-0.696925

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW-102

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	83	150	67	0.5056	33.8752
2	94	150	56	0.329	18.424
3	110	150	40	0.2521	10.084
4	120	140	20	0.1939	3.878
5	130	140	10	0.1447	1.447
6	130	140	10	0.1005	1.005
7	130	140	10	0.0593	0.593
8	130	140	10	0.0196	0.196
9	140	130	-10		
10	140	130	-10		
11	140	130	-10		
12	140	130	-10		
13	140	120	-20		
14	150	110	-40		
15	150	94	-56		
16	150	83	-67		

Sum of b values = 69.5022

Sample Standard Deviation = 19.5012

W Statistic = 0.846807

5% Critical value of 0.887 exceeds 0.846807

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 is less than 0.846807

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW-102

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	4.41884	5.01064	0.591795	0.5056	0.299211
2	4.54329	5.01064	0.467341	0.329	0.153755
3	4.70048	5.01064	0.310155	0.2521	0.0781901
4	4.78749	4.94164	0.154151	0.1939	0.0298898
5	4.86753	4.94164	0.074108	0.1447	0.0107234
6	4.86753	4.94164	0.074108	0.1005	0.00744785
7	4.86753	4.94164	0.074108	0.0593	0.0043946
8	4.86753	4.94164	0.074108	0.0196	0.00145252
9	4.94164	4.86753	-0.074108		
10	4.94164	4.86753	-0.074108		
11	4.94164	4.86753	-0.074108		
12	4.94164	4.86753	-0.074108		
13	4.94164	4.78749	-0.154151		
14	5.01064	4.70048	-0.310155		
15	5.01064	4.54329	-0.467341		
16	5.01064	4.41884	-0.591795		

Sum of b values = 0.585065

Sample Standard Deviation = 0.168649

W Statistic = 0.802327

5% Critical value of 0.887 exceeds 0.802327

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.802327

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW-104

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	650	950	300	0.5056	151.68
2	680	900	220	0.329	72.38
3	690	770	80	0.2521	20.168
4	700	760	60	0.1939	11.634
5	710	750	40	0.1447	5.788
6	730	740	10	0.1005	1.005
7	730	740	10	0.0593	0.593
8	740	740	0	0.0196	0
9	740	740	0		
10	740	730	-10		
11	740	730	-10		
12	750	710	-40		
13	760	700	-60		
14	770	690	-80		
15	900	680	-220		
16	950	650	-300		

Sum of b values = 263.248

Sample Standard Deviation = 76.0592

W Statistic = 0.798611

5% Critical value of 0.887 exceeds 0.798611

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.798611

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW-104

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.47697	6.85646	0.37949	0.5056	0.19187
2	6.52209	6.80239	0.280302	0.329	0.0922193
3	6.53669	6.64639	0.109699	0.2521	0.0276551
4	6.55108	6.63332	0.0822381	0.1939	0.015946
5	6.56526	6.62007	0.0548082	0.1447	0.00793075
6	6.59304	6.60665	0.0136057	0.1005	0.00136737
7	6.59304	6.60665	0.0136057	0.0593	0.000806815
8	6.60665	6.60665	0	0.0196	0
9	6.60665	6.60665	0		
10	6.60665	6.59304	-0.0136057		
11	6.60665	6.59304	-0.0136057		
12	6.62007	6.56526	-0.0548082		
13	6.63332	6.55108	-0.0822381		
14	6.64639	6.53669	-0.109699		
15	6.80239	6.52209	-0.280302		
16	6.85646	6.47697	-0.37949		

Sum of b values = 0.337795

Sample Standard Deviation = 0.0953478

W Statistic = 0.836748

5% Critical value of 0.887 exceeds 0.836748

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.836748

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW-106

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	580	2400	1820	0.4968	904.176
2	610	2200	1590	0.3273	520.407
3	650	1600	950	0.254	241.3
4	670	1100	430	0.1988	85.484
5	670	950	280	0.1524	42.672
6	680	900	220	0.1109	24.398
7	700	790	90	0.0725	6.525
8	710	750	40	0.0359	1.436
9	750	750	0		
10	750	710	-40		
11	790	700	-90		
12	900	680	-220		
13	950	670	-280		
14	1100	670	-430		
15	1600	650	-950		
16	2200	610	-1590		
17	2400	580	-1820		

Sum of b values = 1826.4

Sample Standard Deviation = 552.944

W Statistic = 0.681881

5% Critical value of 0.892 exceeds 0.681881

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.681881

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW-106

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.36303	7.78322	1.4202	0.4968	0.705553
2	6.41346	7.69621	1.28275	0.3273	0.419845
3	6.47697	7.37776	0.900787	0.254	0.2288
4	6.50728	7.00307	0.495788	0.1988	0.0985626
5	6.50728	6.85646	0.349184	0.1524	0.0532157
6	6.52209	6.80239	0.280302	0.1109	0.0310855
7	6.55108	6.67203	0.120953	0.0725	0.00876906
8	6.56526	6.62007	0.0548082	0.0359	0.00196762
9	6.62007	6.62007	0		
10	6.62007	6.56526	-0.0548082		
11	6.67203	6.55108	-0.120953		
12	6.80239	6.52209	-0.280302		
13	6.85646	6.50728	-0.349184		
14	7.00307	6.50728	-0.495788		
15	7.37776	6.47697	-0.900787		
16	7.69621	6.41346	-1.28275		
17	7.78322	6.36303	-1.4202		

Sum of b values = 1.5478

Sample Standard Deviation = 0.435575

W Statistic = 0.789193

5% Critical value of 0.892 exceeds 0.789193

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.789193

Evidence of non-normality at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-101

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	230
	9/29/2016	200
	11/16/2016	240
	1/19/2017	220
	3/9/2017	240
	4/24/2017	260 B
	6/15/2017	250
	7/20/2017	270 B
	9/20/2017	280
	4/5/2018	280
	10/10/2018	260
	3/27/2019 ~	330
	9/25/2019	260
	3/26/2020	280
	10/7/2020	290

From 15 baseline samples
Baseline mean = 259.333
Baseline std Dev = 31.728

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	310	[0, 317.049]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-102

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 150
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	94
	9/29/2016	83
	11/16/2016	130 J
	1/19/2017	140 J
	3/9/2017	130 J
	4/24/2017	150 JB
	6/15/2017	150 J
	7/19/2017	130 JB
	9/20/2017	130 J
	4/4/2018	140
	10/10/2018	120
	4/16/2019	140
	9/26/2019	110
	3/26/2020	140
	10/7/2020	140

Date	Count	Mean	Significant
4/22/2021	1	150	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-103

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	640
	9/28/2016	610
	11/17/2016	740
	1/18/2017	690
	3/8/2017	700
	4/24/2017	700 B
	6/14/2017	780
	7/19/2017	740 B
	9/20/2017	760
	4/4/2018	780
	10/10/2018	670
	3/27/2019	770
	9/25/2019	680
	3/26/2020	760
	10/7/2020	760

From 15 baseline samples
Baseline mean = 718.667
Baseline std Dev = 53.1664

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	740	[0, 815.38]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-104

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 950
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	680
	9/29/2016	650
	11/17/2016	950
	1/18/2017	900
	3/8/2017	710
	4/24/2017	700 B
	6/14/2017	740
	7/19/2017	730 B
	9/20/2017	760
	4/4/2018	770
	10/10/2018	690
	3/27/2019	740
	9/24/2019	740
	3/26/2020	730
	10/7/2020	750

Date	Count	Mean	Significant
4/21/2021	1	740	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-105

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	2500
	9/28/2016	2200
	11/16/2016	2400
	1/19/2017	2000
	3/8/2017	2000
	4/24/2017	1900 B
	6/14/2017	2200
	7/20/2017	2400 B
	9/21/2017	2500
	4/4/2018	2100
	10/10/2018	2200
	3/27/2019	2000
	9/25/2019	2100
	3/26/2020	2100
	10/7/2020	2500

From 15 baseline samples
Baseline mean = 2206.67
Baseline std Dev = 205.171

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	2100	[0, 2579.89]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-106

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 2400
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	580
	9/28/2016	610
	11/17/2016	750
	1/18/2017	670
	3/9/2017	650
	4/24/2017	670 B
	6/14/2017	710
	7/19/2017	790 B
	8/24/2017	680 B
	9/20/2017 ~	950
	4/4/2018	1100
	10/10/2018	2200
	3/28/2019	900
	9/25/2019	2400
	3/26/2020	1600

Date	Count	Mean	Significant
4/22/2021	1	700	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-107

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	1200
	9/29/2016	1100
	11/16/2016	1300
	1/18/2017	1300
	3/9/2017	1200
	4/26/2017	1300
	6/15/2017	1400
	7/19/2017	1400 B
	9/20/2017	1500
	4/5/2018	1400
	10/10/2018	1400
	3/27/2019	1400
	9/24/2019	1400
	3/26/2020	1500
	10/7/2020	1500

From 15 baseline samples
Baseline mean = 1353.33
Baseline std Dev = 118.723

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1500	[0, 1569.3]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-108A

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	2/1/2017	1100
	3/8/2017	1100
	4/4/2017	1200
	4/24/2017	1200 B
	5/16/2017	1300
	6/15/2017	1300
	7/6/2017	1300 B
	7/20/2017	1300 B
	9/21/2017	1400
	4/5/2018	1300
	10/10/2018	1200
	3/27/2019	1300
	9/25/2019	1400
	3/26/2020	1300
	10/7/2020	1400

From 15 baseline samples
Baseline mean = 1273.33
Baseline std Dev = 96.115

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1300	[0, 1448.17]	FALSE

Skewness Coefficient

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	218750	19958.3	0.644681
MW-102	16	255625	23655.5	-0.0493733
MW-103	16	576250	43493.3	**-1.48957**
MW-104	16	475000	28284.3	-0.438178
MW-105	16	683750	53650.1	0.697987
MW-106	17	562353	39295.3	-0.213005
MW-107	16	1.29375e+006	85391.3	0.116629
MW-108A	16	405625	28511.7	0.19126

All Locations

Obs.	Mean	Std. Dev.	Skewness
129	558915	318076	**1.33412**

Skewness Coefficient

Parameter: Calcium

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	12.2919	0.0898461	0.262581
MW-102	16	12.4474	0.093276	-0.155744
MW-103	16	13.2614	0.0805993	**-1.75727**
MW-104	16	13.0694	0.0604797	-0.530031
MW-105	16	13.4325	0.0768215	0.566193
MW-106	17	13.2376	0.0706453	-0.313879
MW-107	16	14.071	0.0659033	0.0729977
MW-108A	16	12.9109	0.0699847	0.162758

All Locations

Obs.	Mean	Std. Dev.	Skewness
129	13.0914	0.531401	0.158542

Shapiro-Wilks Test of Normality

Parameter: Calcium

Location: MW-103

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	450000	630000	180000	0.5056	91008
2	530000	630000	100000	0.329	32900
3	550000	600000	50000	0.2521	12605
4	550000	600000	50000	0.1939	9695
5	560000	600000	40000	0.1447	5788
6	570000	600000	30000	0.1005	3015
7	580000	590000	10000	0.0593	593
8	590000	590000	0	0.0196	0
9	590000	590000	0		
10	590000	580000	-10000		
11	600000	570000	-30000		
12	600000	560000	-40000		
13	600000	550000	-50000		
14	600000	550000	-50000		
15	630000	530000	-100000		
16	630000	450000	-180000		

Sum of b values = 155604

Sample Standard Deviation = 43493.3

W Statistic = 0.853308

5% Critical value of 0.887 exceeds 0.853308

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 is less than 0.853308

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Calcium

Location: MW-103

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	13.017	13.3535	0.336472	0.5056	0.17012
2	13.1806	13.3535	0.172843	0.329	0.0568653
3	13.2177	13.3047	0.0870114	0.2521	0.0219356
4	13.2177	13.3047	0.0870114	0.1939	0.0168715
5	13.2357	13.3047	0.0689929	0.1447	0.00998327
6	13.2534	13.3047	0.0512933	0.1005	0.00515498
7	13.2708	13.2879	0.0170944	0.0593	0.0010137
8	13.2879	13.2879	0	0.0196	0
9	13.2879	13.2879	0		
10	13.2879	13.2708	-0.0170944		
11	13.3047	13.2534	-0.0512933		
12	13.3047	13.2357	-0.0689929		
13	13.3047	13.2177	-0.0870114		
14	13.3047	13.2177	-0.0870114		
15	13.3535	13.1806	-0.172843		
16	13.3535	13.017	-0.336472		

Sum of b values = 0.281945

Sample Standard Deviation = 0.0805993

W Statistic = 0.815782

5% Critical value of 0.887 exceeds 0.815782

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.815782

Evidence of non-normality at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-101

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	270000
	9/29/2016	220000
	11/16/2016	220000
	1/19/2017	220000
	3/9/2017	210000
	4/24/2017	230000
	6/15/2017	210000
	7/20/2017	230000
	9/20/2017	230000
	4/5/2018	240000
	10/10/2018	180000
	3/27/2019	220000
	9/25/2019	210000
	3/26/2020	200000
	10/7/2020	210000

From 15 baseline samples
Baseline mean = 220000
Baseline std Dev = 20000

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	200000	[0, 256381]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-102

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	300000
	9/29/2016	270000
	11/16/2016	280000
	1/19/2017	230000
	3/9/2017	230000
	4/24/2017	260000
	6/15/2017	270000
	7/19/2017	270000
	9/20/2017	260000
	4/4/2018	220000
	10/10/2018	230000
	4/16/2019	270000
	9/26/2019	270000
	3/26/2020	230000
	10/7/2020	270000

From 15 baseline samples
Baseline mean = 257333
Baseline std Dev = 23441.9

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	230000	[0, 299976]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-103

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 630000
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	600000
	9/28/2016	600000
	11/17/2016	590000
	1/18/2017	590000
	3/8/2017	570000
	4/24/2017	580000
	6/14/2017	630000
	7/19/2017	590000
	9/20/2017	560000
	4/4/2018	600000
	10/10/2018	630000
	3/27/2019	550000
	9/25/2019	600000
	3/26/2020	550000
	10/7/2020	530000

Date	Count	Mean	Significant
4/22/2021	1	450000	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-104

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	500000
	9/29/2016	450000
	11/17/2016	520000
	1/18/2017	500000
	3/8/2017	480000
	4/24/2017	500000
	6/14/2017	500000
	7/19/2017	490000
	9/20/2017	470000
	4/4/2018	490000
	10/10/2018	430000
	3/27/2019	480000
	9/24/2019	470000
	3/26/2020	450000
	10/7/2020	450000

From 15 baseline samples
Baseline mean = 478667
Baseline std Dev = 25033.3

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	420000	[0, 524204]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-105

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	800000
	9/28/2016	740000
	11/16/2016	700000
	1/19/2017	680000
	3/8/2017	680000
	4/24/2017	620000
	6/14/2017	770000
	7/20/2017	730000
	9/21/2017	700000
	4/4/2018	660000
	10/10/2018	650000
	3/27/2019	610000
	9/25/2019	660000
	3/26/2020	630000
	10/7/2020	650000

From 15 baseline samples
Baseline mean = 685333
Baseline std Dev = 55144.8

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	660000	[0, 785646]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-106

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	560000
	9/28/2016	570000
	11/17/2016	620000
	1/18/2017	600000
	3/9/2017	580000
	4/24/2017	600000
	6/14/2017	620000
	7/19/2017	570000
	8/24/2017	510000
	9/20/2017	560000
	4/4/2018	600000
	10/10/2018	490000
	3/28/2019	560000
	9/25/2019	520000
	3/26/2020	520000
	10/7/2020	520000

From 16 baseline samples
Baseline mean = 562500
Baseline std Dev = 40579.1

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 16 (background observations) - 1
t(0.95, 16) = 1.75305

Date	Samples	Mean	Interval	Significant
4/22/2021	1	560000	[0, 635827]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-107

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	1.3e+006
	9/29/2016	1.2e+006
	11/16/2016	1.3e+006
	1/18/2017	1.2e+006
	3/9/2017	1.3e+006
	4/26/2017	1.4e+006
	6/15/2017	1.4e+006
	7/19/2017	1.4e+006
	9/20/2017	1.3e+006
	4/5/2018	1.4e+006
	10/10/2018	1.2e+006
	3/27/2019	1.3e+006
	9/24/2019	1.4e+006
	3/26/2020	1.2e+006
	10/7/2020	1.2e+006

From 15 baseline samples
Baseline mean = 1.3e+006
Baseline std Dev = 84515.4

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1.2e+006	[0, 1.45374e+00	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-108A

Parameter: Calcium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	2/1/2017	370000
	3/8/2017	380000
	4/4/2017	380000
	4/24/2017	390000
	5/16/2017	390000
	6/15/2017	440000
	7/6/2017	440000
	7/20/2017	440000
	9/21/2017	420000
	4/5/2018	440000
	10/10/2018	390000
	3/27/2019	430000
	9/25/2019	440000
	3/26/2020	380000
	10/7/2020	390000

From 15 baseline samples
Baseline mean = 408000
Baseline std Dev = 27826

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	370000	[0, 458617]	FALSE

Skewness Coefficient

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	158.8	38.053	-0.172643
MW-102	17	180	40.6202	0.622864
MW-103	16	143.75	6.19139	-0.380765
MW-104	16	290	143.434	**2.10709**
MW-105	16	3687.5	433.397	0.143521
MW-106	17	123.235	19.1165	**1.39295**
MW-107	16	18875	1310.22	-0.499361
MW-108A	16	1846.88	125.789	-0.0830039

All Locations

Obs.	Mean	Std. Dev.	Skewness
129	3139.74	6080.67	**2.14185**

Skewness Coefficient

Parameter: Chloride

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	5.03834	0.257073	-0.572846
MW-102	17	5.17001	0.218886	0.30095
MW-103	16	4.9672	0.0434857	-0.460105
MW-104	16	5.59327	0.364887	**1.81566**
MW-105	16	8.20617	0.118469	-0.201181
MW-106	17	4.80392	0.143359	**1.10775**
MW-107	16	9.84327	0.0709432	-0.650526
MW-108A	16	7.51906	0.0685789	-0.215506

All Locations

Obs.	Mean	Std. Dev.	Skewness
129	6.38136	1.78182	0.816273

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW-104

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	200	690	490	0.5056	247.744
2	210	600	390	0.329	128.31
3	220	330	110	0.2521	27.731
4	220	300	80	0.1939	15.512
5	220	250	30	0.1447	4.341
6	220	250	30	0.1005	3.015
7	220	240	20	0.0593	1.186
8	230	240	10	0.0196	0.196
9	240	230	-10		
10	240	220	-20		
11	250	220	-30		
12	250	220	-30		
13	300	220	-80		
14	330	220	-110		
15	600	210	-390		
16	690	200	-490		

Sum of b values = 428.035

Sample Standard Deviation = 143.434

W Statistic = 0.593694

5% Critical value of 0.887 exceeds 0.593694

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.593694

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW-104

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5.29832	6.53669	1.23837	0.5056	0.626122
2	5.34711	6.39693	1.04982	0.329	0.345391
3	5.39363	5.79909	0.405465	0.2521	0.102218
4	5.39363	5.70378	0.310155	0.1939	0.060139
5	5.39363	5.52146	0.127833	0.1447	0.0184975
6	5.39363	5.52146	0.127833	0.1005	0.0128473
7	5.39363	5.48064	0.0870114	0.0593	0.00515977
8	5.43808	5.48064	0.0425596	0.0196	0.000834168
9	5.48064	5.43808	-0.0425596		
10	5.48064	5.39363	-0.0870114		
11	5.52146	5.39363	-0.127833		
12	5.52146	5.39363	-0.127833		
13	5.70378	5.39363	-0.310155		
14	5.79909	5.39363	-0.405465		
15	6.39693	5.34711	-1.04982		
16	6.53669	5.29832	-1.23837		

Sum of b values = 1.17121

Sample Standard Deviation = 0.364887

W Statistic = 0.686849

5% Critical value of 0.887 exceeds 0.686849

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.686849

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW-106

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	100	175	75	0.4968	37.26
2	110	150	40	0.3273	13.092
3	110	150	40	0.254	10.16
4	110	130	20	0.1988	3.976
5	110	130	20	0.1524	3.048
6	110	120	10	0.1109	1.109
7	110	120	10	0.0725	0.725
8	120	120	0	0.0359	0
9	120	120	0		
10	120	120	0		
11	120	110	-10		
12	120	110	-10		
13	130	110	-20		
14	130	110	-20		
15	150	110	-40		
16	150	110	-40		
17	175	100	-75		

Sum of b values = 69.37

Sample Standard Deviation = 19.1165

W Statistic = 0.823012

5% Critical value of 0.892 exceeds 0.823012

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.823012

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW-106

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	4.60517	5.16479	0.559616	0.4968	0.278017
2	4.70048	5.01064	0.310155	0.3273	0.101514
3	4.70048	5.01064	0.310155	0.254	0.0787794
4	4.70048	4.86753	0.167054	0.1988	0.0332104
5	4.70048	4.86753	0.167054	0.1524	0.025459
6	4.70048	4.78749	0.0870114	0.1109	0.00964956
7	4.70048	4.78749	0.0870114	0.0725	0.00630832
8	4.78749	4.78749	0	0.0359	0
9	4.78749	4.78749	0		
10	4.78749	4.78749	0		
11	4.78749	4.70048	-0.0870114		
12	4.78749	4.70048	-0.0870114		
13	4.86753	4.70048	-0.167054		
14	4.86753	4.70048	-0.167054		
15	5.01064	4.70048	-0.310155		
16	5.01064	4.70048	-0.310155		
17	5.16479	4.60517	-0.559616		

Sum of b values = 0.532937

Sample Standard Deviation = 0.143359

W Statistic = 0.863737

5% Critical value of 0.892 exceeds 0.863737

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 is less than 0.863737

Data is normally distributed at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-101

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	95
	9/29/2016	97
	11/16/2016	160
	3/9/2017	150
	4/24/2017	170
	6/15/2017	140
	7/20/2017	130
	9/20/2017	120 F1
	4/5/2018	170
	10/10/2018	150
	3/27/2019	190
	9/25/2019	190
	3/26/2020	220
	10/7/2020	190

From 14 baseline samples
Baseline mean = 155.143
Baseline std Dev = 36.6519

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 14 (background observations) - 1
t(0.95, 14) = 1.77093

Date	Samples	Mean	Interval	Significant
4/22/2021	1	210	[0, 222.329]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-102

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	160
	9/29/2016	120
	11/16/2016	160
	1/19/2017	230
	3/9/2017	220
	4/24/2017	260
	6/15/2017	190
	7/19/2017	170
	8/24/2017	150
	9/20/2017	170
	4/4/2018	140
	10/10/2018	140
	4/16/2019	250
	9/26/2019	150
	3/26/2020	210
	10/7/2020	160

From 16 baseline samples
Baseline mean = 180
Baseline std Dev = 41.9524

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 16 (background observations) - 1
t(0.95, 16) = 1.75305

Date	Samples	Mean	Interval	Significant
4/22/2021	1	180	[0, 255.808]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-103

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	150
	9/28/2016	130
	11/17/2016	150
	1/18/2017	150
	3/8/2017	140
	4/24/2017	140
	6/14/2017	140
	7/19/2017	150
	9/20/2017	150
	4/4/2018	150
	10/10/2018	140
	3/27/2019	150
	9/25/2019	140
	3/26/2020	140
	10/7/2020	140

From 15 baseline samples
Baseline mean = 144
Baseline std Dev = 6.32456

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	140	[0, 155.505]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-104

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 690
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	330
	9/29/2016	300
	11/17/2016	600
	1/18/2017	690
	3/8/2017	250
	4/24/2017	220
	6/14/2017	220
	7/19/2017	240
	9/20/2017	250
	4/4/2018	240
	10/10/2018	220
	3/27/2019	230
	9/24/2019	200
	3/26/2020	210
	10/7/2020	220

Date	Count	Mean	Significant
4/21/2021	1	220	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-105

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	4300
	9/28/2016	4500
	11/16/2016	4000
	1/19/2017	3700
	3/8/2017	3700
	4/24/2017	2800
	6/14/2017	3500
	7/20/2017	3900
	9/21/2017	4300
	4/4/2018	3500
	10/10/2018	3500
	3/27/2019	3400
	9/25/2019	3600
	3/26/2020	3200
	10/7/2020	3600

From 15 baseline samples
Baseline mean = 3700
Baseline std Dev = 445.614

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	3500	[0, 4510.6]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-106

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 175
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	120
	9/28/2016	100
	11/17/2016	120
	1/18/2017	110
	3/9/2017	110
	4/24/2017	110
	6/14/2017	110
	7/19/2017	120
	8/24/2017	110
	9/20/2017 ~	130
	4/4/2018	130
	10/10/2018 ~	150
	3/28/2019	120
	9/25/2019 ~	175
	3/26/2020	150

Date	Count	Mean	Significant
4/22/2021	1	110	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-107

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	19000
	9/29/2016	18000
	11/16/2016	18000
	1/18/2017	18000
	3/9/2017	16000
	4/26/2017	19000
	6/15/2017	17000
	7/19/2017	20000
	9/20/2017	20000
	4/5/2018	20000
	10/10/2018	18000
	3/27/2019	20000
	9/24/2019	19000
	3/26/2020	20000
	10/7/2020	21000

From 15 baseline samples
Baseline mean = 18866.7
Baseline std Dev = 1355.76

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	19000	[0, 21332.9]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-108A

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	2/1/2017	1700
	3/8/2017	1700
	4/4/2017	1800
	4/24/2017	1600
	5/16/2017	1800
	6/15/2017	1800
	7/6/2017	1800
	7/20/2017	1900
	9/21/2017 ~	2050
	4/5/2018	2000
	10/10/2018	2000
	3/27/2019	1800
	9/25/2019	2000
	3/26/2020	1800
	10/7/2020	1900

From 15 baseline samples
Baseline mean = 1843.33
Baseline std Dev = 129.376

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1900	[0, 2078.68]	FALSE

Skewness Coefficient

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	1.84	0.118322	-0.824828
MW-102	17	1.54588	0.242978	**-1.11051**
MW-103	16	1.7625	0.15438	-0.354379
MW-104	16	1.65	0.34254	**1.70628**
MW-105	16	1.46188	1.16375	**3.53966**
MW-106	17	1.75882	0.346516	**2.83894**
MW-107	17	1.47059	0.433755	**1.27239**
MW-108A	16	1.0125	0.25133	-0.939235

All Locations

Obs.	Mean	Std. Dev.	Skewness
130	1.56131	0.536822	**3.84283**

Skewness Coefficient

Parameter: Fluoride

Original Data (Not Transformed)

Aitchison's Adjustment

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	1.84	0.118322	-0.824828
MW-102	17	1.54588	0.242978	**-1.11051**
MW-103	16	1.7625	0.15438	-0.354379
MW-104	16	1.65	0.34254	**1.70628**
MW-105	16	0.836875	1.433	**3.7264**
MW-106	17	1.75882	0.346516	**2.83894**
MW-107	17	0.523529	0.973736	**8.15526**
MW-108A	16	0.78125	0.547989	**2.54032**

All Locations

Obs.	Mean	Std. Dev.	Skewness
130	1.33208	0.825339	**1.92338**

Skewness Coefficient

Parameter: Fluoride

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	0.607757	0.0662811	-0.961005
MW-102	17	0.422069	0.176313	**-1.36463**
MW-103	16	0.563037	0.0894226	-0.466162
MW-104	16	0.483285	0.187488	0.939141
MW-105	16	0.252999	0.41846	**3.0908**
MW-106	17	0.550597	0.162425	**2.26615**
MW-107	17	0.351448	0.257087	**1.25336**
MW-108A	16	-0.0238226	0.2945	**-1.15136**

All Locations

Obs.	Mean	Std. Dev.	Skewness
130	0.400264	0.297935	-0.0629581

Skewness Coefficient

Parameter: Fluoride

Natural Logarithm Transformation

Aitchison's Adjustment

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	0.607757	0.0662811	-0.961005
MW-102	17	0.422069	0.176313	**-1.36463**
MW-103	16	0.563037	0.0894226	-0.466162
MW-104	16	0.483285	0.187488	0.939141
MW-105	16	0.141427	0.442146	**6.29954**
MW-106	17	0.550597	0.162425	**2.26615**
MW-107	17	0.188013	0.349882	**8.664**
MW-108A	16	0.0863244	0.0831995	**71.1236**

All Locations

Obs.	Mean	Std. Dev.	Skewness
130	0.378716	0.299221	**1.94765**

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-102

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.98	1.8	0.82	0.4968	0.407376
2	1.1	1.8	0.7	0.3273	0.22911
3	1.2	1.8	0.6	0.254	0.1524
4	1.5	1.7	0.2	0.1988	0.03976
5	1.5	1.7	0.2	0.1524	0.03048
6	1.5	1.7	0.2	0.1109	0.02218
7	1.5	1.7	0.2	0.0725	0.0145
8	1.6	1.6	0	0.0359	0
9	1.6	1.6	0		
10	1.6	1.6	0		
11	1.7	1.5	-0.2		
12	1.7	1.5	-0.2		
13	1.7	1.5	-0.2		
14	1.7	1.5	-0.2		
15	1.8	1.2	-0.6		
16	1.8	1.1	-0.7		
17	1.8	0.98	-0.82		

Sum of b values = 0.895806

Sample Standard Deviation = 0.242978

W Statistic = 0.849522

5% Critical value of 0.892 exceeds 0.849522

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.849522

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-102

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.0202027	0.587787	0.607989	0.4968	0.302049
2	0.0953102	0.587787	0.492476	0.3273	0.161188
3	0.182322	0.587787	0.405465	0.254	0.102988
4	0.405465	0.530628	0.125163	0.1988	0.0248824
5	0.405465	0.530628	0.125163	0.1524	0.0190749
6	0.405465	0.530628	0.125163	0.1109	0.0138806
7	0.405465	0.530628	0.125163	0.0725	0.00907433
8	0.470004	0.470004	0	0.0359	0
9	0.470004	0.470004	0		
10	0.470004	0.470004	0		
11	0.530628	0.405465	-0.125163		
12	0.530628	0.405465	-0.125163		
13	0.530628	0.405465	-0.125163		
14	0.530628	0.405465	-0.125163		
15	0.587787	0.182322	-0.405465		
16	0.587787	0.0953102	-0.492476		
17	0.587787	-0.0202027	-0.607989		

Sum of b values = 0.633137

Sample Standard Deviation = 0.176313

W Statistic = 0.805952

5% Critical value of 0.892 exceeds 0.805952

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.805952

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-105

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Aitchison's Adjustment

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.84	5.8	4.96	0.5056	2.50778
2	0.95	2.5	1.55	0.329	0.50995
3	1.1	2.5	1.4	0.2521	0.35294
4	1.1	2.5	1.4	0.1939	0.27146
5	1.1	2.5	1.4	0.1447	0.20258
6	1.2	2.5	1.3	0.1005	0.13065
7	1.3	2.5	1.2	0.0593	0.07116
8	2.5	2.5	0	0.0196	0
9	2.5	2.5	0		
10	2.5	1.3	-1.2		
11	2.5	1.2	-1.3		
12	2.5	1.1	-1.4		
13	2.5	1.1	-1.4		
14	2.5	1.1	-1.4		
15	2.5	0.95	-1.55		
16	5.8	0.84	-4.96		

Sum of b values = 4.04652
Sample Standard Deviation = 1.22004
W Statistic = 0.733374

5% Critical value of 0.887 exceeds 0.733374
Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.733374
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-105

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Aitchison's Adjustment

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	-0.174353	1.75786	1.93221	0.5056	0.976926
2	-0.0512933	0.916291	0.967584	0.329	0.318335
3	0.0953102	0.916291	0.820981	0.2521	0.206969
4	0.0953102	0.916291	0.820981	0.1939	0.159188
5	0.0953102	0.916291	0.820981	0.1447	0.118796
6	0.182322	0.916291	0.733969	0.1005	0.0737639
7	0.262364	0.916291	0.653926	0.0593	0.0387778
8	0.916291	0.916291	0	0.0196	0
9	0.916291	0.916291	0		
10	0.916291	0.262364	-0.653926		
11	0.916291	0.182322	-0.733969		
12	0.916291	0.0953102	-0.820981		
13	0.916291	0.0953102	-0.820981		
14	0.916291	0.0953102	-0.820981		
15	0.916291	-0.0512933	-0.967584		
16	1.75786	-0.174353	-1.93221		

Sum of b values = 1.89276
Sample Standard Deviation = 0.530242
W Statistic = 0.849474

5% Critical value of 0.887 exceeds 0.849474
Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 is less than 0.849474
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-106

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.4	3	1.6	0.4968	0.79488
2	1.5	1.9	0.4	0.3273	0.13092
3	1.6	1.9	0.3	0.254	0.0762
4	1.6	1.8	0.2	0.1988	0.03976
5	1.6	1.8	0.2	0.1524	0.03048
6	1.6	1.8	0.2	0.1109	0.02218
7	1.6	1.7	0.1	0.0725	0.00725
8	1.7	1.7	0	0.0359	0
9	1.7	1.7	0		
10	1.7	1.7	0		
11	1.7	1.6	-0.1		
12	1.8	1.6	-0.2		
13	1.8	1.6	-0.2		
14	1.8	1.6	-0.2		
15	1.9	1.6	-0.3		
16	1.9	1.5	-0.4		
17	3	1.4	-1.6		

Sum of b values = 1.10167

Sample Standard Deviation = 0.346516

W Statistic = 0.631736

5% Critical value of 0.892 exceeds 0.631736

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.631736

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-106

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.336472	1.09861	0.76214	0.4968	0.378631
2	0.405465	0.641854	0.236389	0.3273	0.07737
3	0.470004	0.641854	0.17185	0.254	0.04365
4	0.470004	0.587787	0.117783	0.1988	0.0234153
5	0.470004	0.587787	0.117783	0.1524	0.0179501
6	0.470004	0.587787	0.117783	0.1109	0.0130621
7	0.470004	0.530628	0.0606246	0.0725	0.00439529
8	0.530628	0.530628	0	0.0359	0
9	0.530628	0.530628	0		
10	0.530628	0.530628	0		
11	0.530628	0.470004	-0.0606246		
12	0.587787	0.470004	-0.117783		
13	0.587787	0.470004	-0.117783		
14	0.587787	0.470004	-0.117783		
15	0.641854	0.470004	-0.17185		
16	0.641854	0.405465	-0.236389		
17	1.09861	0.336472	-0.76214		

Sum of b values = 0.558474

Sample Standard Deviation = 0.162425

W Statistic = 0.738891

5% Critical value of 0.892 exceeds 0.738891

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.738891

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-108A

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Aitchison's Adjustment

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1	2.5	1.5	0.5056	0.7584
2	1	1.3	0.3	0.329	0.0987
3	1.1	1.3	0.2	0.2521	0.05042
4	1.1	1.3	0.2	0.1939	0.03878
5	1.1	1.3	0.2	0.1447	0.02894
6	1.1	1.2	0.1	0.1005	0.01005
7	1.1	1.2	0.1	0.0593	0.00593
8	1.1	1.2	0.1	0.0196	0.00196
9	1.2	1.1	-0.1		
10	1.2	1.1	-0.1		
11	1.2	1.1	-0.1		
12	1.3	1.1	-0.2		
13	1.3	1.1	-0.2		
14	1.3	1.1	-0.2		
15	1.3	1	-0.3		
16	2.5	1	-1.5		

Sum of b values = 0.99318

Sample Standard Deviation = 0.350179

W Statistic = 0.536273

5% Critical value of 0.887 exceeds 0.536273

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.536273

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW-108A

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Aitchison's Adjustment

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0	0.916291	0.916291	0.5056	0.463277
2	0	0.262364	0.262364	0.329	0.0863178
3	0.0953102	0.262364	0.167054	0.2521	0.0421143
4	0.0953102	0.262364	0.167054	0.1939	0.0323918
5	0.0953102	0.262364	0.167054	0.1447	0.0241727
6	0.0953102	0.182322	0.0870114	0.1005	0.00874464
7	0.0953102	0.182322	0.0870114	0.0593	0.00515977
8	0.0953102	0.182322	0.0870114	0.0196	0.00170542
9	0.182322	0.0953102	-0.0870114		
10	0.182322	0.0953102	-0.0870114		
11	0.182322	0.0953102	-0.0870114		
12	0.262364	0.0953102	-0.167054		
13	0.262364	0.0953102	-0.167054		
14	0.262364	0.0953102	-0.167054		
15	0.262364	0	-0.262364		
16	0.916291	0	-0.916291		

Sum of b values = 0.663883

Sample Standard Deviation = 0.212053

W Statistic = 0.653439

5% Critical value of 0.887 exceeds 0.653439

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.653439

Evidence of non-normality at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-101

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	1.6
	9/29/2016	1.8
	11/16/2016	1.8
	3/9/2017	1.6
	4/24/2017	1.9
	6/15/2017	1.9
	7/20/2017	1.9
	9/20/2017	2
	4/5/2018	1.9
	10/10/2018	1.8
	3/27/2019	1.9
	9/25/2019	1.9
	3/26/2020	1.8
	10/7/2020	1.8

From 14 baseline samples
Baseline mean = 1.82857
Baseline std Dev = 0.113873

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 14 (background observations) - 1
t(0.95, 14) = 1.77093

Date	Samples	Mean	Interval	Significant
4/22/2021	1	2	[0, 2.03731]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-102

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 1.8
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	1.5
	9/29/2016	1.6
	11/16/2016	1.5
	1/19/2017	1.1
	3/9/2017	1.2
	4/24/2017	1.5
	6/15/2017	1.7
	7/19/2017	1.8
	8/24/2017	1.5
	9/20/2017	1.8
	4/4/2018	0.98
	10/10/2018	1.6
	4/16/2019	1.6
	9/26/2019	1.7
	3/26/2020	1.7

Date	Count	Mean	Significant
4/22/2021	1	1.7	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-103

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	1.6
	9/28/2016	1.7
	11/17/2016	1.5
	1/18/2017	1.6
	3/8/2017	1.5
	4/24/2017	1.9
	6/14/2017	1.9
	7/19/2017	2
	9/20/2017	1.9
	4/4/2018	1.8
	10/10/2018	1.7
	3/27/2019	1.7
	9/25/2019	1.8
	3/26/2020	1.9
	10/7/2020	1.8

From 15 baseline samples
Baseline mean = 1.75333
Baseline std Dev = 0.155226

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1.9	[0, 2.0357]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-104

Parameter: Fluoride

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	0.993252
	9/29/2016	0.405465
	11/17/2016	0.182322
	1/18/2017	0.262364
	3/8/2017	0.262364
	4/24/2017	0.587787
	6/14/2017	0.587787
	7/19/2017	0.587787
	9/20/2017	0.641854
	4/4/2018	0.470004
	10/10/2018	0.405465
	3/27/2019	0.405465
	9/24/2019	0.470004
	3/26/2020	0.530628
	10/7/2020	0.470004

From 15 baseline samples
Baseline mean = 0.48417
Baseline std Dev = 0.194034

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	0.470004	[0, 0.837132]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-105

Parameter: Fluoride

Original Data (Not Transformed)

Aitchison's Adjustment

Total Percent Non-Detects = 53.3333%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 5.8
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/10/2016	5.8
	9/28/2016	ND<2.5 U
	11/16/2016	ND<2.5 U
	1/19/2017	ND<2.5 U
	3/8/2017	ND<2.5 U
	4/24/2017	ND<2.5 U
	6/14/2017	ND<2.5 U
	7/20/2017	ND<2.5 U
	9/21/2017	ND<2.5 U
	4/4/2018	1.1
	10/10/2018	1.1
	3/27/2019	0.95
	9/25/2019	1.1
	3/26/2020	0.84
	10/7/2020	1.3

Date	Count	Mean	Significant
4/21/2021	1	1.2	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-106

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 3
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	3
	9/28/2016	1.7
	11/17/2016	1.6
	1/18/2017	1.5
	3/9/2017	1.4
	4/24/2017	1.8
	6/14/2017	1.8
	7/19/2017	1.9
	8/24/2017	1.8
	9/20/2017	1.9
	4/4/2018	1.7
	10/10/2018	1.6
	3/28/2019	1.6
	9/25/2019	1.6
	3/26/2020	1.6

Date	Count	Mean	Significant
4/22/2021	1	1.7	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-107

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 80%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 2.5
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/10/2016	ND<2.5 UF1
	9/29/2016	ND<2.5 U
	11/16/2016	ND<2.5 U
	1/18/2017	ND<2.5 U
	3/9/2017	ND<2.5 U
	4/26/2017	2.1
	6/15/2017	ND<2.4 U
	7/19/2017	ND<2.4 U
	8/24/2017	2.3 F1
	9/20/2017	ND<2.4 U
	4/5/2018	2.3
	10/10/2018	ND<2.5 U
	3/27/2019	ND<2.5 U
	9/24/2019	ND<2.5 U
	3/26/2020	ND<2.5 U

Date	Count	Mean	Significant
4/22/2021	1	2.5	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-108A

Parameter: Fluoride

Original Data (Not Transformed)

Aitchison's Adjustment

Total Percent Non-Detects = 33.3333%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 2.5
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	2/1/2017	ND<1 U
	3/8/2017	1.2
	4/4/2017	1.3
	4/24/2017	ND<1.3 U
	5/16/2017	1.1
	6/15/2017	ND<2.5 U
	7/6/2017	ND<1.3 U
	7/20/2017	1.1
	9/21/2017	ND<1.3 U
	4/5/2018	1.2
	10/10/2018	1.1
	3/27/2019	1
	9/25/2019	1.1
	3/26/2020	1.1
	10/7/2020	1.2

Date	Count	Mean	Significant
4/22/2021	1	1.1	FALSE

Skewness Coefficient

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	7.035	0.2354	**2.36381**
MW-102	17	6.86882	0.220451	**1.62095**
MW-103	16	6.88375	0.25261	**1.694**
MW-104	16	7.04125	0.264143	**2.18132**
MW-105	16	6.9025	0.281342	**2.94984**
MW-106	17	6.87235	0.235598	**1.58473**
MW-107	17	6.78	0.252933	**2.22813**
MW-108A	16	6.83	0.0539135	-0.872589

All Locations

Obs.	Mean	Std. Dev.	Skewness
131	6.90031	0.243737	**2.02176**

Skewness Coefficient

Parameter: pH, Field

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	1.9504	0.0322721	**2.29819**
MW-102	17	1.92652	0.0313663	**1.46055**
MW-103	16	1.92856	0.0356667	**1.64566**
MW-104	16	1.95116	0.0361505	**2.09104**
MW-105	16	1.93116	0.0386164	**2.84991**
MW-106	17	1.92697	0.0334679	**1.44035**
MW-107	17	1.91335	0.0359219	**2.149**
MW-108A	16	1.9213	0.00792055	-0.889996

All Locations

Obs.	Mean	Std. Dev.	Skewness
131	1.93097	0.0341895	**1.86807**

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-101

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.79	7.79	1	0.5056	0.5056
2	6.91	7.38	0.47	0.329	0.15463
3	6.91	7.04	0.13	0.2521	0.032773
4	6.91	7.03	0.12	0.1939	0.023268
5	6.92	7	0.08	0.1447	0.011576
6	6.94	7	0.06	0.1005	0.00603
7	6.97	7	0.03	0.0593	0.001779
8	6.98	6.99	0.01	0.0196	0.000196
9	6.99	6.98	-0.01		
10	7	6.97	-0.03		
11	7	6.94	-0.06		
12	7	6.92	-0.08		
13	7.03	6.91	-0.12		
14	7.04	6.91	-0.13		
15	7.38	6.91	-0.47		
16	7.79	6.79	-1		

Sum of b values = 0.735852
Sample Standard Deviation = 0.2354
W Statistic = 0.651441

5% Critical value of 0.887 exceeds 0.651441
Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.651441
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-101

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.91545	2.05284	0.13739	0.5056	0.0694643
2	1.93297	1.99877	0.065804	0.329	0.0216495
3	1.93297	1.95161	0.0186385	0.2521	0.00469877
4	1.93297	1.95019	0.0172171	0.1939	0.00333839
5	1.93442	1.94591	0.0114944	0.1447	0.00166324
6	1.9373	1.94591	0.00860837	0.1005	0.000865142
7	1.94162	1.94591	0.00429492	0.0593	0.000254689
8	1.94305	1.94448	0.00143164	0.0196	2.80601e-005
9	1.94448	1.94305	-0.00143164		
10	1.94591	1.94162	-0.00429492		
11	1.94591	1.9373	-0.00860837		
12	1.94591	1.93442	-0.0114944		
13	1.95019	1.93297	-0.0172171		
14	1.95161	1.93297	-0.0186385		
15	1.99877	1.93297	-0.065804		
16	2.05284	1.91545	-0.13739		

Sum of b values = 0.101962

Sample Standard Deviation = 0.0322721

W Statistic = 0.665476

5% Critical value of 0.887 exceeds 0.665476

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.665476

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-102

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.49	7.56	1.07	0.4968	0.531576
2	6.68	7.01	0.33	0.3273	0.108009
3	6.74	7	0.26	0.254	0.06604
4	6.75	6.99	0.24	0.1988	0.047712
5	6.75	6.94	0.19	0.1524	0.028956
6	6.78	6.91	0.13	0.1109	0.014417
7	6.79	6.86	0.07	0.0725	0.005075
8	6.82	6.85	0.03	0.0359	0.001077
9	6.85	6.85	0		
10	6.85	6.82	-0.03		
11	6.86	6.79	-0.07		
12	6.91	6.78	-0.13		
13	6.94	6.75	-0.19		
14	6.99	6.75	-0.24		
15	7	6.74	-0.26		
16	7.01	6.68	-0.33		
17	7.56	6.49	-1.07		

Sum of b values = 0.802862

Sample Standard Deviation = 0.220451

W Statistic = 0.82897

5% Critical value of 0.892 exceeds 0.82897

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.82897

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-102

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.87026	2.02287	0.152609	0.4968	0.075816
2	1.89912	1.94734	0.0482197	0.3273	0.0157823
3	1.90806	1.94591	0.0378502	0.254	0.00961396
4	1.90954	1.94448	0.0349381	0.1988	0.00694568
5	1.90954	1.9373	0.0277593	0.1524	0.00423051
6	1.91398	1.93297	0.0189925	0.1109	0.00210627
7	1.91545	1.92571	0.0102565	0.0725	0.000743596
8	1.91986	1.92425	0.00438918	0.0359	0.000157572
9	1.92425	1.92425	0		
10	1.92425	1.91986	-0.00438918		
11	1.92571	1.91545	-0.0102565		
12	1.93297	1.91398	-0.0189925		
13	1.9373	1.90954	-0.0277593		
14	1.94448	1.90954	-0.0349381		
15	1.94591	1.90806	-0.0378502		
16	1.94734	1.89912	-0.0482197		
17	2.02287	1.87026	-0.152609		

Sum of b values = 0.115396

Sample Standard Deviation = 0.0313663

W Statistic = 0.845928

5% Critical value of 0.892 exceeds 0.845928

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.845928

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-103

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.67	7.58	0.91	0.5056	0.460096
2	6.7	7.28	0.58	0.329	0.19082
3	6.7	7.2	0.5	0.2521	0.12605
4	6.73	6.9	0.17	0.1939	0.032963
5	6.75	6.9	0.15	0.1447	0.021705
6	6.76	6.85	0.09	0.1005	0.009045
7	6.77	6.8	0.03	0.0593	0.001779
8	6.77	6.78	0.01	0.0196	0.000196
9	6.78	6.77	-0.01		
10	6.8	6.77	-0.03		
11	6.85	6.76	-0.09		
12	6.9	6.75	-0.15		
13	6.9	6.73	-0.17		
14	7.2	6.7	-0.5		
15	7.28	6.7	-0.58		
16	7.58	6.67	-0.91		

Sum of b values = 0.842654

Sample Standard Deviation = 0.25261

W Statistic = 0.741835

5% Critical value of 0.887 exceeds 0.741835

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.741835

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-103

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.89762	2.02551	0.127893	0.5056	0.0646629
2	1.90211	1.98513	0.0830233	0.329	0.0273147
3	1.90211	1.97408	0.0719735	0.2521	0.0181445
4	1.90658	1.93152	0.0249463	0.1939	0.00483708
5	1.90954	1.93152	0.0219789	0.1447	0.00318035
6	1.91102	1.92425	0.0132258	0.1005	0.00132919
7	1.9125	1.91692	0.00442153	0.0593	0.000262196
8	1.9125	1.91398	0.00147602	0.0196	2.89299e-005
9	1.91398	1.9125	-0.00147602		
10	1.91692	1.9125	-0.00442153		
11	1.92425	1.91102	-0.0132258		
12	1.93152	1.90954	-0.0219789		
13	1.93152	1.90658	-0.0249463		
14	1.97408	1.90211	-0.0719735		
15	1.98513	1.90211	-0.0830233		
16	2.02551	1.89762	-0.127893		

Sum of b values = 0.11976

Sample Standard Deviation = 0.0356667

W Statistic = 0.751634

5% Critical value of 0.887 exceeds 0.751634

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.751634

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-104

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.8	7.88	1.08	0.5056	0.546048
2	6.82	7.3	0.48	0.329	0.15792
3	6.85	7.29	0.44	0.2521	0.110924
4	6.92	7.07	0.15	0.1939	0.029085
5	6.93	7.04	0.11	0.1447	0.015917
6	6.94	7	0.06	0.1005	0.00603
7	6.94	6.97	0.03	0.0593	0.001779
8	6.94	6.97	0.03	0.0196	0.000588
9	6.97	6.94	-0.03		
10	6.97	6.94	-0.03		
11	7	6.94	-0.06		
12	7.04	6.93	-0.11		
13	7.07	6.92	-0.15		
14	7.29	6.85	-0.44		
15	7.3	6.82	-0.48		
16	7.88	6.8	-1.08		

Sum of b values = 0.868291

Sample Standard Deviation = 0.264143

W Statistic = 0.720378

5% Critical value of 0.887 exceeds 0.720378

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.720378

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-104

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.91692	2.06433	0.147405	0.5056	0.0745281
2	1.91986	1.98787	0.0680149	0.329	0.0223769
3	1.92425	1.9865	0.0622549	0.2521	0.0156945
4	1.93442	1.95586	0.0214447	0.1939	0.00415813
5	1.93586	1.95161	0.0157484	0.1447	0.00227879
6	1.9373	1.94591	0.00860837	0.1005	0.000865142
7	1.9373	1.94162	0.00431345	0.0593	0.000255788
8	1.9373	1.94162	0.00431345	0.0196	8.45436e-005
9	1.94162	1.9373	-0.00431345		
10	1.94162	1.9373	-0.00431345		
11	1.94591	1.9373	-0.00860837		
12	1.95161	1.93586	-0.0157484		
13	1.95586	1.93442	-0.0214447		
14	1.9865	1.92425	-0.0622549		
15	1.98787	1.91986	-0.0680149		
16	2.06433	1.91692	-0.147405		

Sum of b values = 0.120242

Sample Standard Deviation = 0.0361505

W Statistic = 0.737549

5% Critical value of 0.887 exceeds 0.737549

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.737549

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-105

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.59	7.9	1.31	0.5056	0.662336
2	6.76	7	0.24	0.329	0.07896
3	6.78	6.94	0.16	0.2521	0.040336
4	6.8	6.93	0.13	0.1939	0.025207
5	6.8	6.9	0.1	0.1447	0.01447
6	6.81	6.87	0.06	0.1005	0.00603
7	6.82	6.87	0.05	0.0593	0.002965
8	6.83	6.84	0.01	0.0196	0.000196
9	6.84	6.83	-0.01		
10	6.87	6.82	-0.05		
11	6.87	6.81	-0.06		
12	6.9	6.8	-0.1		
13	6.93	6.8	-0.13		
14	6.94	6.78	-0.16		
15	7	6.76	-0.24		
16	7.9	6.59	-1.31		

Sum of b values = 0.8305

Sample Standard Deviation = 0.281342

W Statistic = 0.580923

5% Critical value of 0.887 exceeds 0.580923

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.580923

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-105

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.88555	2.06686	0.181309	0.5056	0.09167
2	1.91102	1.94591	0.0348873	0.329	0.0114779
3	1.91398	1.9373	0.0233247	0.2521	0.00588015
4	1.91692	1.93586	0.0189372	0.1939	0.00367192
5	1.91692	1.93152	0.0145988	0.1447	0.00211245
6	1.91839	1.92716	0.00877199	0.1005	0.000881585
7	1.91986	1.92716	0.00730463	0.0593	0.000433165
8	1.92132	1.92279	0.00146306	0.0196	2.86759e-005
9	1.92279	1.92132	-0.00146306		
10	1.92716	1.91986	-0.00730463		
11	1.92716	1.91839	-0.00877199		
12	1.93152	1.91692	-0.0145988		
13	1.93586	1.91692	-0.0189372		
14	1.9373	1.91398	-0.0233247		
15	1.94591	1.91102	-0.0348873		
16	2.06686	1.88555	-0.181309		

Sum of b values = 0.116156

Sample Standard Deviation = 0.0386164

W Statistic = 0.603182

5% Critical value of 0.887 exceeds 0.603182

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.603182

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-106

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.48	7.59	1.11	0.4968	0.551448
2	6.67	7.12	0.45	0.3273	0.147285
3	6.73	7.1	0.37	0.254	0.09398
4	6.75	6.93	0.18	0.1988	0.035784
5	6.8	6.89	0.09	0.1524	0.013716
6	6.8	6.88	0.08	0.1109	0.008872
7	6.8	6.84	0.04	0.0725	0.0029
8	6.81	6.82	0.01	0.0359	0.000359
9	6.82	6.82	0		
10	6.82	6.81	-0.01		
11	6.84	6.8	-0.04		
12	6.88	6.8	-0.08		
13	6.89	6.8	-0.09		
14	6.93	6.75	-0.18		
15	7.1	6.73	-0.37		
16	7.12	6.67	-0.45		
17	7.59	6.48	-1.11		

Sum of b values = 0.854344

Sample Standard Deviation = 0.235598

W Statistic = 0.821866

5% Critical value of 0.892 exceeds 0.821866

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.821866

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-106

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.86872	2.02683	0.158111	0.4968	0.0785496
2	1.89762	1.96291	0.0652879	0.3273	0.0213687
3	1.90658	1.96009	0.0535196	0.254	0.013594
4	1.90954	1.93586	0.0263173	0.1988	0.00523188
5	1.91692	1.93007	0.0131485	0.1524	0.00200383
6	1.91692	1.92862	0.011696	0.1109	0.00129709
7	1.91692	1.92279	0.00586512	0.0725	0.000425221
8	1.91839	1.91986	0.00146735	0.0359	5.26779e-005
9	1.91986	1.91986	0		
10	1.91986	1.91839	-0.00146735		
11	1.92279	1.91692	-0.00586512		
12	1.92862	1.91692	-0.011696		
13	1.93007	1.91692	-0.0131485		
14	1.93586	1.90954	-0.0263173		
15	1.96009	1.90658	-0.0535196		
16	1.96291	1.89762	-0.0652879		
17	2.02683	1.86872	-0.158111		

Sum of b values = 0.122523

Sample Standard Deviation = 0.0334679

W Statistic = 0.837641

5% Critical value of 0.892 exceeds 0.837641

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.837641

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-107

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	6.53	7.59	1.06	0.4968	0.526608
2	6.6	7.17	0.57	0.3273	0.186561
3	6.65	6.9	0.25	0.254	0.0635
4	6.65	6.83	0.18	0.1988	0.035784
5	6.66	6.81	0.15	0.1524	0.02286
6	6.66	6.73	0.07	0.1109	0.007763
7	6.67	6.72	0.05	0.0725	0.003625
8	6.67	6.71	0.04	0.0359	0.001436
9	6.71	6.71	0		
10	6.71	6.67	-0.04		
11	6.72	6.67	-0.05		
12	6.73	6.66	-0.07		
13	6.81	6.66	-0.15		
14	6.83	6.65	-0.18		
15	6.9	6.65	-0.25		
16	7.17	6.6	-0.57		
17	7.59	6.53	-1.06		

Sum of b values = 0.848137

Sample Standard Deviation = 0.252933

W Statistic = 0.702751

5% Critical value of 0.892 exceeds 0.702751

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.702751

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: pH, Field

Location: MW-107

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.87641	2.02683	0.150425	0.4968	0.074731
2	1.88707	1.96991	0.082836	0.3273	0.0271122
3	1.89462	1.93152	0.0369046	0.254	0.00937376
4	1.89462	1.92132	0.0267078	0.1988	0.00530951
5	1.89612	1.91839	0.0222726	0.1524	0.00339435
6	1.89612	1.90658	0.0104557	0.1109	0.00115953
7	1.89762	1.90509	0.00746829	0.0725	0.000541451
8	1.89762	1.9036	0.00597909	0.0359	0.000214649
9	1.9036	1.9036	0		
10	1.9036	1.89762	-0.00597909		
11	1.90509	1.89762	-0.00746829		
12	1.90658	1.89612	-0.0104557		
13	1.91839	1.89612	-0.0222726		
14	1.92132	1.89462	-0.0267078		
15	1.93152	1.89462	-0.0369046		
16	1.96991	1.88707	-0.082836		
17	2.02683	1.87641	-0.150425		

Sum of b values = 0.121836

Sample Standard Deviation = 0.0359219

W Statistic = 0.718979

5% Critical value of 0.892 exceeds 0.718979

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.718979

Evidence of non-normality at 99% level of significance

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-101

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.79
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/10/2016	7
	9/29/2016	7.79
	11/16/2016	6.91
	1/19/2017	6.79
	3/9/2017	6.92
	4/24/2017	6.91
	6/15/2017	6.91
	7/20/2017	6.94
	9/20/2017	6.97
	4/5/2018	7
	10/10/2018	6.99
	3/27/2019	7.04
	9/25/2019	7.03
	3/26/2020	7.38
	10/7/2020	6.98

Date	Count	Mean	Significant
4/22/2021	1	7	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-102

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.56
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	6.49
	9/29/2016	7.56
	11/16/2016	6.79
	1/19/2017	6.74
	3/9/2017	6.94
	4/24/2017	6.91
	6/15/2017	6.75
	7/19/2017	6.86
	8/24/2017	6.85
	9/20/2017	6.82
	4/4/2018	6.99
	10/10/2018	6.85
	4/16/2019	7.01
	9/26/2019	6.75
	3/26/2020	6.78

Date	Count	Mean	Significant
4/22/2021	1	7	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-103

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.58
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	6.67
	9/28/2016	7.58
	11/17/2016	6.75
	1/18/2017	6.7
	3/8/2017	6.77
	4/24/2017	6.77
	6/14/2017	6.7
	7/19/2017	6.73
	9/20/2017	6.76
	4/4/2018	6.8
	10/10/2018	6.85
	3/27/2019	6.9
	9/25/2019	6.9
	3/26/2020	7.28
	10/7/2020	6.78

Date	Count	Mean	Significant
4/22/2021	1	7.2	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-104

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.88
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	6.82
	9/29/2016	7.88
	11/17/2016	6.97
	1/18/2017	6.8
	3/8/2017	6.94
	4/24/2017	6.93
	6/14/2017	6.85
	7/19/2017	6.92
	9/20/2017	6.94
	4/4/2018	6.97
	10/10/2018	7
	3/27/2019	7.04
	9/24/2019	7.07
	3/26/2020	7.29
	10/7/2020	6.94

Date	Count	Mean	Significant
4/21/2021	1	7.3	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-105

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.9
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/10/2016	6.59
	9/28/2016	7.9
	11/16/2016	6.87
	1/19/2017	6.78
	3/8/2017	6.83
	4/24/2017	6.8
	6/14/2017	6.82
	7/20/2017	6.93
	9/21/2017	6.87
	4/4/2018	6.84
	10/10/2018	6.8
	3/27/2019	6.94
	9/25/2019	6.9
	3/26/2020	6.81
	10/7/2020	6.76

Date	Count	Mean	Significant
4/21/2021	1	7	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-106

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.59
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	6.67
	9/28/2016	7.59
	11/17/2016	6.48
	1/18/2017	6.73
	3/9/2017	6.84
	4/24/2017	6.8
	6/14/2017	6.75
	7/19/2017	6.81
	8/24/2017	6.82
	9/20/2017	6.8
	4/4/2018	6.82
	10/10/2018	6.8
	3/28/2019	6.88
	9/25/2019	6.89
	3/26/2020	7.12

Date	Count	Mean	Significant
4/22/2021	1	7.1	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-107

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 7.59
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/10/2016	6.53
	9/29/2016	7.59
	11/16/2016	6.66
	1/18/2017	6.66
	3/9/2017	6.73
	4/26/2017	6.67
	6/15/2017	6.6
	7/19/2017	6.67
	8/24/2017	6.65
	9/20/2017	6.65
	4/5/2018	6.71
	10/10/2018	6.72
	3/27/2019	6.83
	9/24/2019	6.81
	3/26/2020	7.17

Date	Count	Mean	Significant
4/22/2021	1	6.9	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-108A

Parameter: pH, Field

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% Two-Sided Comparison

Baseline Samples	Date	Result
	2/1/2017	6.7
	3/8/2017	6.83
	4/4/2017	6.86
	4/24/2017	6.86
	5/16/2017	6.84
	6/15/2017	6.8
	7/6/2017	6.83
	7/20/2017	6.87
	9/21/2017	6.83
	4/5/2018	6.85
	10/10/2018	6.78
	3/27/2019	6.89
	9/25/2019	6.9
	3/26/2020	6.89
	10/7/2020	6.75

From 15 baseline samples
Baseline mean = 6.832
Baseline std Dev = 0.055188

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1)/2 = 97.5 %
t is Percentile of Student's T-Test (0.95/1/2) = 0.975
Degrees of Freedom = 15 (background observations) - 1
t(0.975, 15) = 2.14479

Date	Samples	Mean	Interval	Significant
4/22/2021	1	6.8	[6.71, 6.95]	FALSE

Skewness Coefficient

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	576	62.4271	0.416249
MW-102	17	582.941	112.681	**-1.20173**
MW-103	16	1943.75	81.3941	-0.176566
MW-104	16	1781.25	83.4166	-0.358646
MW-105	16	1903.13	151.073	-0.870368
MW-106	17	1911.76	85.7493	0.390323
MW-107	15	3260	206.328	0.862612
MW-108A	16	1034.38	81.6471	0.186117

All Locations

Obs.	Mean	Std. Dev.	Skewness
128	1613.67	827.189	0.453844

Skewness Coefficient

Parameter: Sulfate

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	15	6.35072	0.107049	0.237709
MW-102	17	6.34599	0.230501	**-1.69557**
MW-103	16	7.57155	0.0420952	-0.265069
MW-104	16	7.48403	0.0473216	-0.469224
MW-105	16	7.54812	0.0830094	**-1.19766**
MW-106	17	7.55484	0.0445589	0.297676
MW-107	15	8.08766	0.0620229	0.619771
MW-108A	16	6.93864	0.0787767	0.0509695

All Locations

Obs.	Mean	Std. Dev.	Skewness
128	7.23099	0.594853	-0.517314

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW-102

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	290	720	430	0.4968	213.624
2	410	700	290	0.3273	94.917
3	450	680	230	0.254	58.42
4	520	660	140	0.1988	27.832
5	540	650	110	0.1524	16.764
6	550	640	90	0.1109	9.981
7	610	630	20	0.0725	1.45
8	610	630	20	0.0359	0.718
9	620	620	0		
10	630	610	-20		
11	630	610	-20		
12	640	550	-90		
13	650	540	-110		
14	660	520	-140		
15	680	450	-230		
16	700	410	-290		
17	720	290	-430		

Sum of b values = 423.706

Sample Standard Deviation = 112.681

W Statistic = 0.883703

5% Critical value of 0.892 exceeds 0.883703

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 is less than 0.883703

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW-102

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5.66988	6.57925	0.90937	0.4968	0.451775
2	6.01616	6.55108	0.534923	0.3273	0.17508
3	6.10925	6.52209	0.412845	0.254	0.104863
4	6.25383	6.49224	0.238411	0.1988	0.0473961
5	6.29157	6.47697	0.185403	0.1524	0.0282555
6	6.30992	6.46147	0.15155	0.1109	0.0168069
7	6.41346	6.44572	0.0322609	0.0725	0.00233891
8	6.41346	6.44572	0.0322609	0.0359	0.00115816
9	6.42972	6.42972	0		
10	6.44572	6.41346	-0.0322609		
11	6.44572	6.41346	-0.0322609		
12	6.46147	6.30992	-0.15155		
13	6.47697	6.29157	-0.185403		
14	6.49224	6.25383	-0.238411		
15	6.52209	6.10925	-0.412845		
16	6.55108	6.01616	-0.534923		
17	6.57925	5.66988	-0.90937		

Sum of b values = 0.827674

Sample Standard Deviation = 0.230501

W Statistic = 0.805849

5% Critical value of 0.892 exceeds 0.805849

Evidence of non-normality at 95% level of significance

1% Critical value of 0.851 exceeds 0.805849

Evidence of non-normality at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-101

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	680
	9/29/2016	680
	11/16/2016	560
	3/9/2017	580
	4/24/2017	480
	6/15/2017	540
	7/20/2017	590
	9/20/2017	670
	4/5/2018	570
	10/10/2018	590
	3/27/2019	600
	9/25/2019	560
	3/26/2020	500 F1
	10/7/2020	520

From 14 baseline samples
Baseline mean = 580
Baseline std Dev = 62.7572

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 14 (background observations) - 1
t(0.95, 14) = 1.77093

Date	Samples	Mean	Interval	Significant
4/22/2021	1	520	[0, 695.039]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-102

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 720
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	680
	9/29/2016	610
	11/16/2016	660
	1/19/2017	410
	3/9/2017	520
	4/24/2017	450
	6/15/2017	610
	7/19/2017	650
	8/24/2017	620
	9/20/2017	700
	4/4/2018	290
	10/10/2018	630
	4/16/2019	640
	9/26/2019	720
	3/26/2020	540

Date	Count	Mean	Significant
4/22/2021	1	550	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-103

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	1900
	9/28/2016	2100
	11/17/2016	2000
	1/18/2017	2000
	3/8/2017	2000
	4/24/2017	1800
	6/14/2017	1900
	7/19/2017	2000
	9/20/2017	1900
	4/4/2018	1900
	10/10/2018	2000
	3/27/2019	1900
	9/25/2019	2000
	3/26/2020	1800
	10/7/2020	2000

From 15 baseline samples
Baseline mean = 1946.67
Baseline std Dev = 83.3809

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1900	[0, 2098.34]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-104

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	1700
	9/29/2016	1800
	11/17/2016	1800
	1/18/2017	1800
	3/8/2017	1800
	4/24/2017	1700
	6/14/2017	1700
	7/19/2017	1800
	9/20/2017	1900
	4/4/2018	1900
	10/10/2018	1800
	3/27/2019	1900
	9/24/2019	1800
	3/26/2020	1600
	10/7/2020	1800

From 15 baseline samples
Baseline mean = 1786.67
Baseline std Dev = 83.3809

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	1700	[0, 1938.34]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-105

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	2000
	9/28/2016	1900
	11/16/2016	1900
	1/19/2017	1800
	3/8/2017	1800
	4/24/2017	1500
	6/14/2017	1900
	7/20/2017	2000
	9/21/2017 ~	2150
	4/4/2018	1800
	10/10/2018	1800
	3/27/2019	1900
	9/25/2019	2000
	3/26/2020	2100
	10/7/2020	2000

From 15 baseline samples
Baseline mean = 1903.33
Baseline std Dev = 156.373

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	1900	[0, 2187.79]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-106

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	1900
	9/28/2016	2000
	11/17/2016	2000
	1/18/2017	2100
	3/9/2017	2000
	4/24/2017	1800
	6/14/2017	1900
	7/19/2017	1900
	8/24/2017	2000
	9/20/2017	1900
	4/4/2018	1800
	10/10/2018	1800
	3/28/2019	1900
	9/25/2019	1900
	3/26/2020	1900
	10/7/2020	1900

From 16 baseline samples
Baseline mean = 1918.75
Baseline std Dev = 83.4166

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 16 (background observations) - 1
t(0.95, 16) = 1.75305

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1800	[0, 2069.48]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-107

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	3100
	9/29/2016	3100
	11/16/2016	3200
	1/18/2017	3300
	3/9/2017	2900
	4/26/2017	3200
	6/15/2017	3800
	7/19/2017	3400
	9/20/2017	3400
	4/5/2018	3400
	10/10/2018	3100
	3/27/2019	3300
	9/24/2019	3300
	10/7/2020	3300

From 14 baseline samples
Baseline mean = 3271.43
Baseline std Dev = 209.132

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 14 (background observations) - 1
t(0.95, 14) = 1.77093

Date	Samples	Mean	Interval	Significant
4/22/2021	1	3100	[0, 3654.79]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-108A

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	2/1/2017	940
	3/8/2017	930
	4/4/2017	1000
	4/24/2017	900
	5/16/2017	1000
	6/15/2017	1000
	7/6/2017	1000
	7/20/2017	1000
	9/21/2017	1100
	4/5/2018	1100
	10/10/2018	1100
	3/27/2019	1100
	9/25/2019 ~	1200
	3/26/2020	980
	10/7/2020	1100

From 15 baseline samples
Baseline mean = 1030
Baseline std Dev = 82.5487

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1100	[0, 1180.16]	FALSE

Skewness Coefficient

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	1325	57.735	0
MW-102	16	1468.75	140.089	-0.924486
MW-103	16	3112.5	236.291	0.12819
MW-104	16	2925	438.938	0.769387
MW-105	16	7906.25	771.551	0.450863
MW-106	16	2975	220.605	**-1.28906**
MW-107	16	27625	6888.4	0.248479
MW-108A	16	4309.38	305.624	**-1.00949**

All Locations

Obs.	Mean	Std. Dev.	Skewness
128	6455.86	8601.28	**2.38408**

Skewness Coefficient

Parameter: Total Dissolved Solids

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data
Skewness < -1 indicates negatively skewed data

Compliance Locations

Location	Obs.	Mean	Std. Dev.	Skewness
MW-101	16	7.18828	0.0436597	-0.108349
MW-102	16	7.28757	0.101109	**-1.28167**
MW-103	16	8.04048	0.0759727	-0.0331383
MW-104	16	7.97101	0.144744	0.503643
MW-105	16	8.97103	0.0962611	0.296567
MW-106	16	7.99523	0.0782206	**-1.4308**
MW-107	16	10.1971	0.250755	0.0332317
MW-108A	16	8.36606	0.0739928	**-1.23568**

All Locations

Obs.	Mean	Std. Dev.	Skewness
128	8.2521	0.917355	0.964648

Shapiro-Wilks Test of Normality

Parameter: Total Dissolved Solids

Location: MW-106

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2400	3200	800	0.5056	404.48
2	2700	3200	500	0.329	164.5
3	2700	3100	400	0.2521	100.84
4	2800	3100	300	0.1939	58.17
5	2900	3100	200	0.1447	28.94
6	3000	3100	100	0.1005	10.05
7	3000	3100	100	0.0593	5.93
8	3100	3100	0	0.0196	0
9	3100	3100	0		
10	3100	3000	-100		
11	3100	3000	-100		
12	3100	2900	-200		
13	3100	2800	-300		
14	3100	2700	-400		
15	3200	2700	-500		
16	3200	2400	-800		

Sum of b values = 772.91

Sample Standard Deviation = 220.605

W Statistic = 0.818342

5% Critical value of 0.887 exceeds 0.818342

Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.818342

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Dissolved Solids

Location: MW-106

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	7.78322	8.07091	0.287682	0.5056	0.145452
2	7.90101	8.07091	0.169899	0.329	0.0558968
3	7.90101	8.03916	0.13815	0.2521	0.0348277
4	7.93737	8.03916	0.101783	0.1939	0.0197357
5	7.97247	8.03916	0.0666914	0.1447	0.00965024
6	8.00637	8.03916	0.0327898	0.1005	0.00329538
7	8.00637	8.03916	0.0327898	0.0593	0.00194444
8	8.03916	8.03916	0	0.0196	0
9	8.03916	8.03916	0		
10	8.03916	8.00637	-0.0327898		
11	8.03916	8.00637	-0.0327898		
12	8.03916	7.97247	-0.0666914		
13	8.03916	7.93737	-0.101783		
14	8.03916	7.90101	-0.13815		
15	8.07091	7.90101	-0.169899		
16	8.07091	7.78322	-0.287682		

Sum of b values = 0.270802
Sample Standard Deviation = 0.0782206
W Statistic = 0.799044

5% Critical value of 0.887 exceeds 0.799044
Evidence of non-normality at 95% level of significance

1% Critical value of 0.844 exceeds 0.799044
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Dissolved Solids

Location: MW-108A

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 16 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	3500	4700	1200	0.5056	606.72
2	4000	4650	650	0.329	213.85
3	4100	4600	500	0.2521	126.05
4	4100	4600	500	0.1939	96.95
5	4200	4500	300	0.1447	43.41
6	4200	4500	300	0.1005	30.15
7	4200	4400	200	0.0593	11.86
8	4300	4400	100	0.0196	1.96
9	4400	4300	-100		
10	4400	4200	-200		
11	4500	4200	-300		
12	4500	4200	-300		
13	4600	4100	-500		
14	4600	4100	-500		
15	4650	4000	-650		
16	4700	3500	-1200		

Sum of b values = 1130.95
Sample Standard Deviation = 305.624
W Statistic = 0.912892

5% Critical value of 0.887 is less than 0.912892
Data is normally distributed at 95% level of significance

1% Critical value of 0.844 is less than 0.912892
Data is normally distributed at 99% level of significance

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-101

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	1400
	9/29/2016	1300
	11/16/2016	1200
	1/19/2017	1300
	3/9/2017	1300
	4/24/2017	1300
	6/15/2017	1300
	7/20/2017	1300
	9/20/2017	1400
	4/5/2018	1400
	10/10/2018	1300
	3/27/2019	1300
	9/25/2019	1400
	3/26/2020	1300
	10/7/2020	1300

From 15 baseline samples
Baseline mean = 1320
Baseline std Dev = 56.0612

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1400	[0, 1421.98]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-102

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	1700
	9/29/2016	1500
	11/16/2016	1500
	1/19/2017	1300
	3/9/2017	1600
	4/24/2017	1500
	6/15/2017	1600
	7/19/2017	1600
	9/20/2017	1500
	4/4/2018	1100
	10/10/2018	1400
	4/16/2019	1500
	9/26/2019	1500
	3/26/2020	1400
	10/7/2020	1400

From 15 baseline samples
Baseline mean = 1473.33
Baseline std Dev = 143.759

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	1400	[0, 1734.84]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-103

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	3400
	9/28/2016	3200
	11/17/2016	3200
	1/18/2017	3200
	3/8/2017	3600
	4/24/2017	2900
	6/14/2017	3000
	7/19/2017	3300
	9/20/2017	3200
	4/4/2018	3100
	10/10/2018	2700
	3/27/2019	3100
	9/25/2019	3300
	3/26/2020	2800
	10/7/2020	2900

From 15 baseline samples
Baseline mean = 3126.67
Baseline std Dev = 237.447

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	2900	[0, 3558.6]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-104

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/11/2016	3300
	9/29/2016	2700
	11/17/2016	3800
	1/18/2017	3800
	3/8/2017	3300
	4/24/2017	2700
	6/14/2017	2900
	7/19/2017	3000
	9/20/2017	3000
	4/4/2018	2800
	10/10/2018	2500
	3/27/2019	2800
	9/24/2019	2900
	3/26/2020	2500
	10/7/2020	2500

From 15 baseline samples
Baseline mean = 2966.67
Baseline std Dev = 420.317

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	2300	[0, 3731.25]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-105

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	9100
	9/28/2016	9500
	11/16/2016	7900
	1/19/2017	8200
	3/8/2017	8500
	4/24/2017	7600
	6/14/2017	8300
	7/20/2017	8400
	9/21/2017	8400
	4/4/2018	6800
	10/10/2018	7800
	3/27/2019	7000
	9/25/2019	7300
	3/26/2020	7300
	10/7/2020	7200

From 15 baseline samples
Baseline mean = 7953.33
Baseline std Dev = 774.474

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/21/2021	1	7200	[0, 9362.16]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-106

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 15
Maximum Baseline Concentration = 3200
Confidence Level = 93.8%
False Positive Rate = 6.2%

Baseline Measurements	Date	Value
	8/11/2016	3100
	9/28/2016	3100
	11/17/2016	3200
	1/18/2017	3200
	3/9/2017	3100
	6/14/2017	3100
	7/19/2017	3000
	8/24/2017	2800
	9/20/2017	3100
	4/4/2018	3000
	10/10/2018	2700
	3/28/2019	2900
	9/25/2019	3100
	3/26/2020	2400
	10/7/2020	2700

Date	Count	Mean	Significant
4/22/2021	1	3100	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-107

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	8/10/2016	21000
	9/29/2016	19000
	11/16/2016	19000
	1/18/2017	27000
	3/9/2017	31000
	4/26/2017	34000
	6/15/2017	31000
	7/19/2017	36000
	9/20/2017	27000
	4/5/2018	33000
	10/10/2018	22000
	3/27/2019	21000
	9/24/2019	40000
	3/26/2020	24000
	10/7/2020	21000

From 15 baseline samples
Baseline mean = 27066.7
Baseline std Dev = 6745.02

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	36000	[0, 39336.3]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-108A

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well Unified Guid. Formula 95% One-Sided Comparison

Baseline Samples	Date	Result
	2/1/2017	4200
	3/8/2017	4200
	4/4/2017	4600
	4/24/2017	4100
	5/16/2017	4500
	6/15/2017	4700
	7/6/2017	4600
	7/20/2017	4500
	9/21/2017 ~	4650
	4/5/2018	4200
	10/10/2018	4400
	3/27/2019	4100
	9/25/2019	4300
	3/26/2020	4000
	10/7/2020	3500

From 15 baseline samples
Baseline mean = 4303.33
Baseline std Dev = 315.361

For 1 recent sampling event(s)
Actual confidence level is 1.0 - (0.05/1) = 95 %
t is Percentile of Student's T-Test (0.95/1) = 0.95
Degrees of Freedom = 15 (background observations) - 1
t(0.95, 15) = 1.76131

Date	Samples	Mean	Interval	Significant
4/22/2021	1	4400	[0, 4877]	FALSE