

2023 Annual Groundwater Monitoring and Corrective Action Report

Lon D. Wright Power Plant

Fossil Fuel Combustion Ash (FFCA)
Monofill

City of Fremont Department of Utilities
400 E Military Avenue
Fremont, Nebraska 68025



SCS ENGINEERS

File No. 27222120.00 | November 6, 2023

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1.0 INTRODUCTION

This 2023 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the “Coal Combustion Residuals (CCR) Final Rule” published by the United States Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015), and subsequent revisions. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e) and the Assessment Monitoring Program described in 40 CFR 257.95. The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2023 Annual Groundwater Monitoring and Corrective Action Report for the 11.36-acre CCR monofill at the Lon D. Wright Power Plant, which is owned by the City of Fremont Department of Utilities (FDU).

This report covers the period of groundwater monitoring from January 1, 2023 through December 31, 2023.

1.1 §257.90(E)(6) SUMMARY

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

1.1.1 §257.90(e)(6)(i) Initial Monitoring Program

At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;

At the start of the current annual reporting period, (January 1, 2023), the CCR Landfill was operating under an assessment monitoring program in compliance with §257.95.

1.1.2 §257.90(e)(6)(ii) Final Monitoring Program

At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;

At the end of the current annual reporting period, (December 31, 2023), the CCR Landfill was operating under an assessment monitoring program in compliance with §257.95.

1.1.3 §257.90(e)(6)(iii) Statistically Significant Increases

If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III to this part pursuant to §257.94(e):

- (A) Identify those constituents listed in Appendix III to this part and the names of the monitoring wells associated with such an increase; and,*

Constituent	Monitoring Well with SSI	
	First Quarter (February) Event	Third Quarter (July) Event
Arsenic	MW-1, MW-6, MW-7	MW-1, MW-2, MW-3, MW-4, MW-6, MW-7
Boron	MW-2, MW-6, MW-7, MW-8	MW-2, MW-6, MW-7, MW-8
Barium	MW-3, MW-4, MW-7, MW-8	MW-2, MW-3, MW-4, MW-7, MW-8
Calcium	MW-3, MW-7, MW-8	MW-2, MW-3, MW-8
Chloride	MW-1, MW-3, MW-5, MW-7, MW-8	MW-1, MW-3, MW-4, MW-7, MW-8
Fluoride	MW-2	MW-2, MW-3
Lithium	MW-6	MW-6
Molybdenum	MW-3	MW-3
pH	MW-3	MW-3
Selenium	MW-1, MW-5, MW-6	MW-1, MW-6
Sulfate	MW-1, MW-3	MW-1, MW-3
Total Radium	MW-1	MW-1
Total Dissolved Solids (TDS)	MW-2, MW-3, MW-7, MW-8	MW-2, MW-3, MW-7, MW-8

(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.

Eight background groundwater monitoring events were completed from October 2016 through September 2017 under the detection monitoring program. Statistical analysis of the analytical results from the eight background groundwater monitoring events resulted in all seven downgradient wells having statistically significant increases (SSIs) in concentration above the background concentration data at MW-4R. The SSI determinations completed in 2017 resulted in the transition from the detection monitoring program into the assessment monitoring program in February 2018.

1.1.4 §257.90(e)(6)(iv) Statistically Significant Levels

If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in Appendix IV to this part pursuant to §257.95(g) include all of the following:

(A) Identify those constituents listed in Appendix IV to this part and the names of the monitoring wells associated with such an increase;

No Appendix IV detects statistically exceeded the groundwater protection standard.

(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;

Not applicable as corrective measures are not required.

(C) *Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and*

Not applicable as corrective measures are not required.

(D) *Provide the date when the assessment of corrective measures was completed for the CCR unit.*

Not applicable as corrective measures are not required.

1.1.5 §257.90(e)(6)(v) Selection of Remedy

Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection; and

Not applicable as corrective measures are not required.

1.1.6 §257.90(e)(6)(vi) Remedial Activities

Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

Not applicable as corrective measures are not required.

2.0 §257.90(E) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

2.1 §257.90(E)(1) SITE MAP

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

A site vicinity map with an aerial image showing the property boundary of the Lon D. Wright Power Plant is provided as **Figure 1**. This figure includes the CCR monofill and background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program.

2.2 §257.90(E)(2) MONITORING SYSTEM CHANGES

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

No new monitoring wells were installed and no wells were decommissioned as part of the groundwater monitoring program for the FFCA monofill in 2023. The groundwater monitoring system currently consists of eight monitoring wells (1 upgradient and 7 downgradient). Monitoring wells MW-1 through MW-5 were installed in 1996 to intercept the shallow groundwater table beneath the FFCA monofill. Monitoring wells MW-6 through MW-8 were installed in 2016 to increase the interception potential of predominant down- and cross-gradient flow migration pathways and to demonstrate compliance with 40 CFR 257.91. Background monitoring well MW-4 was replaced with MW-4R in 2016 due to the poor integrity of the monitoring well.

2.3 §257.90(E)(3) SUMMARY OF SAMPLING EVENTS

In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

Two groundwater samples were collected from each CCR monitoring well for the semi-annual assessment monitoring events. Samples from the first sampling event on February 9, 2023 and the second sampling event on July 26, 2023 were analyzed for both Appendix III and Appendix IV constituents. A summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs is included in **Table 1**. The Groundwater Monitoring Program Reports for the first and second sampling events submitted to the Nebraska Department of Environment and Energy (NDEE), which include the analytical reports, groundwater contour maps, field data sheets and statistical summaries, are provided in **Appendices A1** and **A2**.

2.4 §257.90(E)(4) MONITORING TRANSITION NARRATIVE

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels);

As required by 40 CFR 257.90(b), eight background groundwater monitoring events were completed from October 2016 through September 2017 under the detection monitoring program. Statistical analysis of the analytical results from the eight background groundwater monitoring events resulted in all seven downgradient wells having statistically significant increases (SSIs) in concentration above the background concentration data at MW-4R. The SSI determinations completed in 2017 resulted in the transition from the detection monitoring program into the assessment monitoring program in February 2018. The site remained in the assessment monitoring program throughout 2023.

2.5 §257.90(E)(5) OTHER REQUIREMENTS

Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

Additional potentially applicable requirements for the annual report, and the location of the requirement within the Rule, are provided in the following sections.

2.5.1 §257.90(e) General Requirements

For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.

Status of Groundwater Monitoring and Corrective Action Program. The groundwater monitoring and corrective action program is currently in assessment monitoring.

Summary of Key Actions Completed. The facility conducted groundwater monitoring in accordance with assessment monitoring protocols and established groundwater protection standards.

Description of Any Problems Encountered. No problems were encountered involving the two groundwater monitoring events.

Discussion of Actions to Resolve the Problems. No problems were encountered involving the two groundwater monitoring events.

Projection of Key Activities for the Upcoming Year (2024):

Perform two semiannual assessment monitoring events in the first and third quarters of 2024.

Perform statistical evaluation and determination of any statistically significant increases for both semiannual assessment monitoring events.

2.5.2 §257.94(d) Alternative Detection Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. No alternative detection monitoring frequency has been proposed. The facility is currently in assessment monitoring.

2.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. No alternative source demonstration for detection monitoring was completed in 2023.

2.5.4 §257.95(c) Alternative Assessment Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. No alternative assessment monitoring frequency has been proposed.

2.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Assessment Monitoring Results and Standards for the two assessment monitoring events can be found in the attached Groundwater Monitoring Program Reports submitted to the NDEE. These reports, which include the analytical reports, groundwater contour maps, field data sheets and statistical summaries, are provided in **Appendices A1** and **A2**.

2.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. No alternative source demonstration for assessment monitoring was completed in 2023.

2.5.7 §257.96(a) Extension of Time for Corrective Measures Assessment

The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measure due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. A corrective measures assessment has not been initiated.

TABLE 1

CCR Rule Groundwater Samples Summary

Table 1
CCR Rule Groundwater Samples Summary
Lon D. Wright Power Plant FFCA Monofill
1st Quarter & 3rd Quarter - 2023

Well ID	Designation	Number of Samples Collected	Sampling Dates
MW-1	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-2	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-3	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-4R	Upgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-5	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-6	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-7	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023
MW-8	Downgradient	2 (1 each event)	02/09/2023
			07/26/2023

Note - All monitoring wells are currently in the assessment monitoring program

FIGURE 1

Site Map with Monitoring Wells

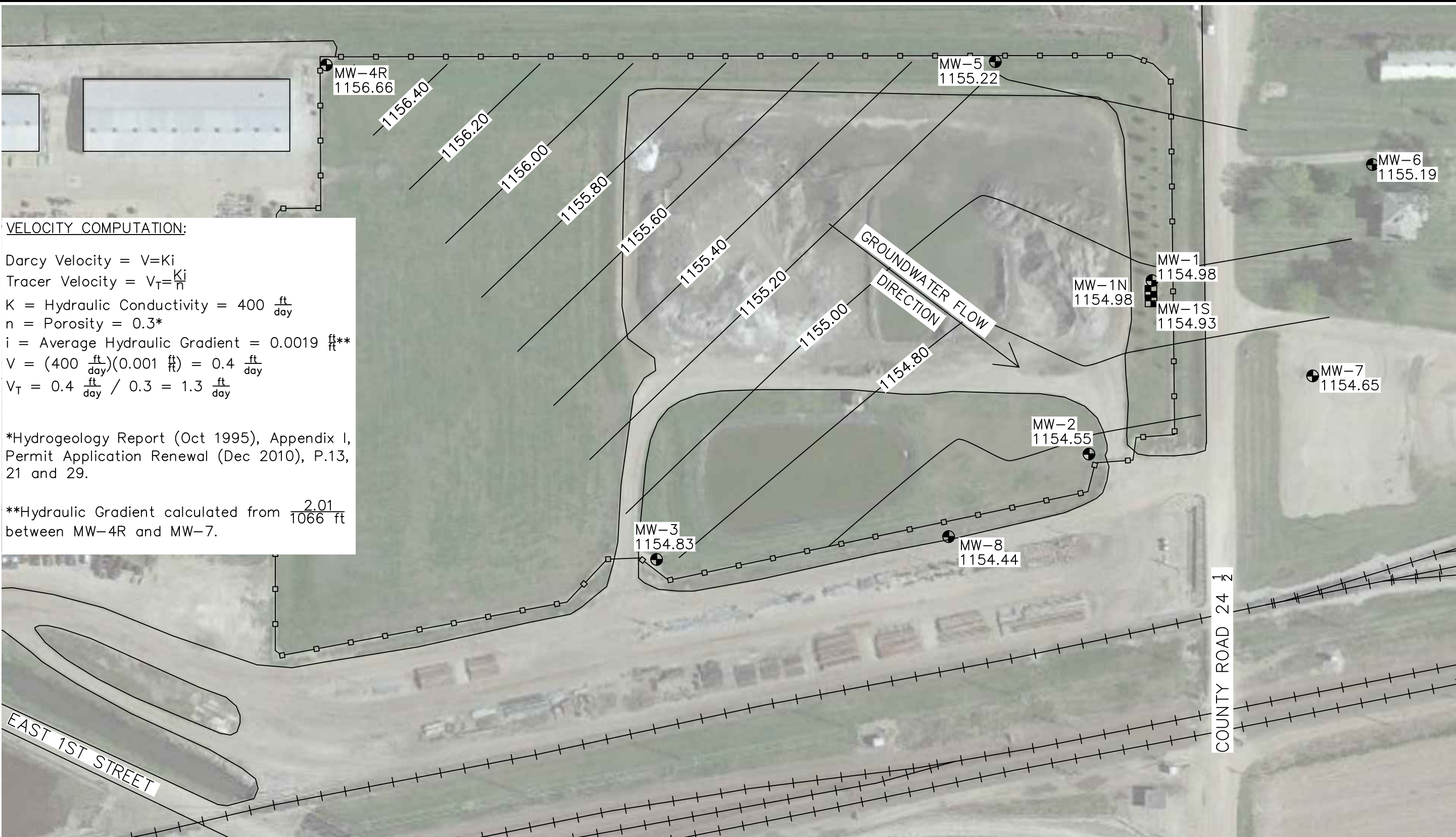
T:\27222120.00\AUTOCAD\SHEETS\2022 SITE VICINITY MAP.DWG



SCS ENGINEERS 14755 Grover Street Omaha, NE 68144 PH. (402) 884-6202 FAX. (913) 681-0012				CLIENT FREMONT DEPARTMENT OF UTILITIES LON D. WRIGHT POWER PLANT FREMONT, NEBRASKA				SHEET TITLE SITE VICINITY MAP		REV.	DATE	CK	BY
CADD FILE: 2022 SITE VICINITY MAP.DWG				DATE: 01/09/2023				PROJECT TITLE ANNUAL GROUNDWATER MONITORING CORRECTIVE ACTION REPORT					
DRAWING NO. F-01													
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FIGURE 2
Potentiometric Contour Map

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VELOCITY COMPUTATION:

Darcy Velocity = $V=Ki$
Tracer Velocity = $V_T=\frac{Ki}{n}$
 K = Hydraulic Conductivity = $400 \frac{ft}{day}$
 n = Porosity = 0.3^*
 i = Average Hydraulic Gradient = $0.0019 \frac{ft}{ft}^{**}$
 $V = (400 \frac{ft}{day})(0.001 \frac{ft}{ft}) = 0.4 \frac{ft}{day}$
 $V_T = 0.4 \frac{ft}{day} / 0.3 = 1.3 \frac{ft}{day}$

*Hydrogeology Report (Oct 1995), Appendix I, Permit Application Renewal (Dec 2010), P.13, 21 and 29.

**Hydraulic Gradient calculated from $\frac{2.01}{1066 ft}$ between MW-4R and MW-7.

LEGEND

- RAILROAD TRACKS
- FENCE
- MONITORING WELL 1162.50 FEET ABOVE MEAN SEA LEVEL
- PIEZOMETER
- ESTIMATED POTENTIOMETRIC CONTOUR
- POTENTIOMETRIC CONTOUR

NOTES:
1. DEPTHS TO GROUNDWATER MEASURED 07/26/2023.



CK. BY		REV. DATE		SHEET TITLE		PROJECT TITLE	
		△		POTENTIOMETRIC CONTOUR MAP		SEMIANNUAL GROUNDWATER SAMPLING	
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APPENDIX A

Groundwater Monitoring Program Reports

A1 1st Quarter Groundwater Monitoring Program Report



Lon D. Wright Power Plant Statistical Summary of February 2023 Data

City of Fremont Department of Utilities
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27222120.00 | March 28, 2023

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Attachments

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A.1	Time Series Plots
A.2	Intrawell Prediction Limits
A.3	Interwell Prediction Limits
A.4	Sen's Slope/Mann-Kendall Analysis
A.5	Confidence Interval Analysis
B	Supporting information
B.1	Field Data Sheets
B.2	Chain of Custody
B.3	Testing Results

1 EVALUATION OF ANALYTICAL RESULTS

1.1 SITE-SPECIFIC STATISTICAL PROGRAM

Statistical analysis consisted of methods outlined in the Groundwater Monitoring Plan (GMP) (revised April 2021), 40 CFR Part 257, Subpart D (CCR rule) and EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance (Unified Guidance) dated March 2009 using Sanitas™ Statistical Software version 9.6.37. An intrawell statistical approach is the primary statistical method and interwell comparisons are supplementary statistical analyses used to give context to intrawell statistical results. If no intrawell statistical exceedance is noted, the additional statistical analysis is not used to make assessment monitoring determinations. Constituent/well pairs exceeding inter-and intrawell prediction limits but not displaying significant increasing trends are not entered into the assessment monitoring program. Additionally, in an assessment monitoring program, if one or more constituent/well pair statistically exceeds the intrawell prediction limit but does not exceed the Confidence Interval (ie GWPS) then assessment monitoring procedures for the site will continue and no changes to the sampling schedule are implemented. Based on current understanding of the Federal CCR rule, when assessment monitoring is required at one well then all wells must be in assessment monitoring. This understanding does not conflict with GMP requirements.

Since the site remains in assessment monitoring, each well at the site was sampled and analyzed following assessment monitoring procedures. During the February 2023 sampling event, samples from each well were analyzed for Appendix III and IV constituents. Detected Appendix III and Appendix IV constituent results were analyzed using time series plots, intrawell prediction limit analysis, interwell prediction limit analysis, Sen's slope trend analyses, and confidence interval analysis. The statistical results have been summarized in **Table 2** at the end of this Section.

Statistical output charts and tables are included in **Attachment A**.

1.2 COMPLIANCE STATISTICAL ANALYSIS

Compliance statistical analysis was performed on data collected from the February 2023 sampling event. Pertinent statistical results are summarized in **Table 2** at the end of this Section.

1.2.1 Time Series Plots

Time series plots were prepared for Appendix III and Appendix IV constituents to show the concentration variations over time. Time series graphs are included in **Attachment A.1**.

1.2.2 Intrawell Prediction Limits

An intrawell prediction limit analysis compares the historical data of a well to its own compliance data. The historical data is used to calculate the prediction limit that is compared to the compliance data point. If a compliance data point exceeds the calculated prediction limit, then an initial exceedance is noted; however, this may not indicate a statistically significant increase (SSI). The distribution of the data was calculated by applying the Shapiro-Wilk test for normality or the Ladder of Powers (Helsel & Hirsh, 1992) for transformed data. A parametric prediction limit was constructed for data determined to have a normal or transformed normal distribution. A non-parametric prediction limit was calculated for data not transformed normal or containing 51 percent to 90 percent non-detect results.

Intrawell prediction limits were used to statistically evaluate the detected constituents in each monitoring well using an established background dataset from October 2016 through June 2018 except for Boron where the background dataset is from October 2016 to February 2018. Outliers, if any, are removed from the background dataset.

Intrawell prediction limit analysis results are included in **Attachment A.2** and summarized in **Table 2**.

1.2.3 Interwell Prediction Limits

An interwell prediction limit analysis compares data collected from compliance (downgradient) monitoring wells with data collected from the background (upgradient) monitoring wells. Available upgradient monitoring well data (MW-4R) was used to calculate the interwell prediction limit and was used to determine if a single data point is statistically representative of a group of data points. The distribution of the data was calculated by applying the Shapiro-Wilk test for normality, or the Ladder of Powers (Helsel & Hirsh, 1992) for transformed data. A parametric prediction limit was constructed for data determined to have a normal or transformed normal distribution. A non-parametric prediction limit was calculated for data not transformed normal or containing 51 percent to 90 percent of observations less than the laboratory reporting limit (non-detects) results. A Poisson based prediction limit was calculated for data with greater than 90 percent non-detect results.

Interwell prediction limits were used as a supplementary statistical analysis to provide additional context and evaluation to the statistical evaluation of the detected constituents from the February 2023 sampling event data. Interwell prediction limits analysis results are included in **Attachment A.3** and summarized in **Table 2**.

1.2.4 Sen's Slope/Mann-Kendall Trend Analysis

A Sen's Slope/Mann-Kendall statistical analysis was performed on the detected constituent/well pairs using the background dataset and the February 2023 sampling event to determine trends in the concentration of these constituents. A trend is the general increase or decrease in observed values over time. A trend analysis can be used to determine the significance of an apparent trend and to estimate the magnitude of that trend. The Mann-Kendall test is nonparametric, meaning that it does not depend on an assumption of a particular underlying distribution. The test uses only the relative magnitude of data rather than actual values. Therefore, missing values are allowed, and values that are recorded as non-detects by the laboratory can still be used in the statistical analysis by assigning values equal to half their reporting limits. Sen's Slope is a simple nonparametric procedure developed to estimate the true slope. The advantage of this method over linear regression is that it is not greatly affected by gross data errors or outliers, and can be computed when data is missing or non-detect. Significant trends should be identified as either increasing or decreasing and whether these trends are occurring in more than one well. Trends can result from naturally occurring changes to the groundwater, seasonal fluctuations, and disturbances from new well installations or facility activities. Sen's Slope/Mann-Kendall analysis results are included in **Attachment A.4** and summarized in **Table 3**.

1.2.5 Confidence Interval Analysis

Confidence Interval analysis was performed on the detected constituent/well pairs from the February 2023 sampling event. Confidence interval analysis is an intrawell test used to compare the compliance data to a fixed numerical limit (compliance limit). Since the wells are in assessment monitoring, the compliance limit is represented by the groundwater protection standard (GWPS). Based on the Unified Guidance, the confidence interval is bound by an upper and lower limit which

defines the most probable range where either the average or median concentration is expected. A potential statistical exceedance is indicated by confidence interval analysis when the lower limit of the confidence interval is above the compliance limit.

The GWPS for lithium and molybdenum were identified in the July 17, 2018 *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* (July 2018 EPA CCR Amendment) and were utilized as the compliance limits. The average upgradient concentrations, derived from MW-4R, were used as the compliance limit for boron and calcium because no GWPS exists for either constituent. The confidence interval analysis results are included in **Attachment A.5** and summarized in **Table 2**.

1.2.6 Statistical Summary

The following table lists a summary of those detected constituents both for the previous monitoring period, August 2022, and the current monitoring period, February 2023.

Table 1. Previously identified to Current identified exceedances

Well	Previously identified exceedances August 2022		Currently identified exceedances February 2023	
	Intrawell	Interwell	Intrawell	Interwell
MW-1				Cadmium
	Chloride		Chloride	Chloride
				Fluoride
		Sulfate	Sulfate	Sulfate
MW-2	Barium			Cadmium
	Chloride		Chloride	
			Fluoride	Fluoride
			Lithium	
MW-3	Arsenic		Arsenic	
		Barium		Barium
	Chloride		Chloride	
MW-4R (upgradient)	Arsenic		Arsenic	
	Calcium			
	Chloride		Chloride	
MW-5			Chloride	
MW-6				Barium
				Calcium
				Chloride
		Sulfate		Sulfate
MW-7	Barium	Barium		Cadmium
	Chloride	Chloride		
		Selenium		
			Sulfate	Sulfate
MW-8	Radium	Radium		
		Barium		Barium
	Radium			

Intrawell exceedances were noted for arsenic (MW-4R), chloride (MW-2, MW-3, MW-4R, and MW-5), and lithium (MW-2) without corresponding interwell exceedances. Intrawell exceedances with corresponding interwell exceedances were noted for chloride (MW-1), fluoride (MW-2), and sulfate (MW-7). No constituent/well pairs statistically exceeded the GWPS. Chloride at upgradient well MW-4R was identified as an intrawell exceedance and may indicate a natural change in the groundwater quality. This change in the groundwater quality may be the reason for similar exceedances identified in the downgradient wells.

Statistical exceedances above background are still present at some wells; however no Appendix IV detects statistically exceeded the GWPS. Based on current understanding of the Federal CCR rule, when assessment monitoring is required at one well then all wells must be in assessment monitoring. Therefore, the site will remain in assessment monitoring during the next scheduled sampling event. The statistical analysis results from the February 2023 sampling event are summarized in **Table 2** below.

Table 2. Summary of Statistical Analysis

Well	Detected Constituents	Result	Intrawell Exceedance?	Interwell Exceedance?	Significant Trend?	Confidence Interval Exceedance?	GWPS Exceedance ¹
MW-1	Cadmium (ug/L)	0.18		Yes			No
	Calcium (mg/L)	97.2			Yes	Yes	n/a
	Chloride (mg/L)	65.6	Yes	Yes			No
	Fluoride (mg/L)	1.22		Yes			No
	Sulfate (mg/L)	83.8	Yes	Yes			No
MW-2	Cadmium (ug/L)	0.105		Yes			No
	Calcium (mg/L)	93.2			Yes	Yes	n/a
	Chloride (mg/L)	26.0	Yes				No
	Fluoride (mg/L)	1.47	Yes	Yes			No
	Lithium (ug/L)	34.4	Yes				n/a
MW-3	Arsenic (ug/L)	3.42	Yes				No
	Barium (ug/L)	161		Yes			No
	Calcium (mg/L)	102			Yes	Yes	n/a
	Chloride (mg/L)	40.6	Yes				No
MW-4R (upgradient)	Arsenic (ug/L)	5.4	Yes	See Note 3			No
	Chloride (mg/L)	37.9	Yes				No
MW-5	Calcium (mg/L)	95.1			Yes	Yes	n/a
	Chloride (mg/L)	39.8	Yes				No
MW-6	Barium (ug/L)	157		Yes			No
	Calcium (mg/L)	120		Yes			No
	Chloride (mg/L)	61		Yes			No
	Sulfate (mg/L)	60.5		Yes			No
MW-7	Cadmium (ug/L)	0.111		Yes			No
	Calcium (mg/L)	68.9			Yes	Yes	n/a

	Sulfate (mg/L)	74.9	Yes	Yes			No
MW-8	Barium (ug/L)	161		Yes			No
	Calcium (mg/L)	96.3			Yes	Yes	n/a

¹GWPS were established by the NDEE Title 118 Groundwater Quality Standards or the July 2018 EPA CCR Amendment.

²ND: Non-detect

³No interwell statistical comparison was performed on the upgradient well MW-4R.

n/a - No GWPS has been established.

2 GENERAL COMMENTS

SCS Engineers does not warrant the work of third parties supplying information used in the assimilation of this document. This document has been prepared using the level of care and skill ordinarily exercised, under similar circumstances, by environmental professionals currently practicing in this locality. No other representation, express or implied, and no warranty or guarantee is included or intended.

3 REFERENCES

HDR, Appendix D Groundwater Monitoring Plan for Fremont Department of Utilities Fossil Fuel Combustion Ash Disposal Site, March 2016; Revised December 2018.

Layne GeoSciences, Inc. 1995. Hydrogeology of Proposed Fossil Fuel Combustion Ash Disposal Site. Prepared for Fremont Department of Utilities and HDR Engineering, Inc.

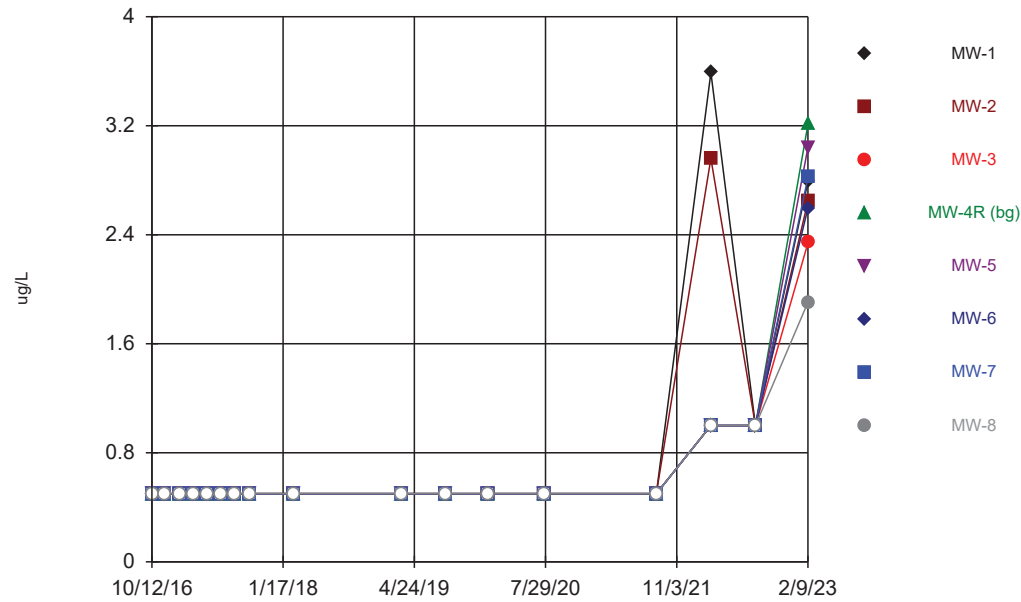
Sanitas Technologies, Sanitas Statistical Software v 9.6.37 and User Guide



Attachment A. Compliance Statistical Analysis

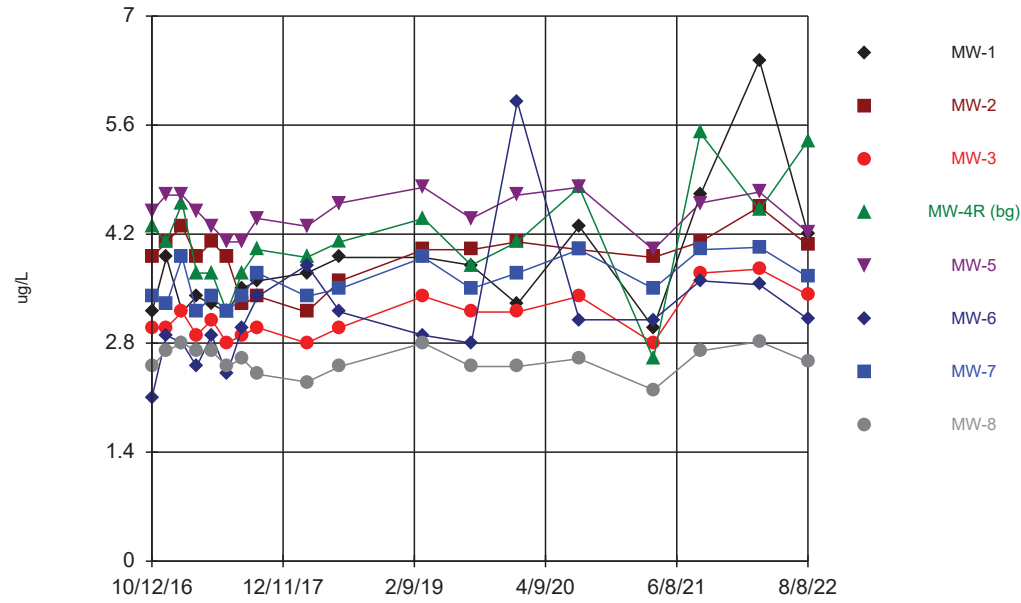
A.1 Time Series Plots

Time Series



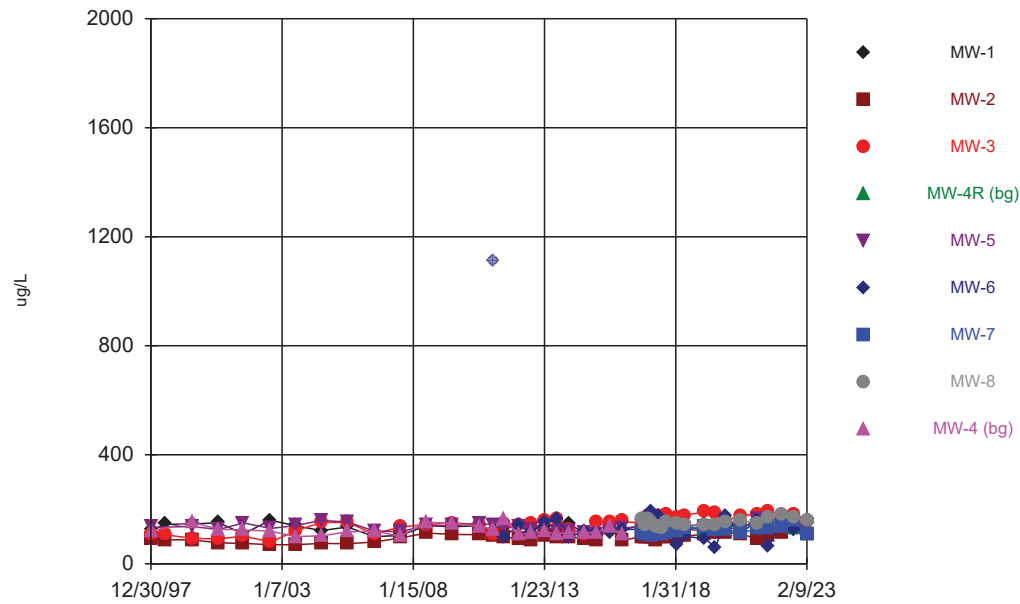
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Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



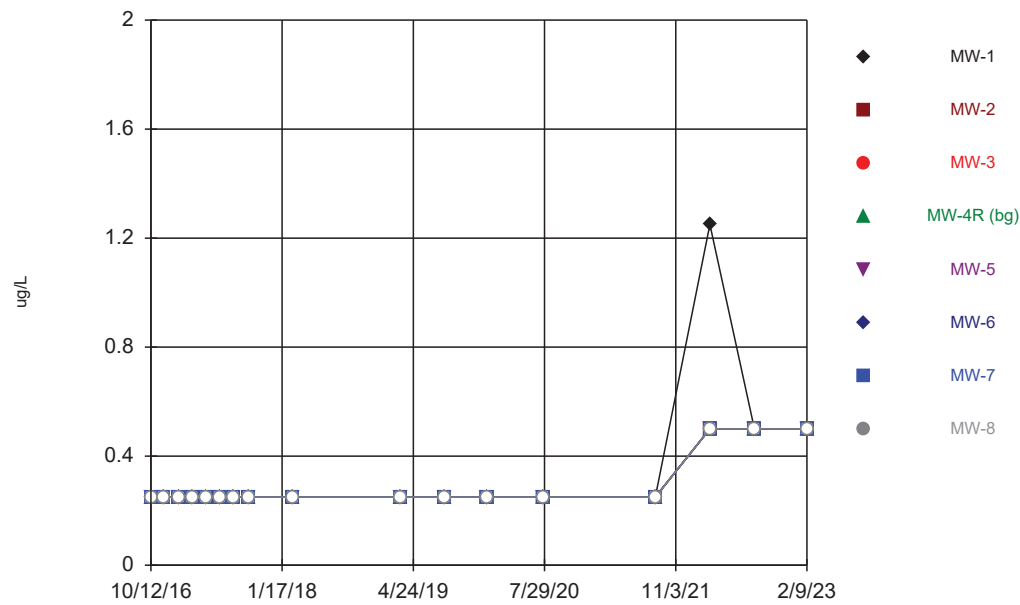
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Time Series



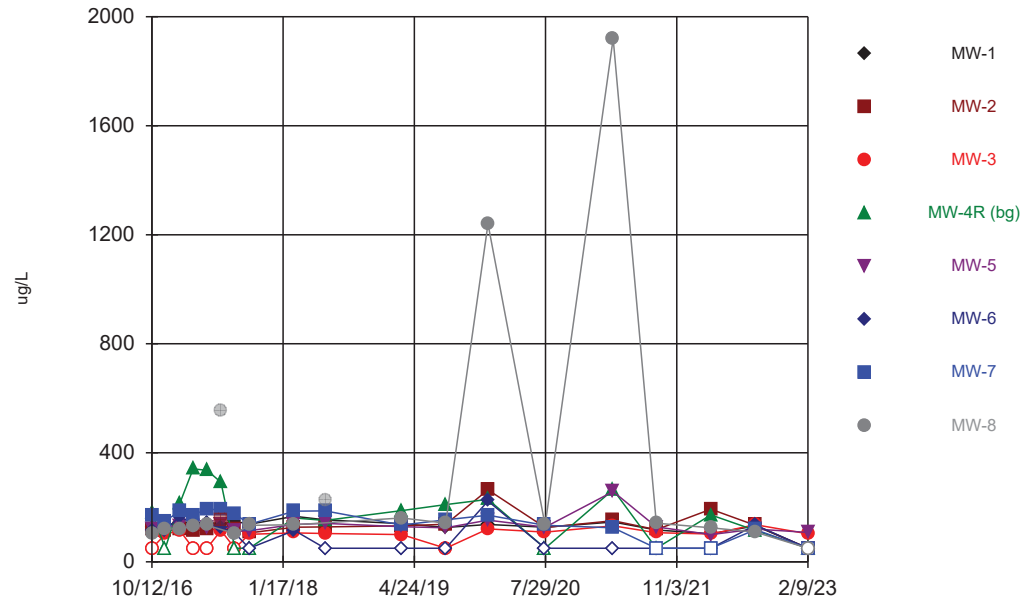
Constituent: Barium [total] Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



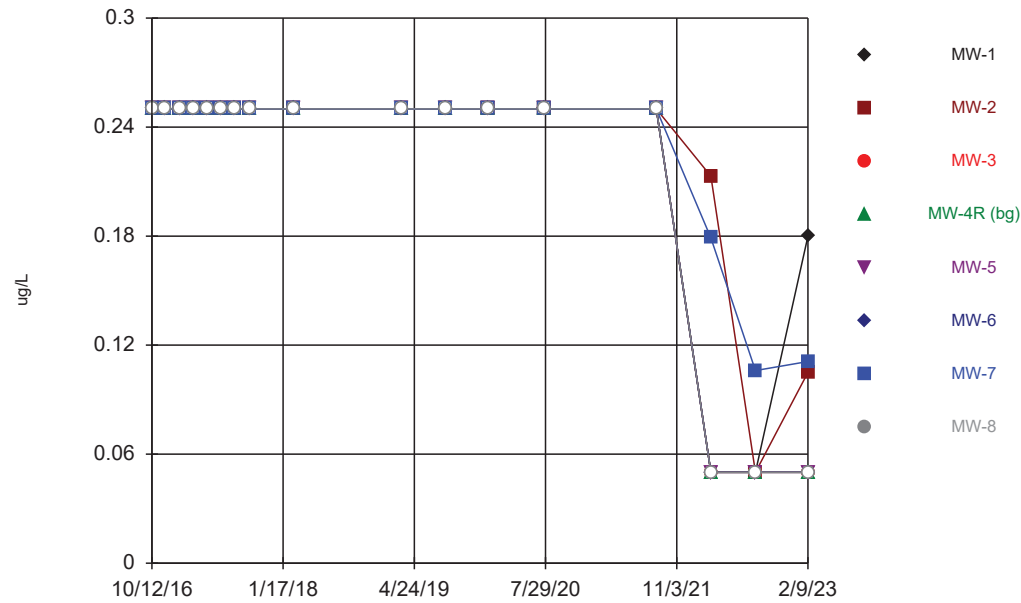
Constituent: BERYLIUM Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



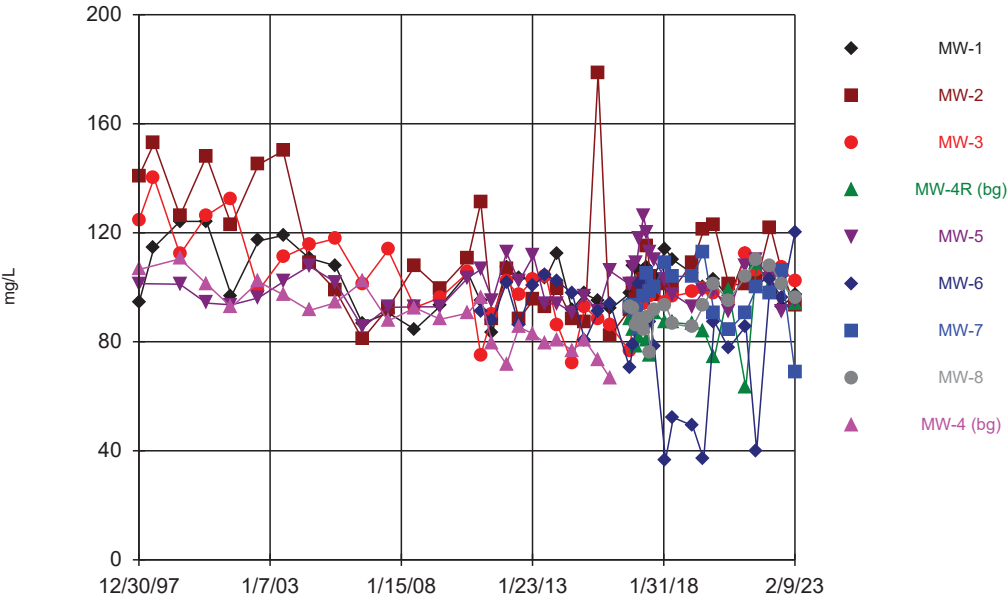
Constituent: Boron Analysis Run 3/13/2023 8:16 AM View: FDU Combined
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Time Series



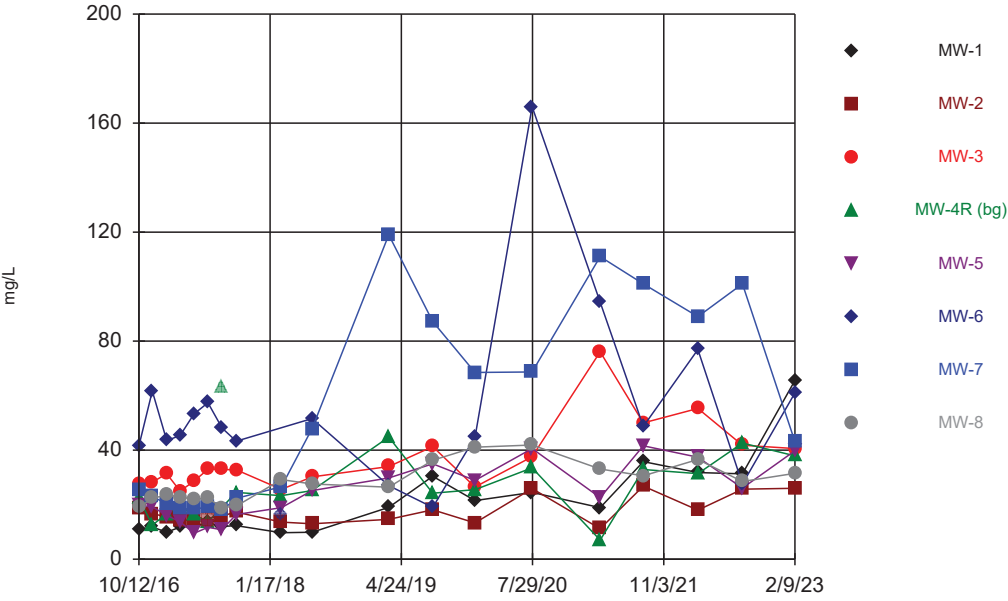
Constituent: Cadmium [total] Analysis Run 3/13/2023 8:16 AM View: FDU Combined
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Time Series



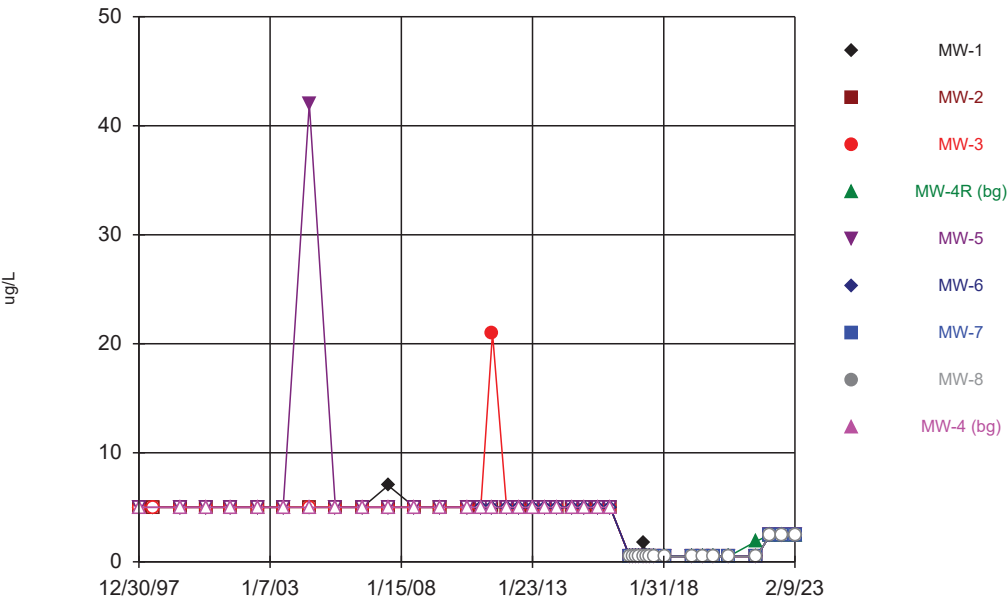
Constituent: Calcium Analysis Run 3/13/2023 8:16 AM View: FDU Combined
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Time Series



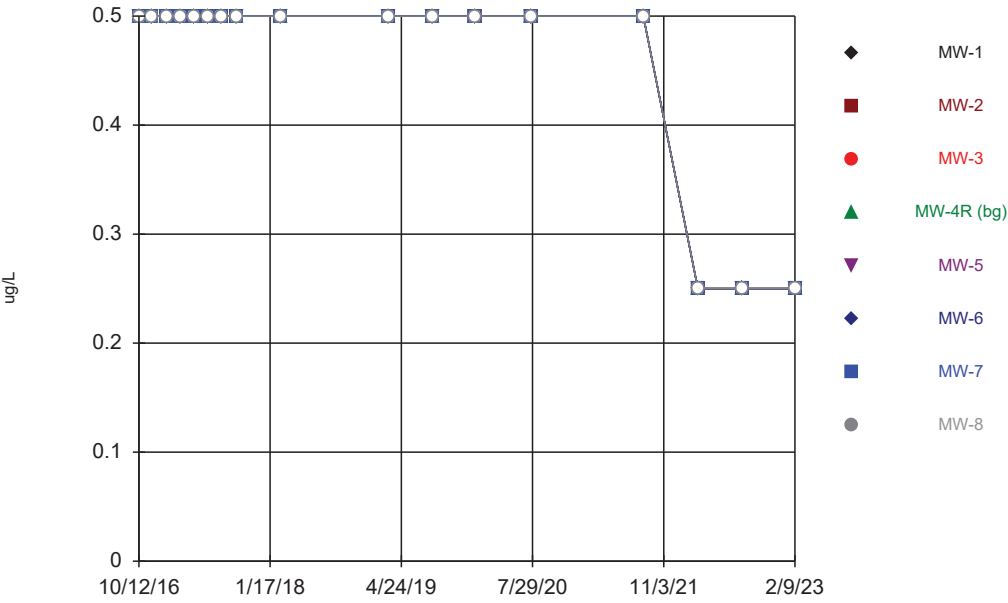
Constituent: Chloride Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



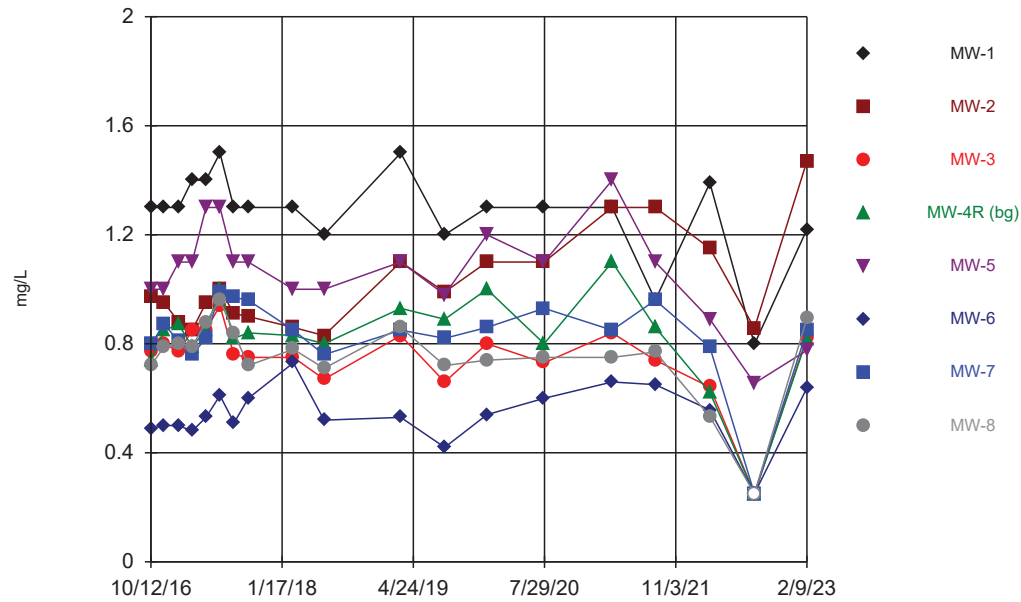
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Time Series



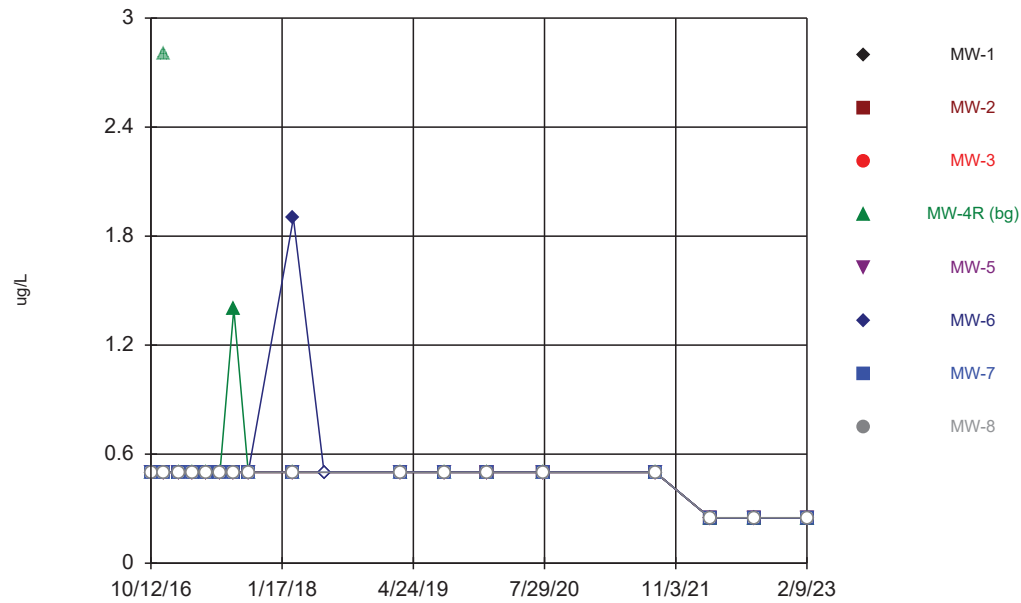
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Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



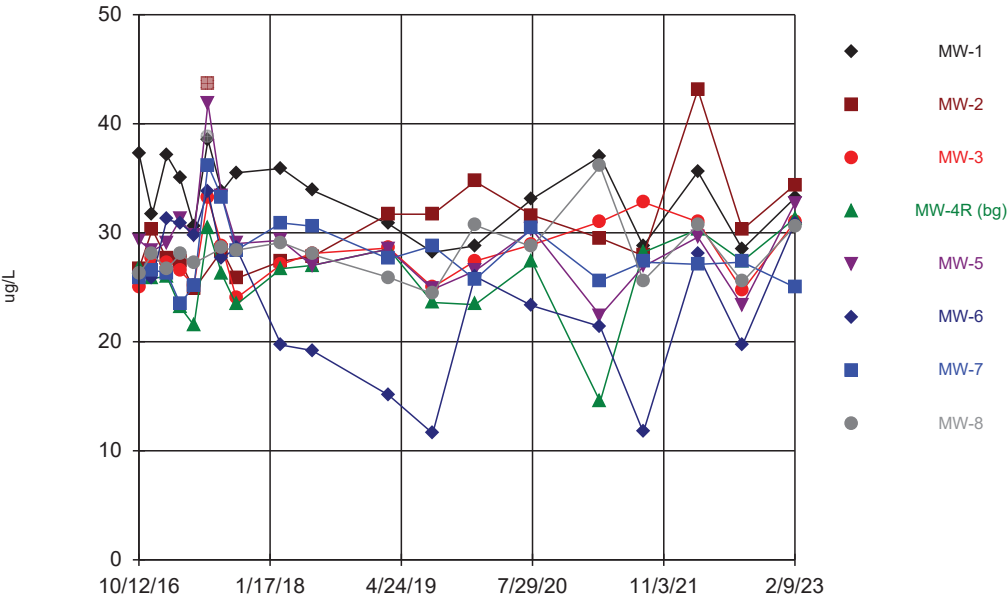
Constituent: Fluoride Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



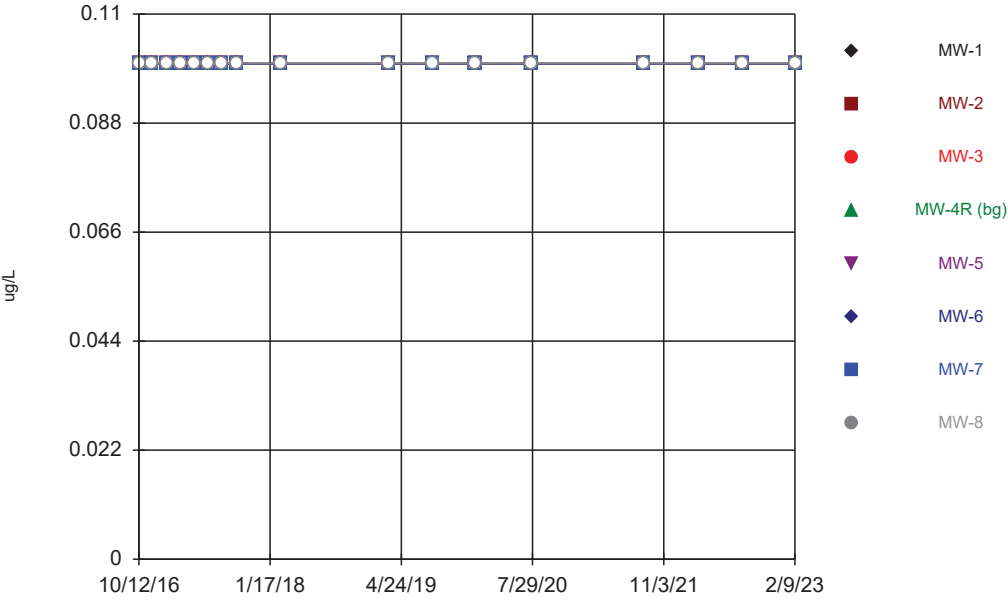
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Time Series



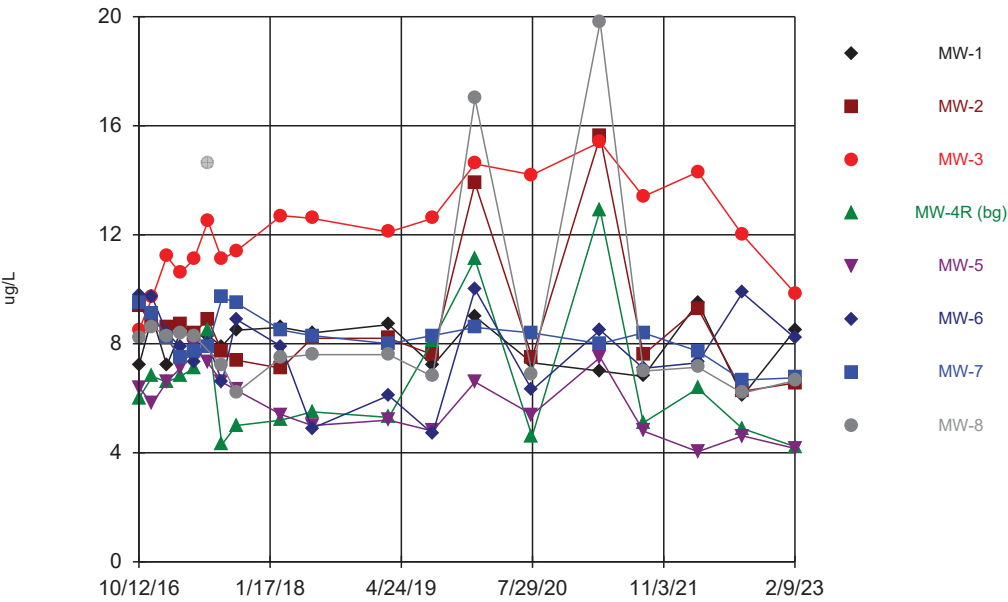
Constituent: Lithium Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



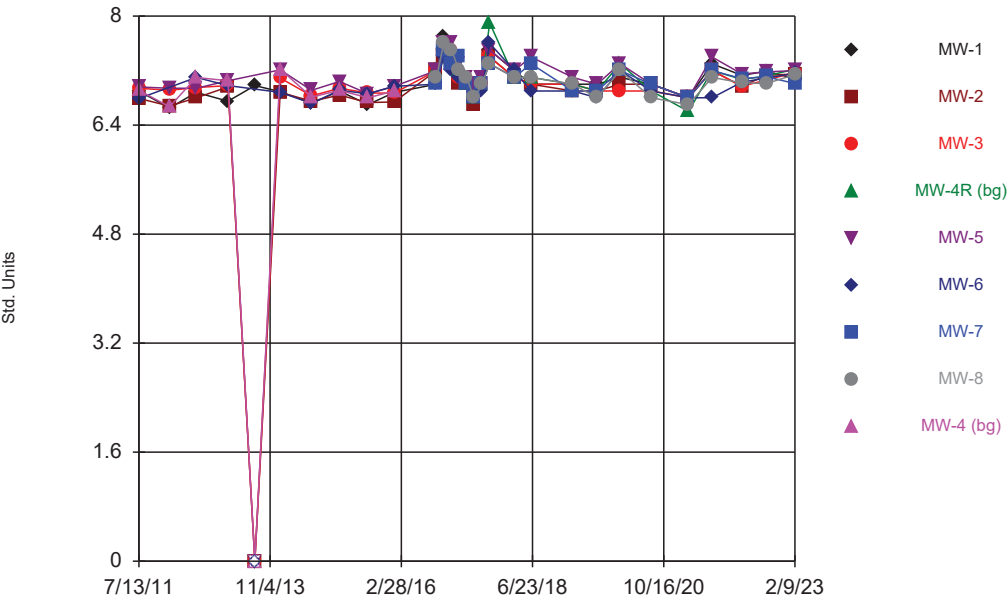
Constituent: Mercury Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



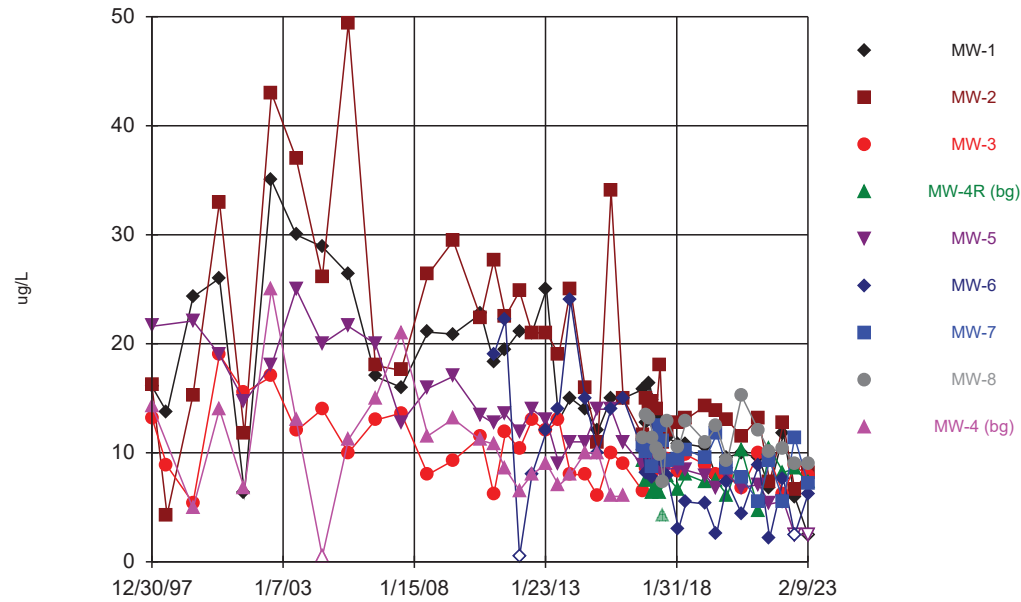
Constituent: Molybdenum Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



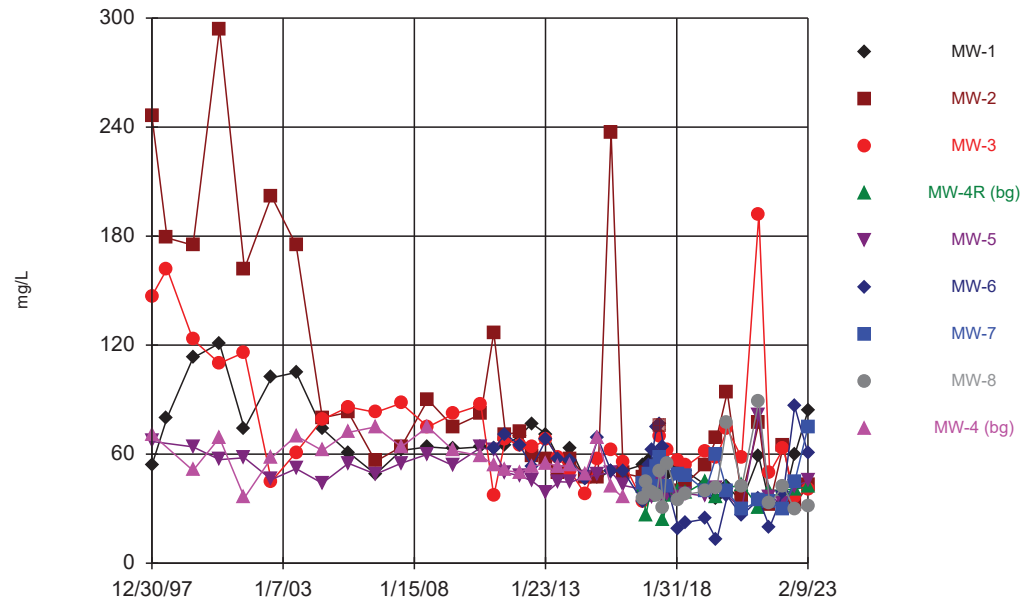
Constituent: pH Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



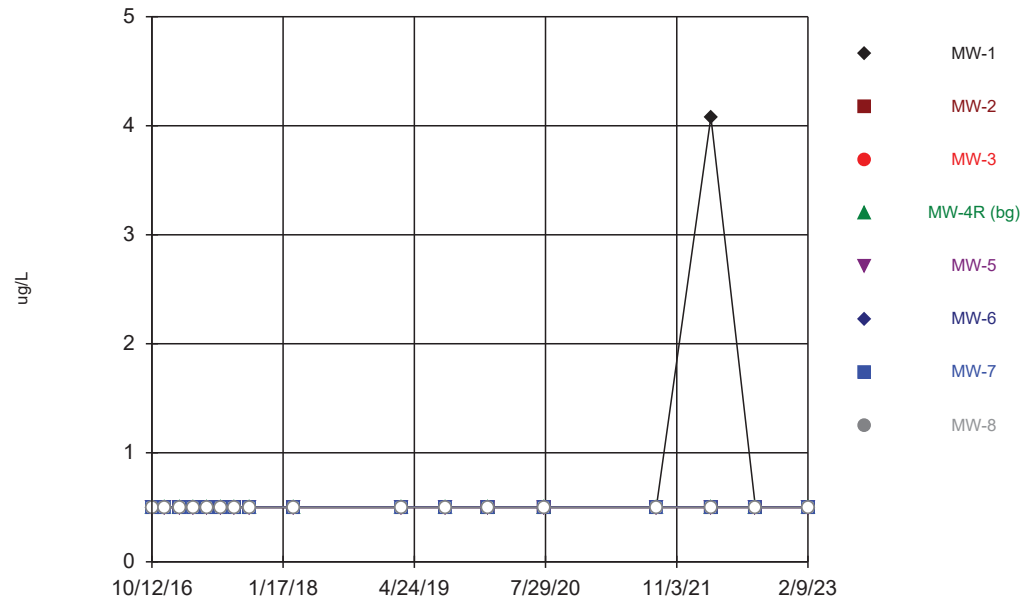
Constituent: Selenium [total] Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



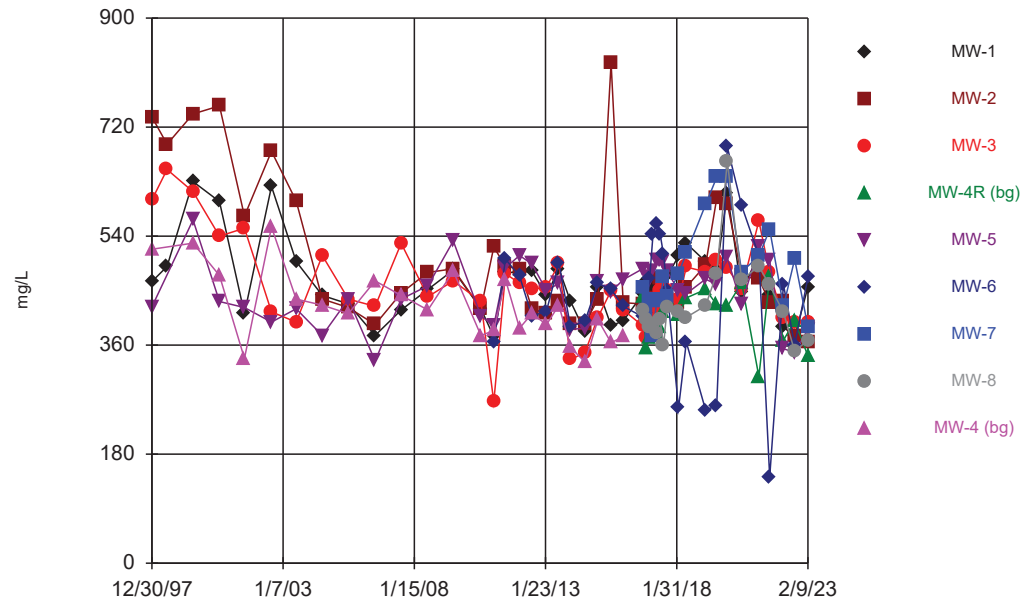
Constituent: Sulfate Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



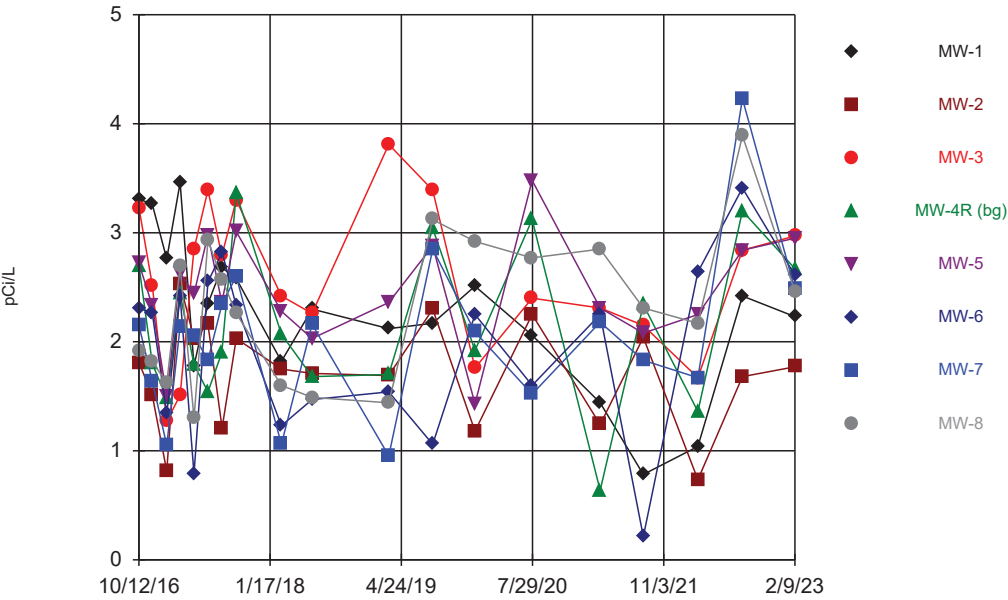
Constituent: Thallium [total] Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



Constituent: Total Dissolved Solids Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



Constituent: Total Radium Analysis Run 3/13/2023 8:16 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

A.2 Intrawell Prediction Limits

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 3/13/2023, 8:47 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic [total] (ug/L)	MW-1	4.325	n/a	8/8/2022	4.2	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-2	4.899	n/a	8/8/2022	4.06	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-3	3.348	n/a	8/8/2022	3.42	Yes	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-4R	5.095	n/a	8/8/2022	5.4	Yes	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-5	5.084	n/a	8/8/2022	4.22	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-6	4.399	n/a	8/8/2022	3.11	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-7	4.095	n/a	8/8/2022	3.65	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-8	3.043	n/a	8/8/2022	2.56	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-1	173.6	n/a	2/9/2023	134.7	No	10	0	No	0.000...	Param Intra 1 of 2 De...
Barium [total] (ug/L)	MW-2	112.9	n/a	2/9/2023	109	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-3	197.7	n/a	2/9/2023	161	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-4R	144.3	n/a	2/9/2023	125	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-5	171.6	n/a	2/9/2023	140	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-6	249.2	n/a	2/9/2023	157	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-7	136	n/a	2/9/2023	110	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-8	183.3	n/a	2/9/2023	161	No	10	0	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-3	139.9	n/a	2/9/2023	103	No	10	40	x^3	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-5	157.3	n/a	2/9/2023	108	No	10	0	No	0.000...	Param Intra 1 of 2
Cadmium [total] (ug/L)	MW-1	0.5	n/a	2/9/2023	0.18	No	9	100	n/a	0.01809	NP Intra (NDs) 1 of 2
Cadmium [total] (ug/L)	MW-2	0.5	n/a	2/9/2023	0.105	No	9	100	n/a	0.01809	NP Intra (NDs) 1 of 2
Cadmium [total] (ug/L)	MW-7	0.5	n/a	2/9/2023	0.111	No	9	100	n/a	0.01809	NP Intra (NDs) 1 of 2
Calcium (mg/L)	MW-1	119.5	n/a	2/9/2023	97.2	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-2	119.4	n/a	2/9/2023	93.2	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-3	114.8	n/a	2/9/2023	102	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-4R	98.37	n/a	2/9/2023	93.7	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-5	137.5	n/a	2/9/2023	95.1	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-6	146	n/a	2/9/2023	120	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-7	119.5	n/a	2/9/2023	68.9	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-8	103.8	n/a	2/9/2023	96.3	No	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-1	15.09	n/a	2/9/2023	65.6	Yes	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-2	21.66	n/a	2/9/2023	26	Yes	9	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-3	38.52	n/a	2/9/2023	40.6	Yes	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-5	30.73	n/a	2/9/2023	39.8	Yes	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-7	47.9	n/a	2/9/2023	43.1	No	10	0	n/a	0.01476	NP Intra (normality) ...
Chloride (mg/L)	MW-8	33.09	n/a	2/9/2023	31.5	No	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-1	1.578	n/a	2/9/2023	1.22	No	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-2	1.08	n/a	2/9/2023	1.47	Yes	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-3	1.014	n/a	2/9/2023	0.824	No	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-4R	1.043	n/a	2/9/2023	0.818	No	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-5	1.471	n/a	2/9/2023	0.776	No	10	0	x^(1/3)	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-6	0.7825	n/a	2/9/2023	0.638	No	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-7	1.119	n/a	2/9/2023	0.849	No	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-8	1.035	n/a	2/9/2023	0.894	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-1	42.45	n/a	2/9/2023	33.2	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-2	32.37	n/a	2/9/2023	34.4	Yes	9	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-3	35	n/a	2/9/2023	31	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-4R	33.19	n/a	2/9/2023	31.3	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-5	41.9	n/a	2/9/2023	32.7	No	10	0	n/a	0.01476	NP Intra (normality) ...
Lithium (ug/L)	MW-6	41.7	n/a	2/9/2023	30.9	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-7	37.16	n/a	2/9/2023	26.57	No	10	0	No	0.000...	Param Intra 1 of 2 De...

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 3/13/2023, 8:47 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Lithium (ug/L)	MW-8	30.8	n/a	2/9/2023	30.6	No	9	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-1	9.944	n/a	2/9/2023	8.5	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-2	10.47	n/a	2/9/2023	6.56	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-3	15.14	n/a	2/9/2023	9.86	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-4R	9.883	n/a	2/9/2023	4.23	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-5	9.091	n/a	2/9/2023	4.16	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-6	12.34	n/a	2/9/2023	8.21	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-7	11.02	n/a	2/9/2023	6.75	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-8	10.28	n/a	2/9/2023	6.65	No	9	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-1	7.982	6.378	2/9/2023	7.08	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-2	7.814	6.426	2/9/2023	7.15	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-3	7.829	6.531	2/9/2023	7.17	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-4R	7.891	6.578	2/9/2023	7.33	No	10	0	No	0.000...	Param Intra 1 of 2 De...
pH (Std. Units)	MW-5	7.952	6.648	2/9/2023	7.2	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-6	7.855	6.365	2/9/2023	7.16	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-7	7.838	6.502	2/9/2023	7.01	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-8	7.888	6.472	2/9/2023	7.14	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-2	19.91	n/a	2/9/2023	8.19	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-3	11.57	n/a	2/9/2023	7.88	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-6	17.84	n/a	2/9/2023	6.16	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-7	13.6	n/a	2/9/2023	7.23	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-8	17.04	n/a	2/9/2023	8.94	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-1	60.68	n/a	2/9/2023	83.8	Yes	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-3	84.08	n/a	2/9/2023	40.6	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-5	47.75	n/a	2/9/2023	45.2	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-6	111.3	n/a	2/9/2023	60.5	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-7	65.39	n/a	2/9/2023	74.9	Yes	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-8	63.23	n/a	2/9/2023	31.7	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-1	549.1	n/a	2/9/2023	456	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-2	484	n/a	2/9/2023	366	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-3	537.5	n/a	2/9/2023	398	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-4R	58.42	n/a	2/9/2023	42.1	No	9	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-4R	492.5	n/a	2/9/2023	342	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-5	539.3	n/a	2/9/2023	386	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-6	739.1	n/a	2/9/2023	472	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-7	557.1	n/a	2/9/2023	390	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-8	455.5	n/a	2/9/2023	368	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-1	4.411	n/a	2/9/2023	2.23	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-2	3.235	n/a	2/9/2023	1.77	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-3	4.735	n/a	2/9/2023	2.97	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-4R	3.234	n/a	2/9/2023	3.005	No	10	0	No	0.000...	Param Intra 1 of 2 De...
Total Radium (pCi/L)	MW-5	3.787	n/a	2/9/2023	2.95	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-6	4.008	n/a	2/9/2023	2.61	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-7	3.464	n/a	2/9/2023	2.48	No	10	0	No	0.000...	Param Intra 1 of 2
Total Radium (pCi/L)	MW-8	3.71	n/a	2/9/2023	2.46	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-2	58.28	n/a	2/9/2023	42.7	No	9	0	No	0.000...	Param Intra 1 of 2
Lead [total] (ug/L)	MW-4R	1.4	n/a	2/9/2023	0.25ND	No	8	87.5	n/a	0.02144	NP Intra (NDs) 1 of 2
Chloride (mg/L)	MW-4R	34.63	n/a	2/9/2023	37.9	Yes	9	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-4R	10.4	n/a	2/9/2023	7.33	No	9	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-6	71.9	n/a	2/9/2023	61	No	9	0	No	0.000...	Param Intra 1 of 2

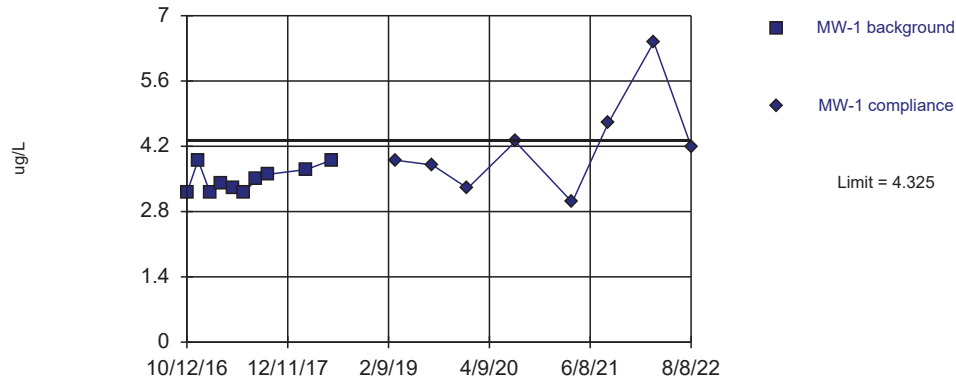
Prediction Limit

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater Printed 3/13/2023, 8:47 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (ug/L)	MW-8	168.8	n/a	2/9/2023	50ND	No	8	0	No	0.000...	Param Intra 1 of 2

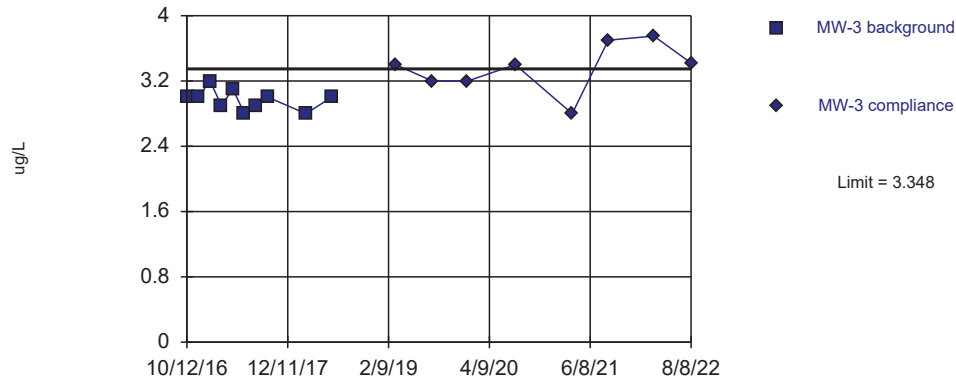
Within Limit

Prediction Limit Intrawell Parametric



Exceeds Limit

Prediction Limit Intrawell Parametric

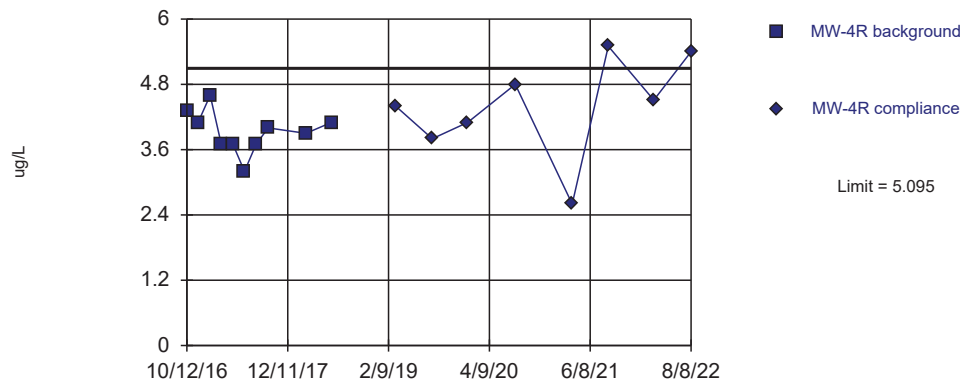


Background Data Summary: Mean=2.97, Std. Dev.=0.1252, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9291, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Arsenic [total] Analysis Run 3/13/2023 8:30 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

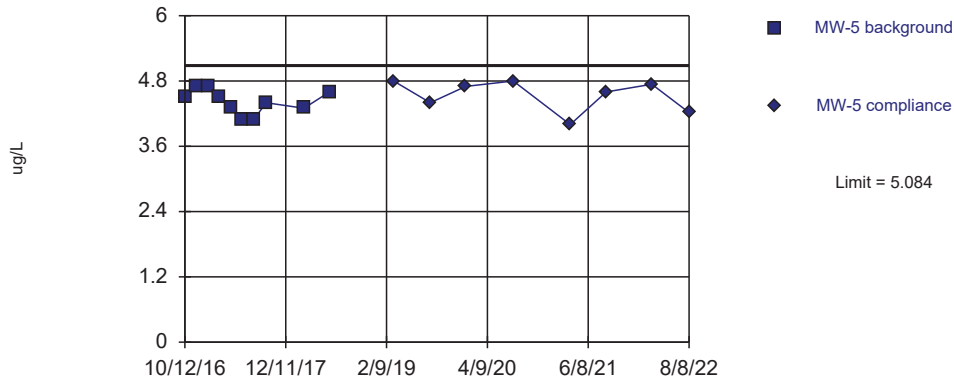
Exceeds Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

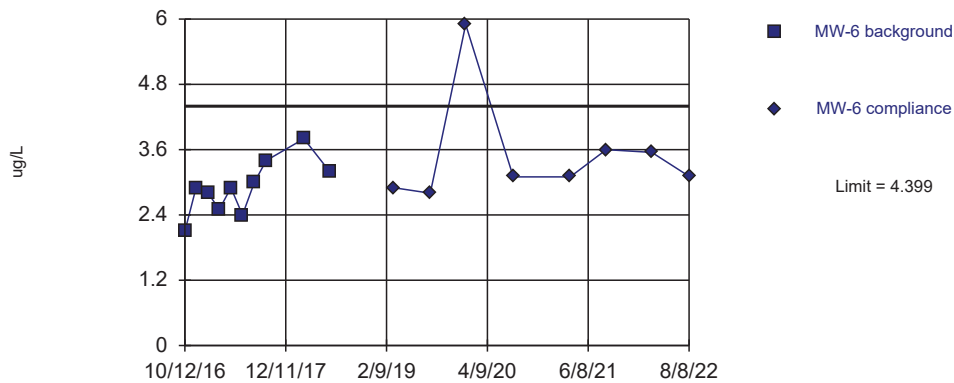


Background Data Summary: Mean=4.42, Std. Dev.=0.2201, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9234, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Arsenic [total] Analysis Run 3/13/2023 8:30 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

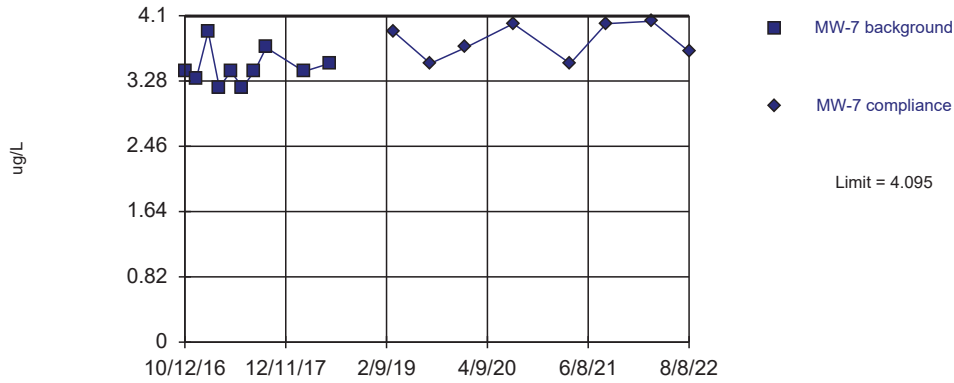


Background Data Summary: Mean=2.9, Std. Dev.=0.4967, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9854, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Arsenic [total] Analysis Run 3/13/2023 8:30 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

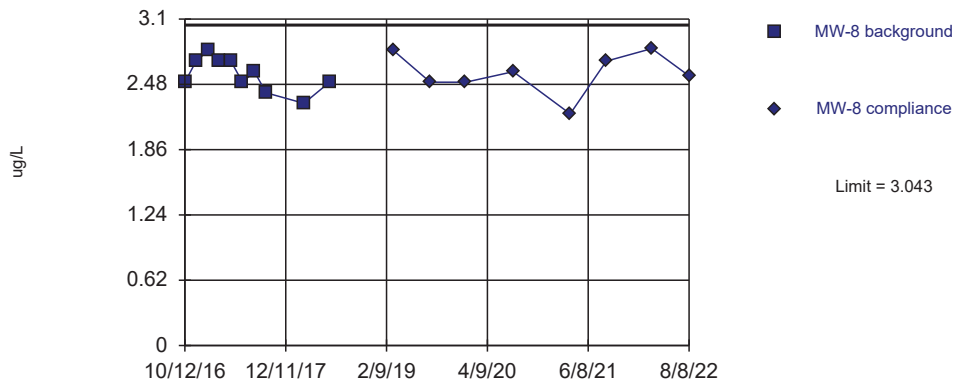


Background Data Summary: Mean=3.44, Std. Dev.=0.2171, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.875, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Arsenic [total] Analysis Run 3/13/2023 8:30 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

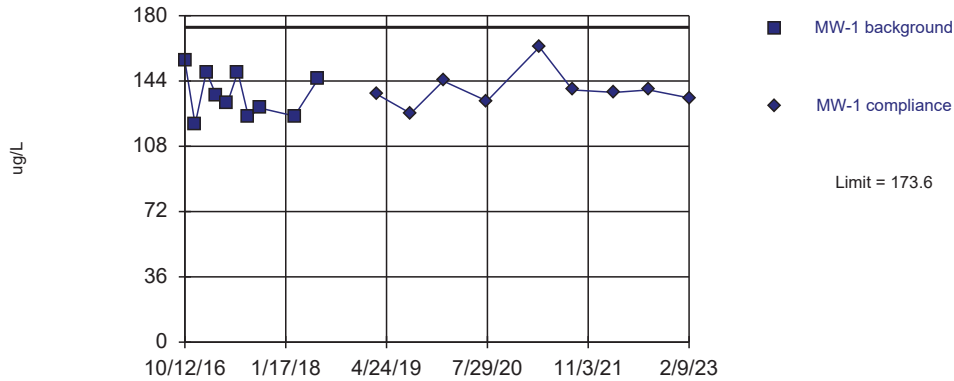


Background Data Summary: Mean=2.57, Std. Dev.=0.1567, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9449, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Arsenic [total] Analysis Run 3/13/2023 8:30 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

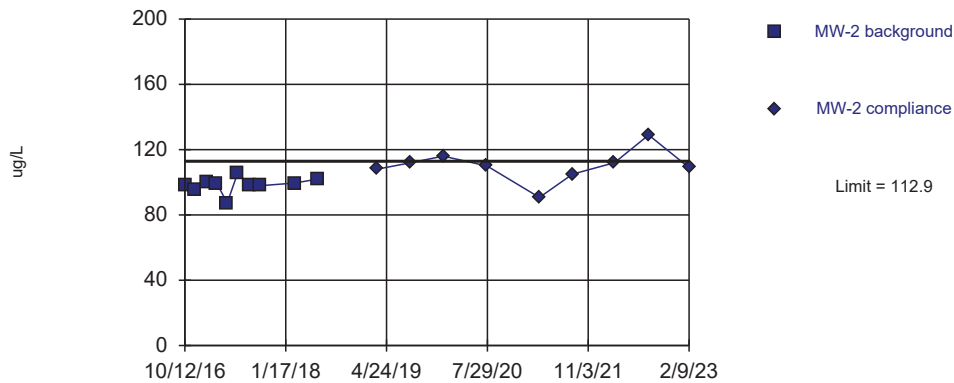


Background Data Summary: Mean=136.3, Std. Dev.=12.36, n=10. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9251, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Barium [total] Analysis Run 3/13/2023 8:30 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

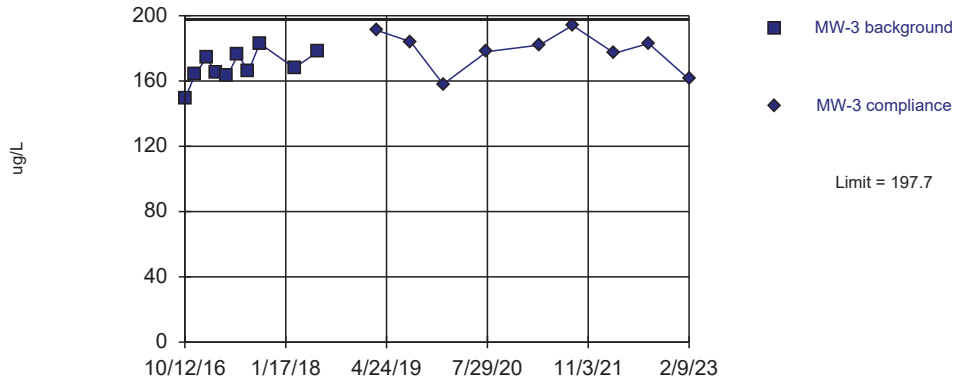
Within Limit

Prediction Limit Intrawell Parametric



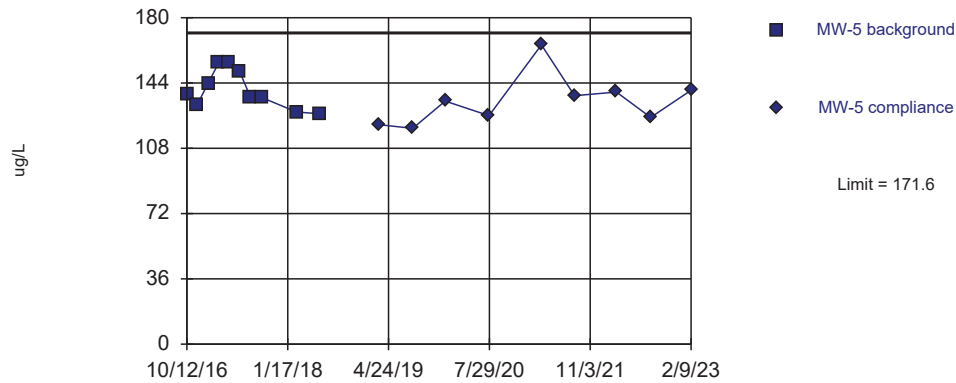
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

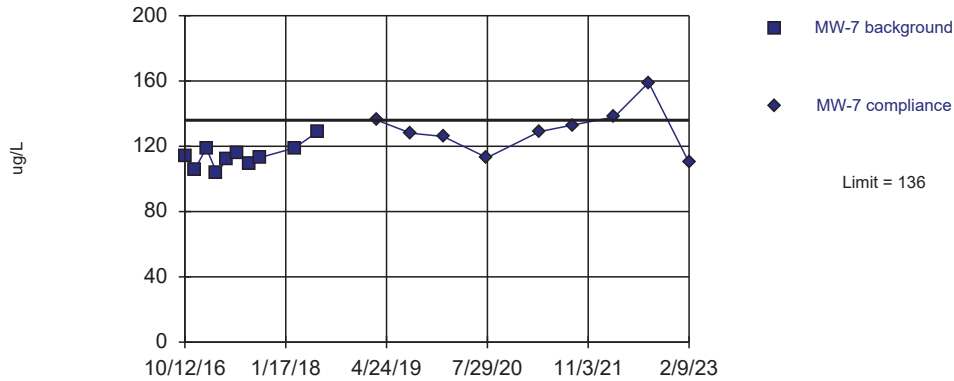
Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



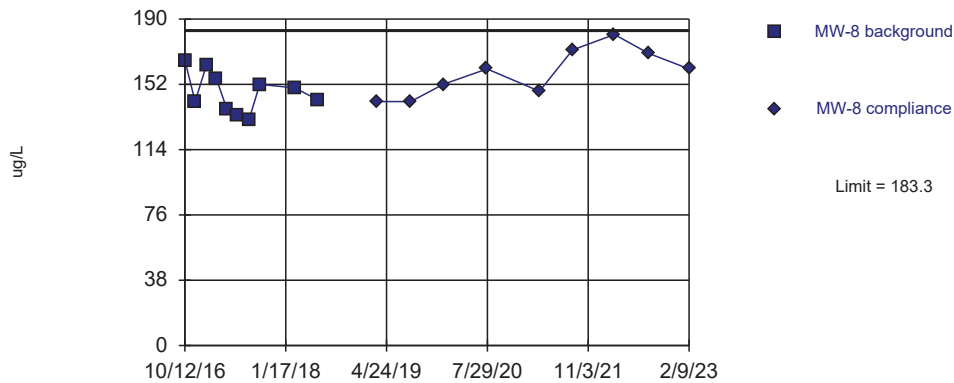
Background Data Summary: Mean=114.1, Std. Dev.=7.249, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.959, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Barium [total] Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

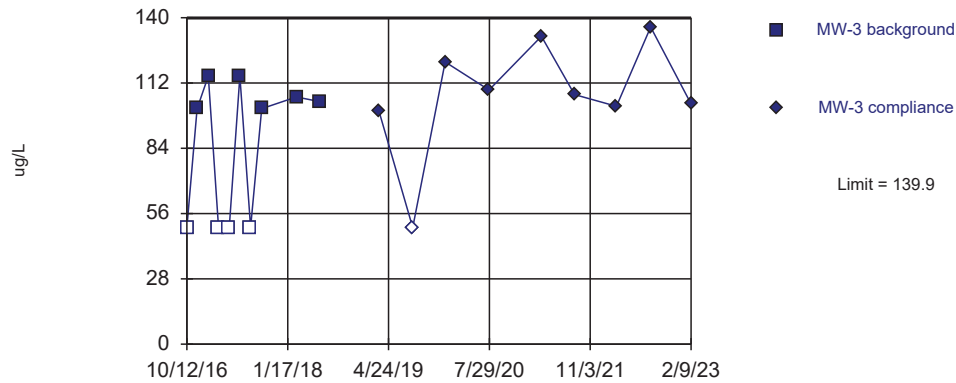
Intrawell Parametric



Within Limit

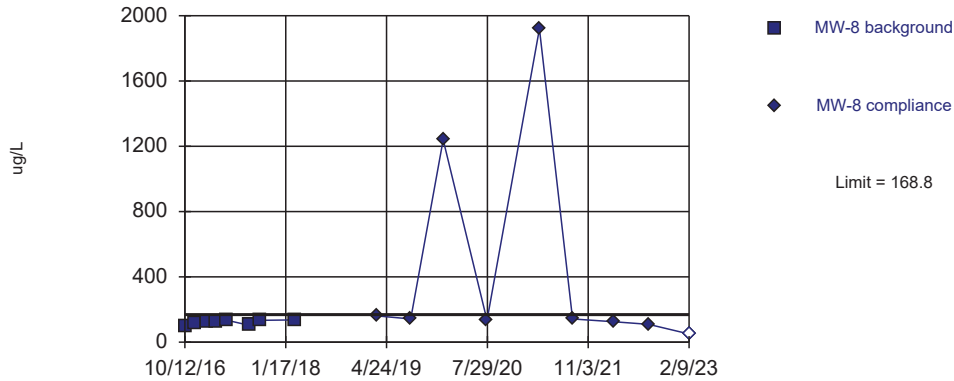
Prediction Limit

Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

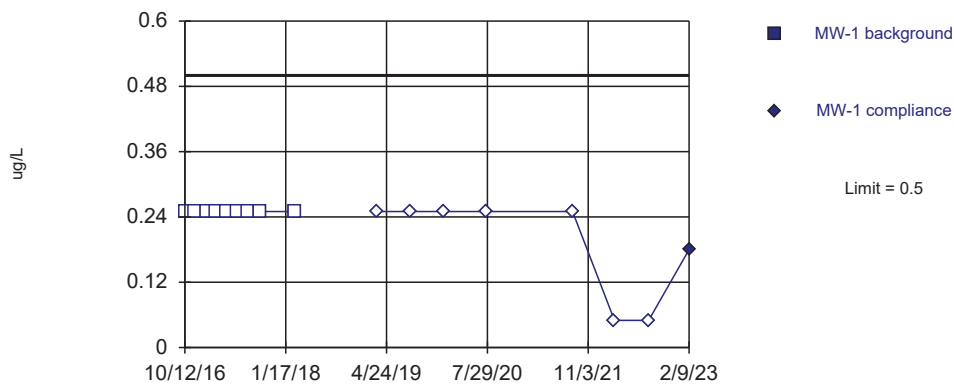


Background Data Summary: Mean=122.6, Std. Dev.=13.49, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8556, critical = 0.749. Kappa = 3.423 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Boron Analysis Run 3/13/2023 8:46 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Non-parametric



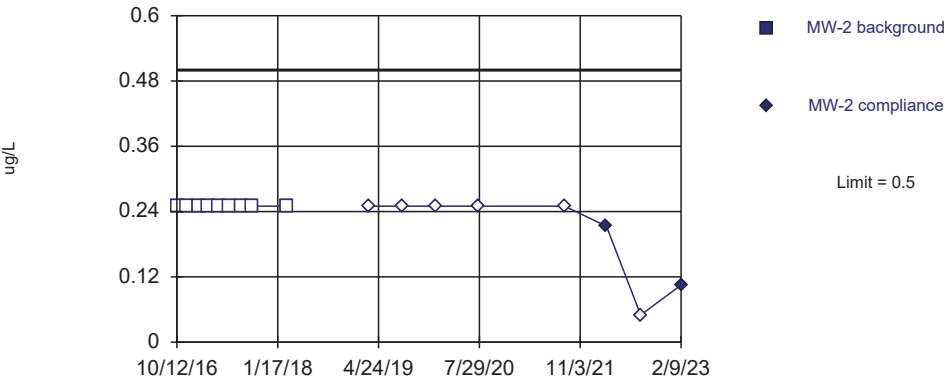
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 9) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.03586. Individual comparison alpha = 0.01809 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Cadmium [total] Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Non-parametric



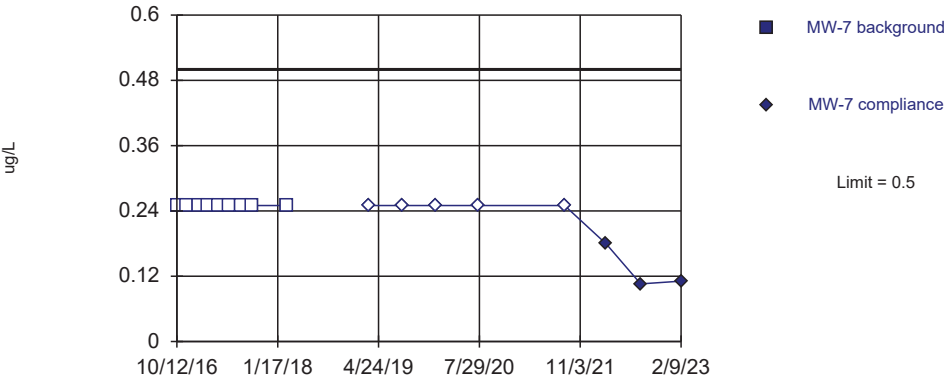
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 9) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.03586. Individual comparison alpha = 0.01809 (1 of 2). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Cadmium [total] Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Non-parametric

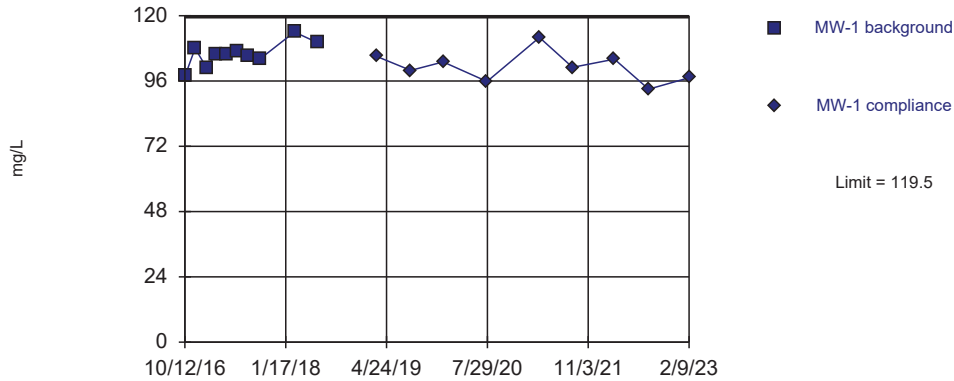


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 9) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.03586. Individual comparison alpha = 0.01809 (1 of 2). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Cadmium [total] Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

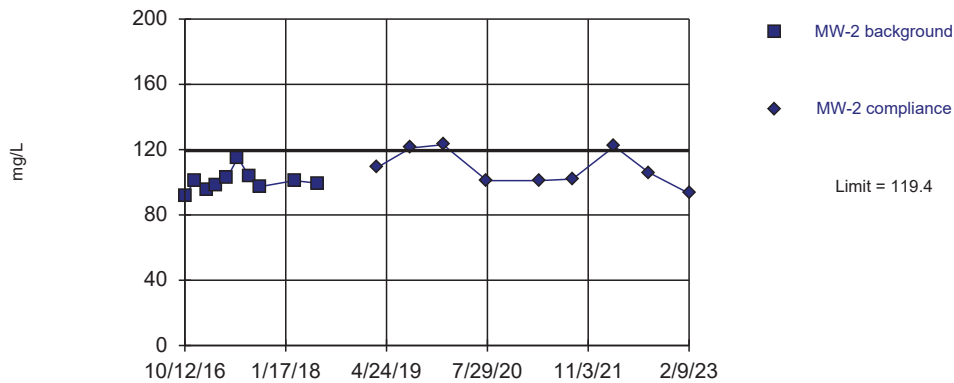


Background Data Summary: Mean=105.9, Std. Dev.=4.518, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9799, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

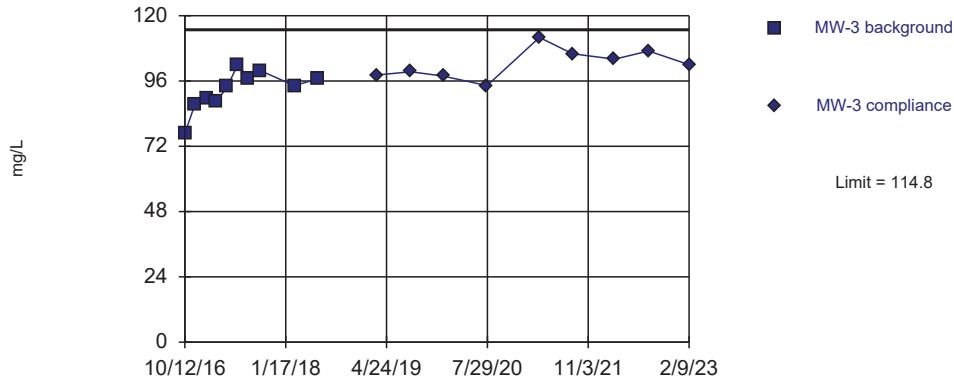


Background Data Summary: Mean=100.6, Std. Dev.=6.214, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9079, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

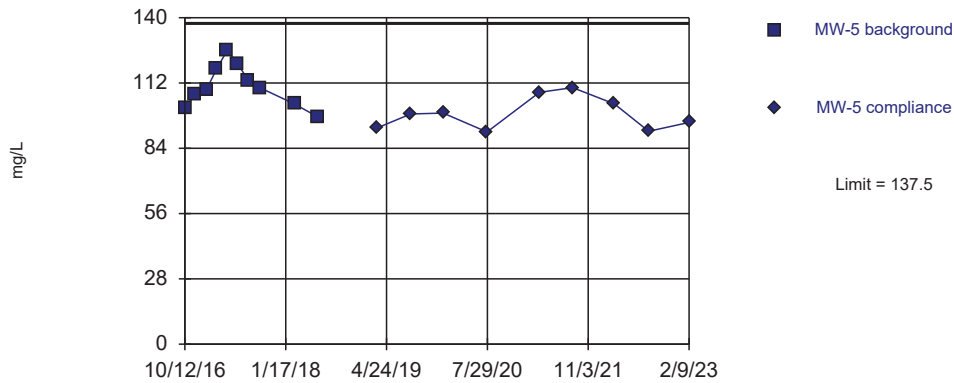
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

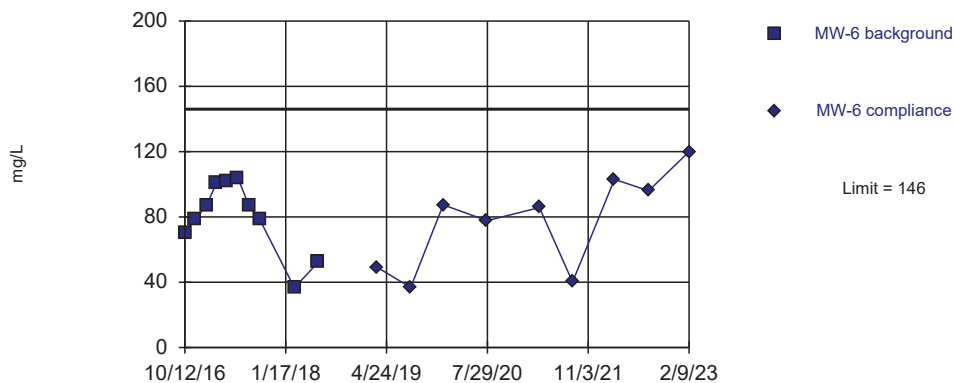


Background Data Summary: Mean=110.4, Std. Dev.=8.98, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9787, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

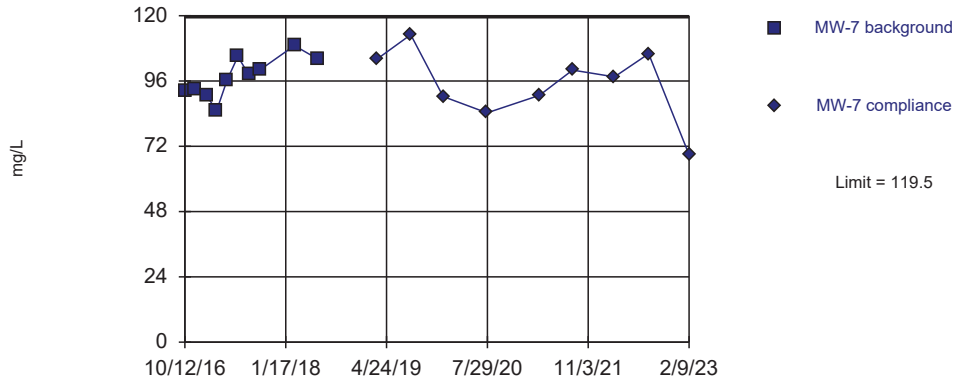


Background Data Summary: Mean=79.7, Std. Dev.=21.97, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9128, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

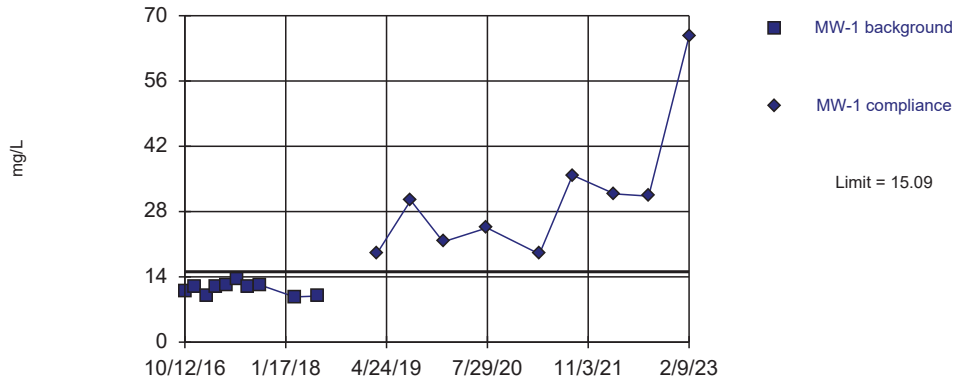
Within Limit

Prediction Limit Intrawell Parametric



Exceeds Limit

Prediction Limit Intrawell Parametric

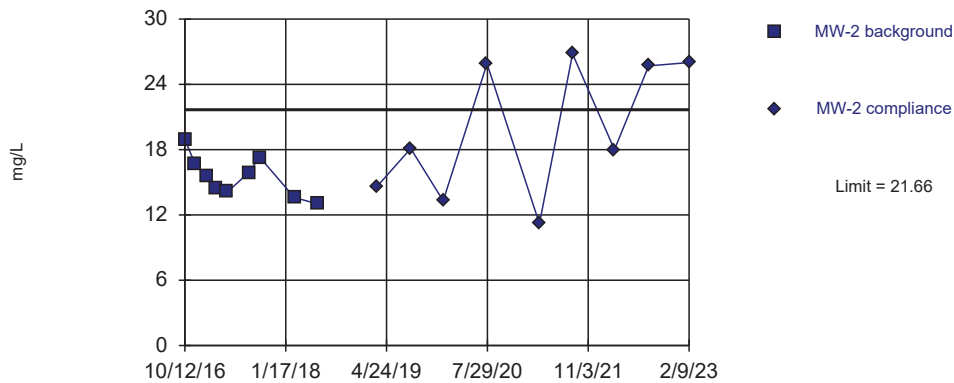


Background Data Summary: Mean=11.38, Std. Dev.=1.23, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9094, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

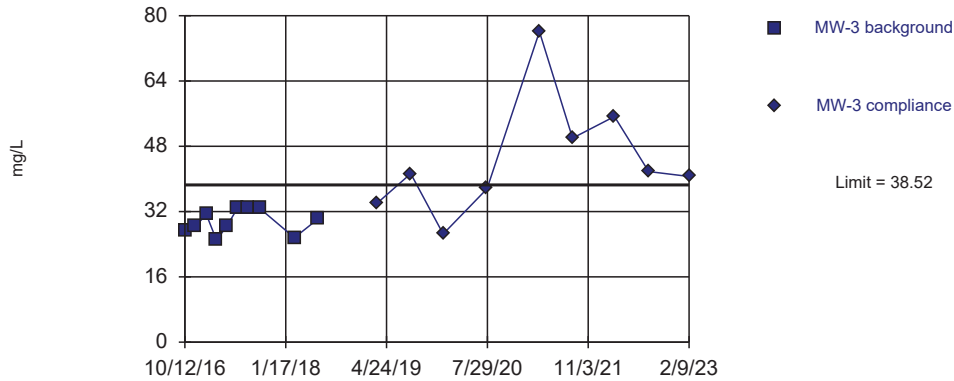
Exceeds Limit

Prediction Limit Intrawell Parametric



Exceeds Limit

Prediction Limit Intrawell Parametric

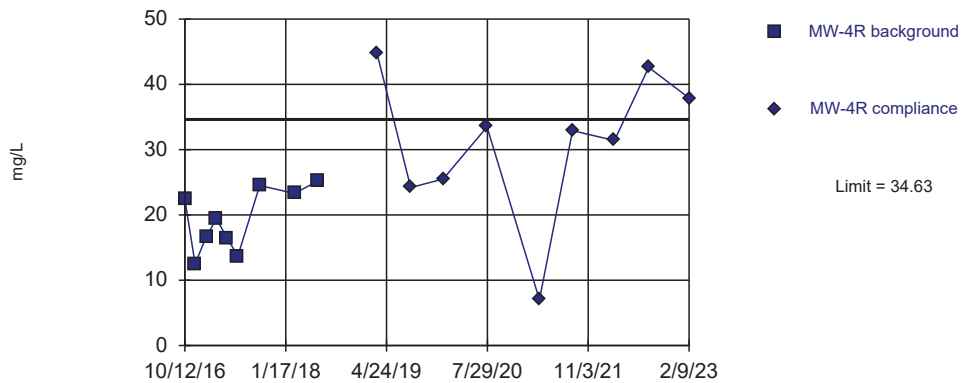


Background Data Summary: Mean=29.52, Std. Dev.=2.984, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9142, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit Intrawell Parametric

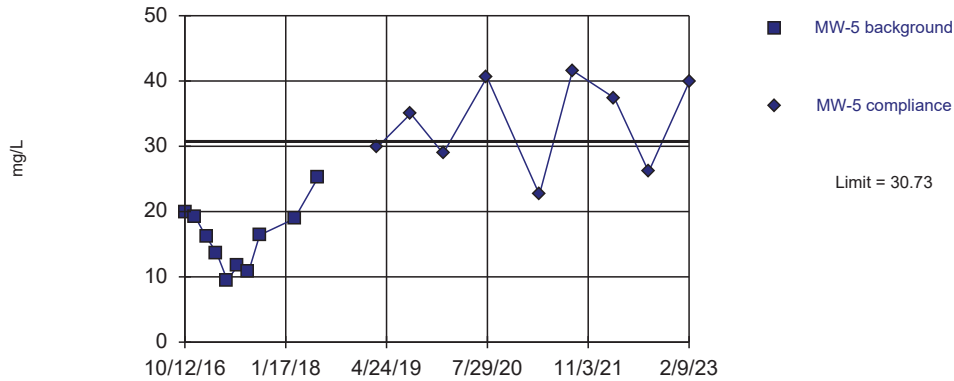


Background Data Summary: Mean=19.34, Std. Dev.=4.746, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9211, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 3/13/2023 8:43 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit Intrawell Parametric

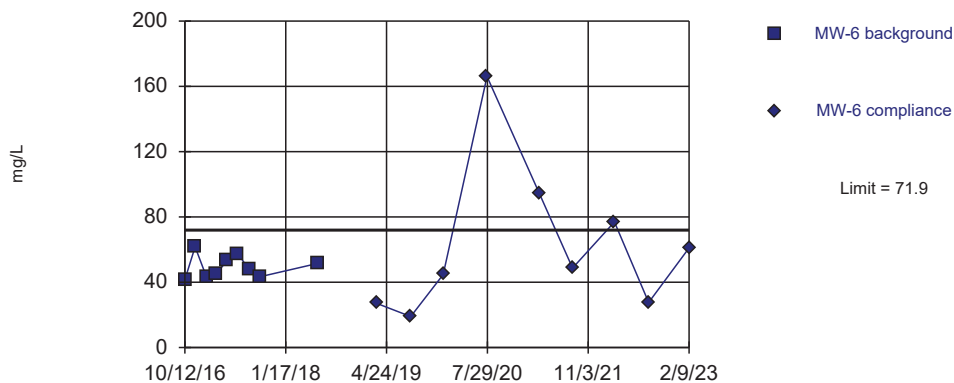


Background Data Summary: Mean=16.13, Std. Dev.=4.84, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9601, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



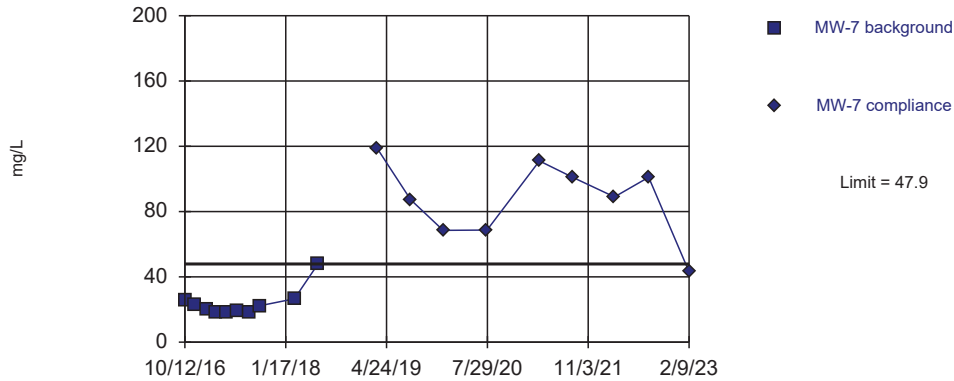
Background Data Summary: Mean=49.54, Std. Dev.=6.944, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9293, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 3/13/2023 8:44 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

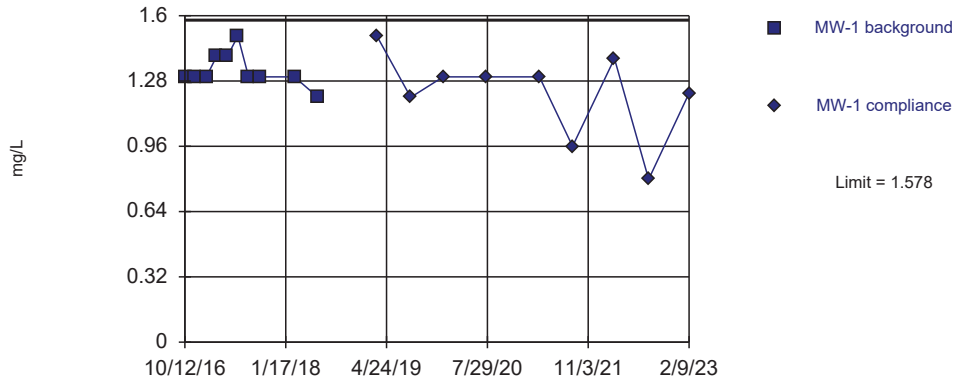
Intrawell Non-parametric



Within Limit

Prediction Limit

Intrawell Parametric



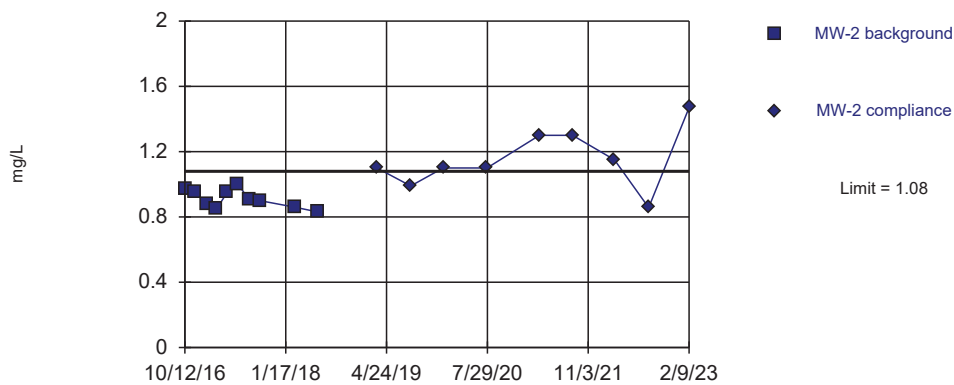
Background Data Summary: Mean=1.33, Std. Dev.=0.08233, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8409, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric

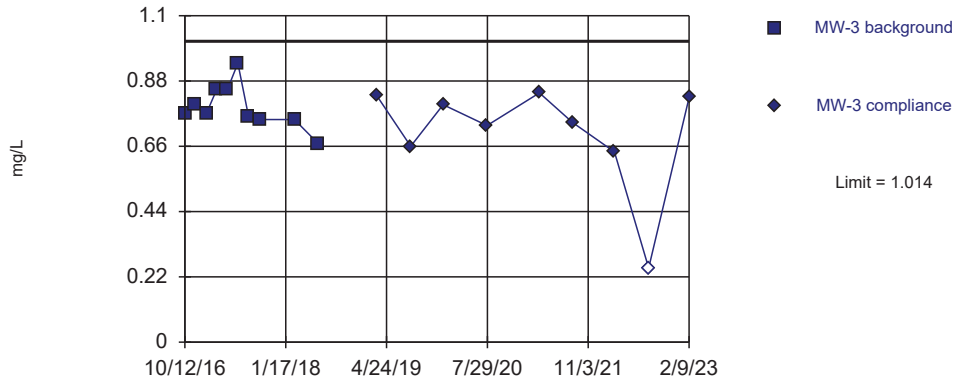


Background Data Summary: Mean=0.91, Std. Dev.=0.05617, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.962, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

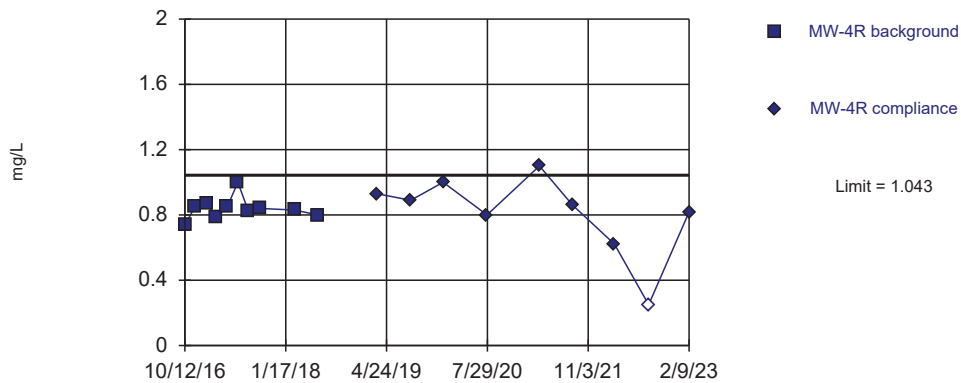


Background Data Summary: Mean=0.791, Std. Dev.=0.07385, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9344, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

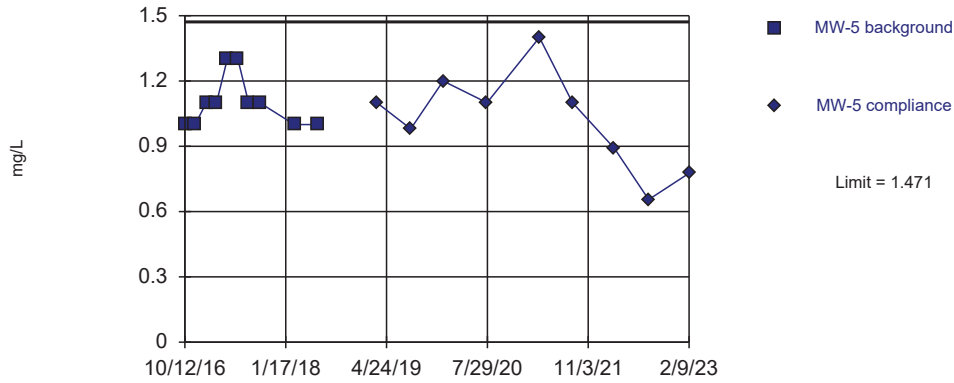


Background Data Summary: Mean=0.839, Std. Dev.=0.06773, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8772, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

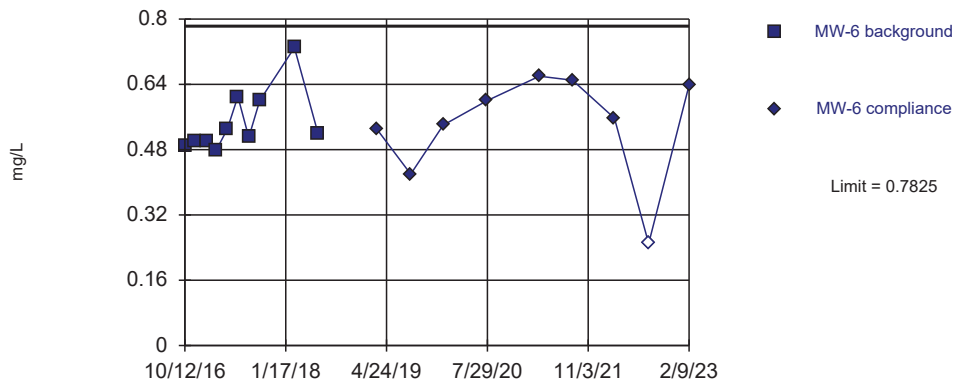


Background Data Summary (based on cube root transformation): Mean=1.031, Std. Dev.=0.03519, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7826, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

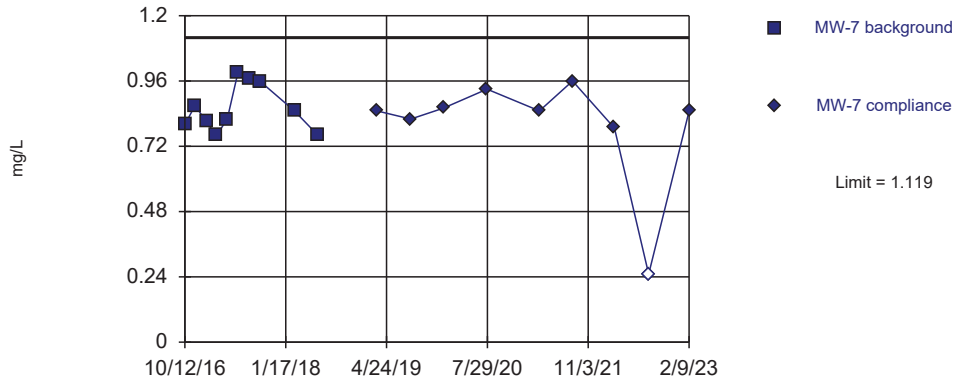


Background Data Summary: Mean=0.547, Std. Dev.=0.07804, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7927, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

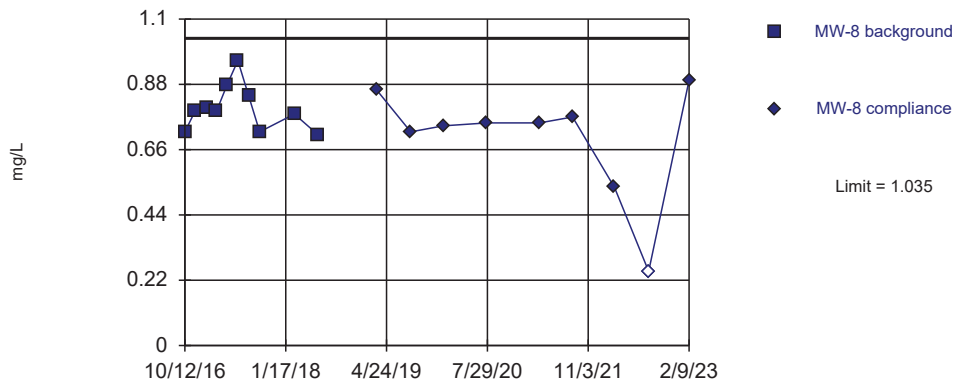


Background Data Summary: Mean=0.859, Std. Dev.=0.08621, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8894, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

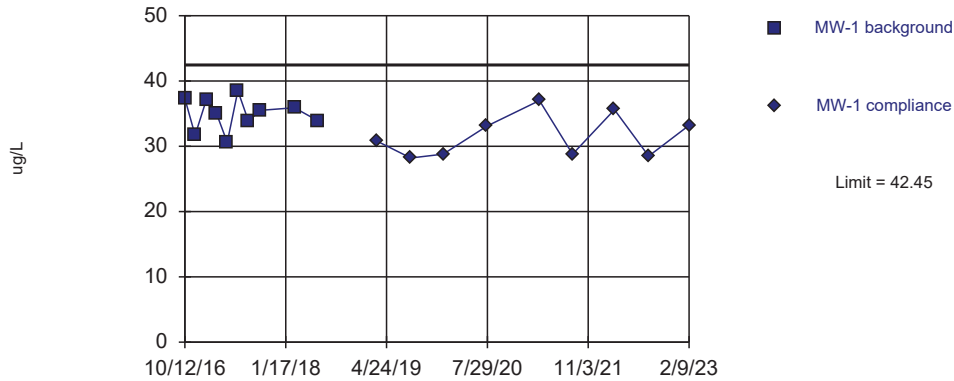
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

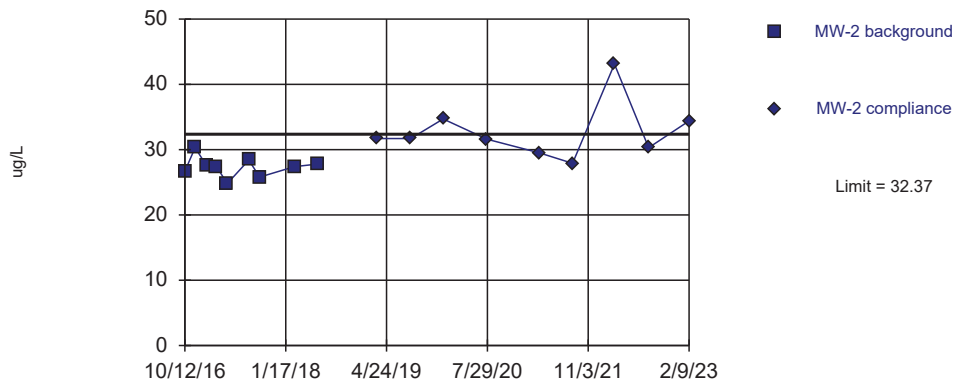


Background Data Summary: Mean=34.93, Std. Dev.=2.491, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9666, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit Intrawell Parametric



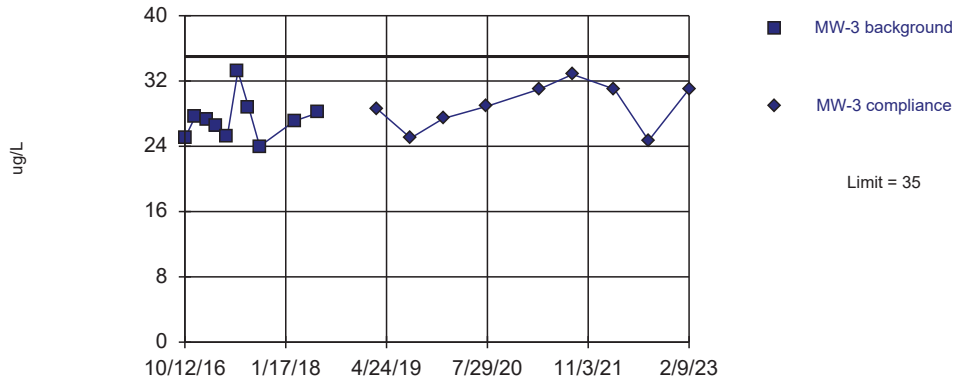
Background Data Summary: Mean=27.36, Std. Dev.=1.557, n=9. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.961, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

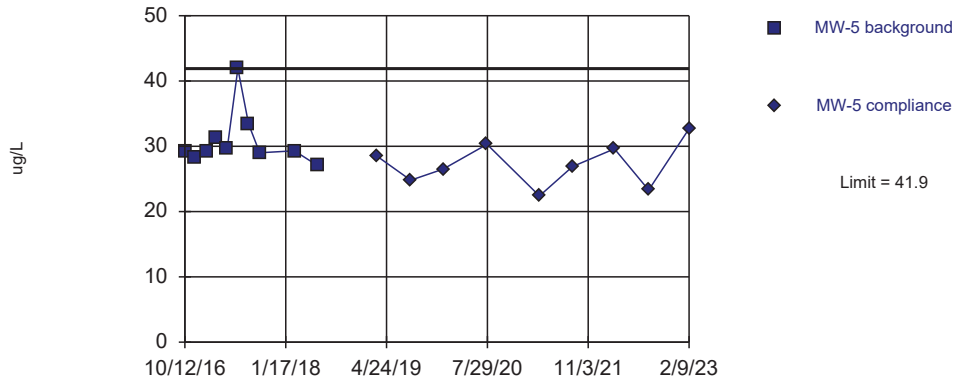
Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Non-parametric



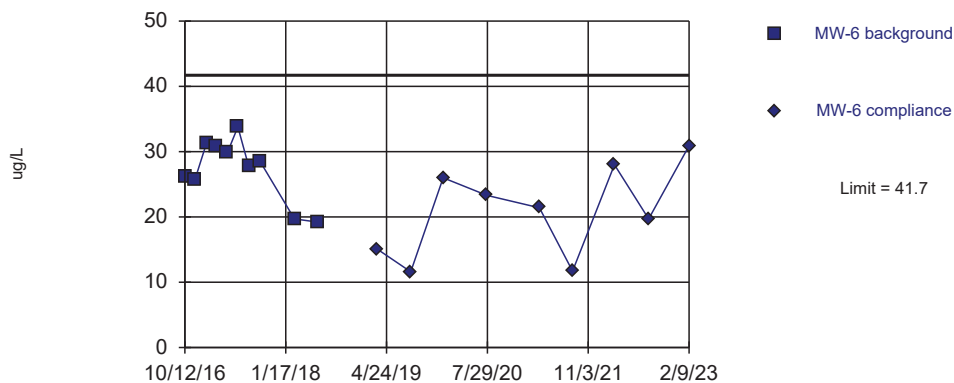
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 10 background values. Well-constituent pair annual alpha = 0.0293. Individual comparison alpha = 0.01476 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Lithium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric

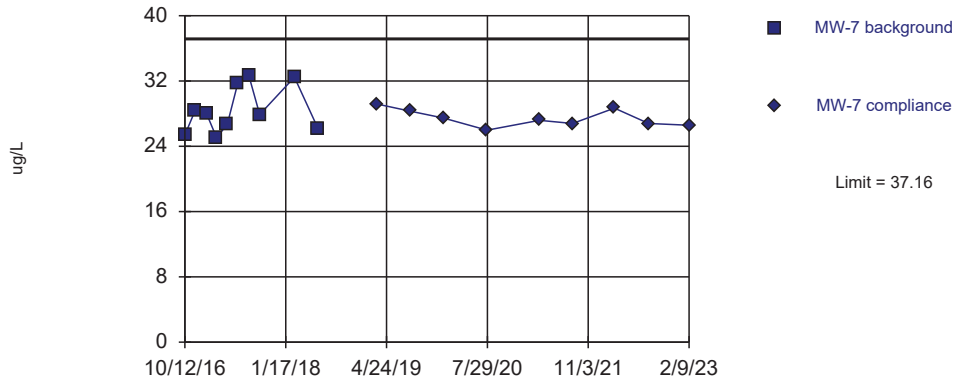


Background Data Summary: Mean=27.29, Std. Dev.=4.777, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9183, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

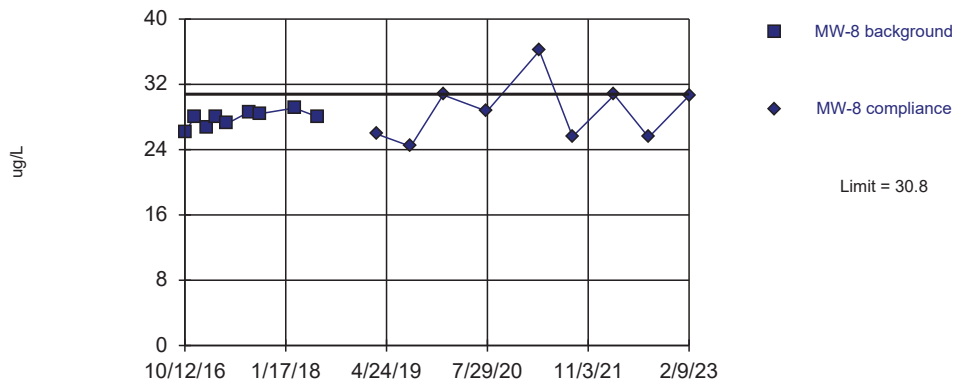


Background Data Summary: Mean=28.46, Std. Dev.=2.882, n=10. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.881, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 3/13/2023 8:31 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

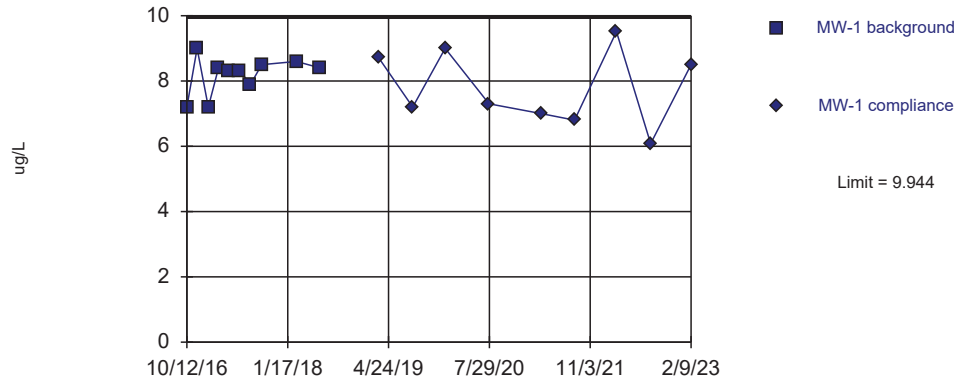
Within Limit

Prediction Limit Intrawell Parametric



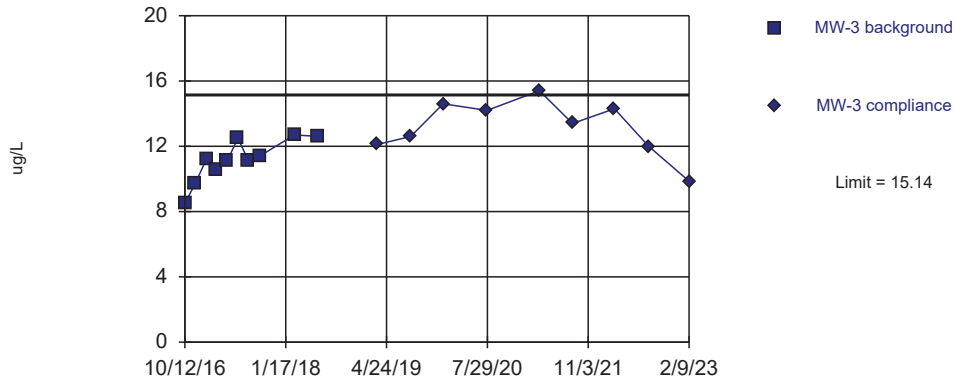
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

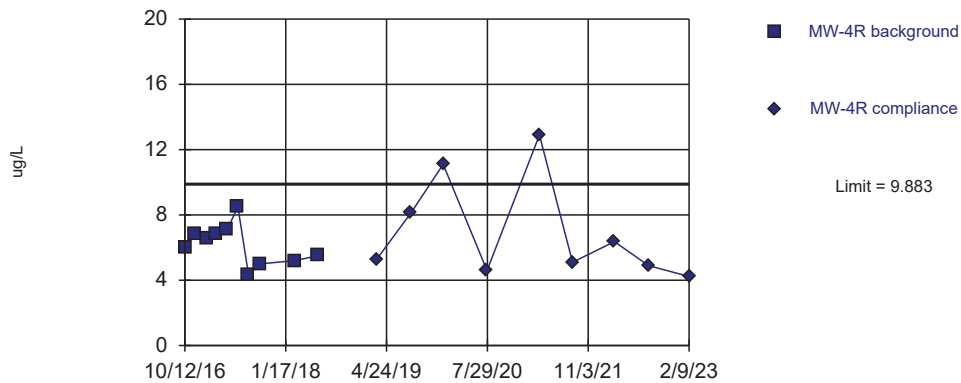


Background Data Summary: Mean=11.14, Std. Dev.=1.326, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9184, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Molybdenum Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



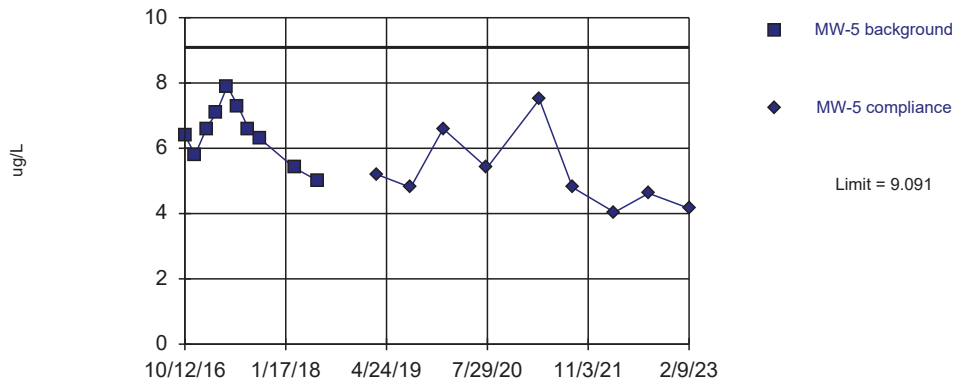
Background Data Summary: Mean=6.18, Std. Dev.=1.227, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9705, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Molybdenum Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.44, Std. Dev.=0.8784, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.983, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

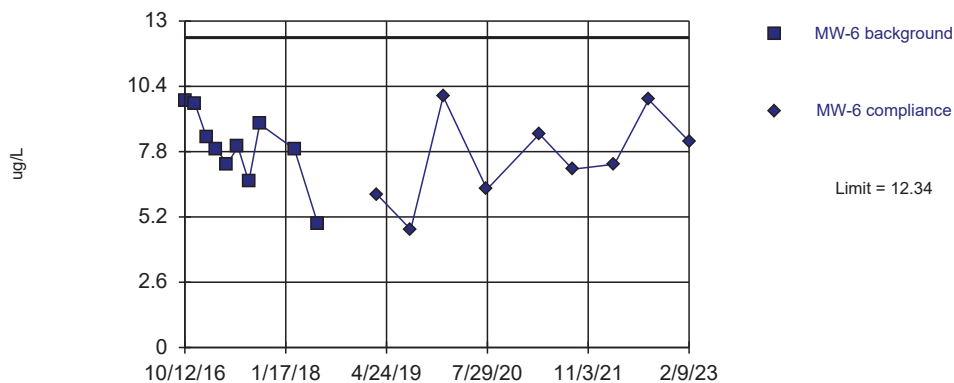
Constituent: Molybdenum Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



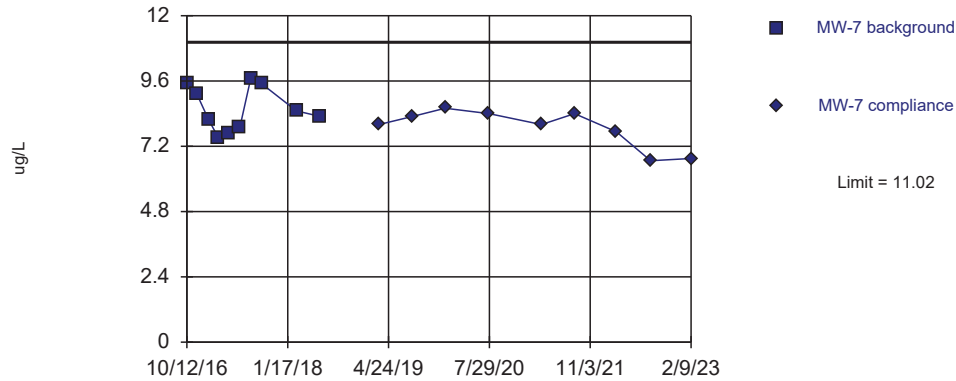
Background Data Summary: Mean=7.94, Std. Dev.=1.458, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9391, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Molybdenum Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

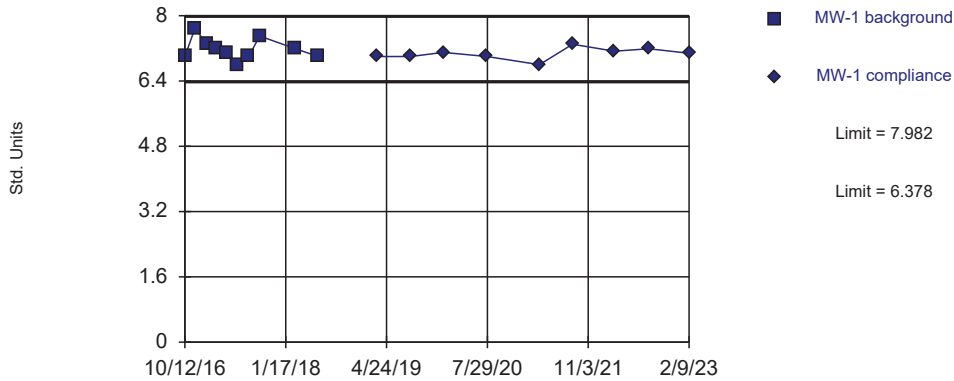
Prediction Limit Intrawell Parametric



Within Limits

Prediction Limit

Intrawell Parametric



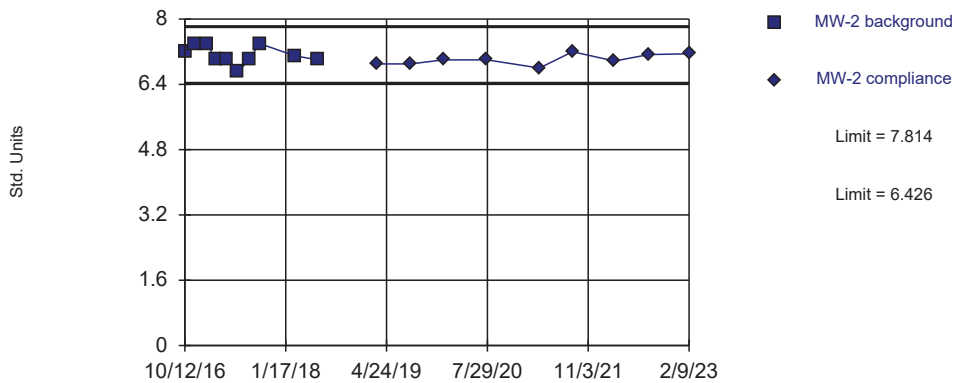
Background Data Summary: Mean=7.18, Std. Dev.=0.2658, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9414, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: pH Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit

Intrawell Parametric



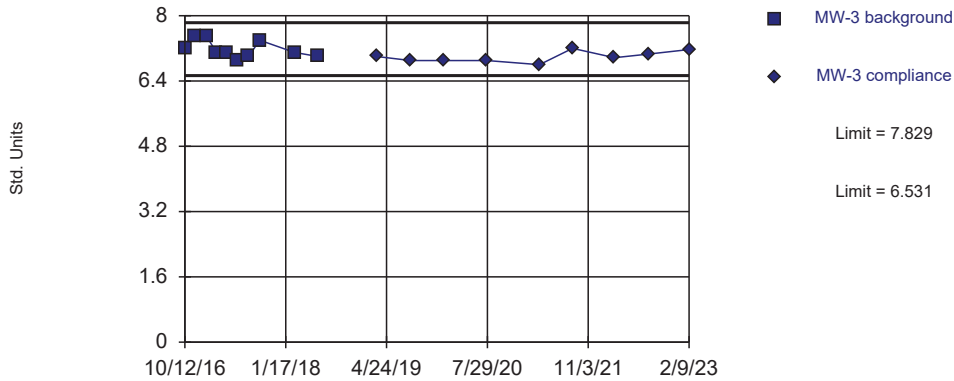
Background Data Summary: Mean=7.12, Std. Dev.=0.23, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8807, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: pH Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit

Intrawell Parametric



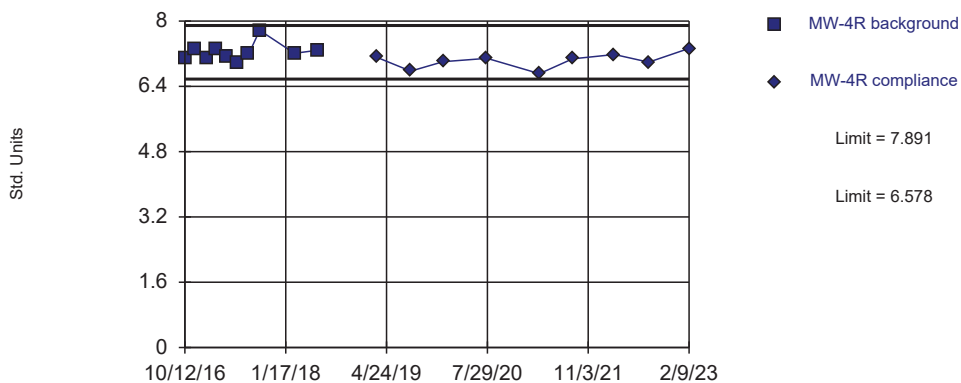
Background Data Summary: Mean=7.18, Std. Dev.=0.215, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.885, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: pH Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit

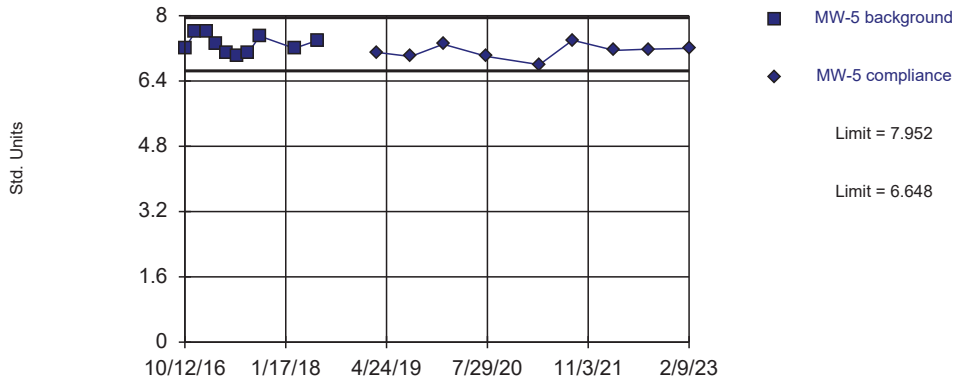
Intrawell Parametric



Within Limits

Prediction Limit

Intrawell Parametric



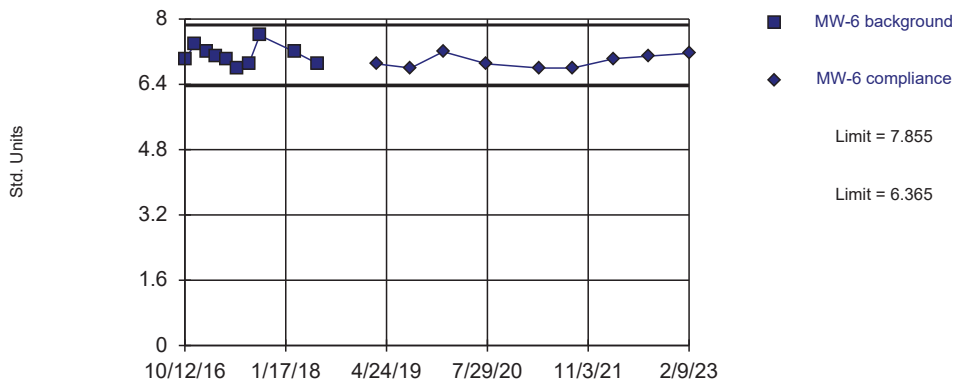
Background Data Summary: Mean=7.3, Std. Dev.=0.216, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9241, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: pH Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

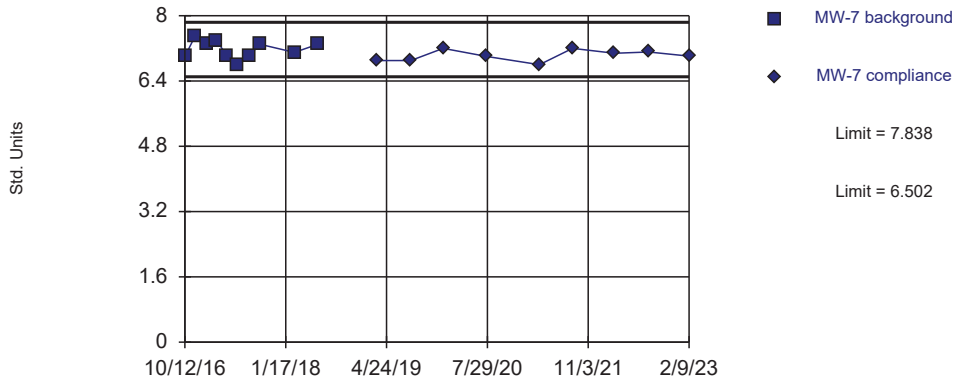
Prediction Limit

Intrawell Parametric



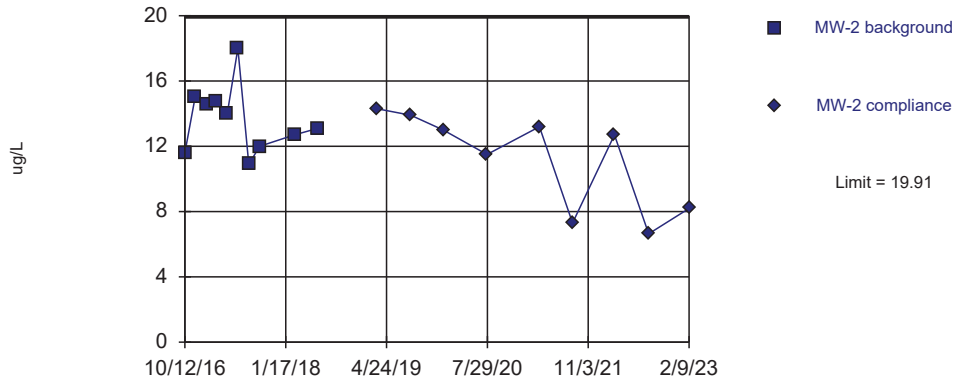
Within Limits

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

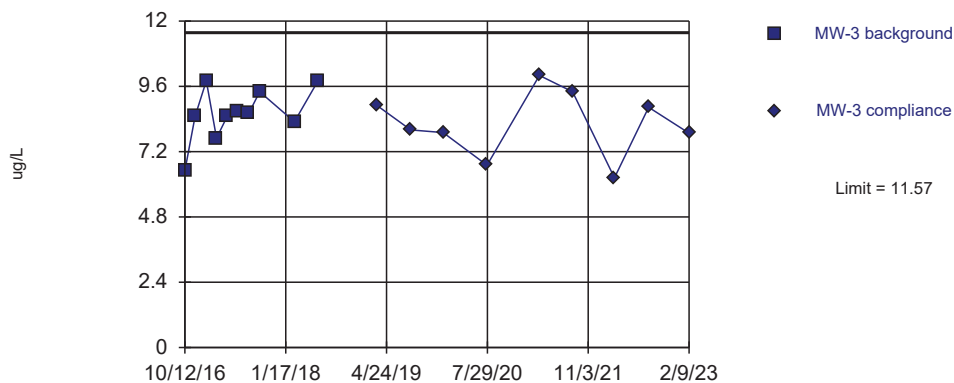


Background Data Summary: Mean=13.66, Std. Dev.=2.07, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9461, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

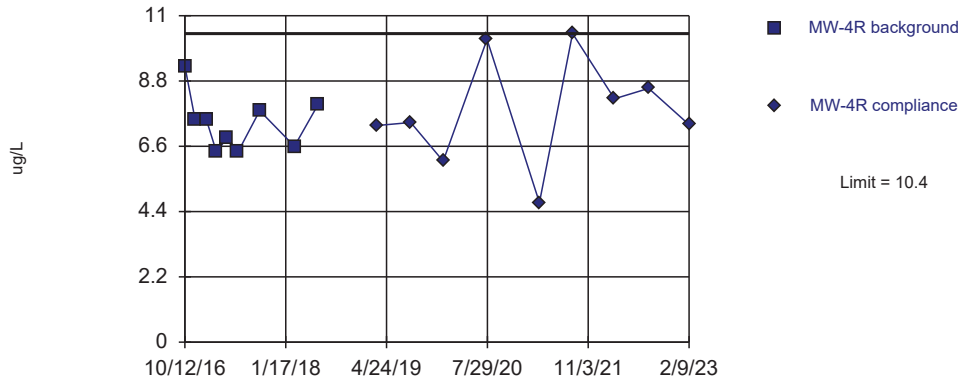


Background Data Summary: Mean=8.58, Std. Dev.=0.992, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9165, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

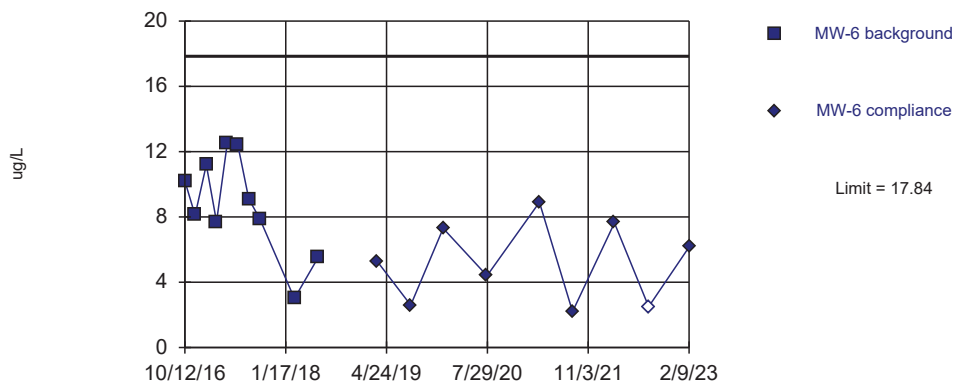


Background Data Summary: Mean=7.378, Std. Dev.=0.9378, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.903, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 3/13/2023 8:43 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

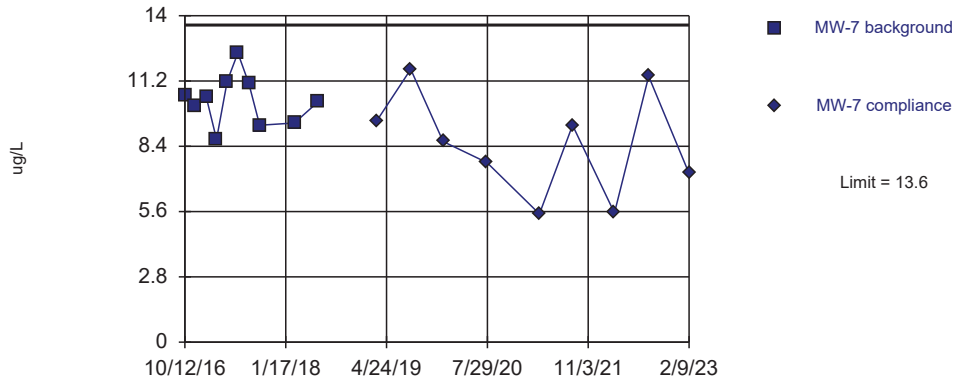


Background Data Summary: Mean=8.76, Std. Dev.=3.009, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.949, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

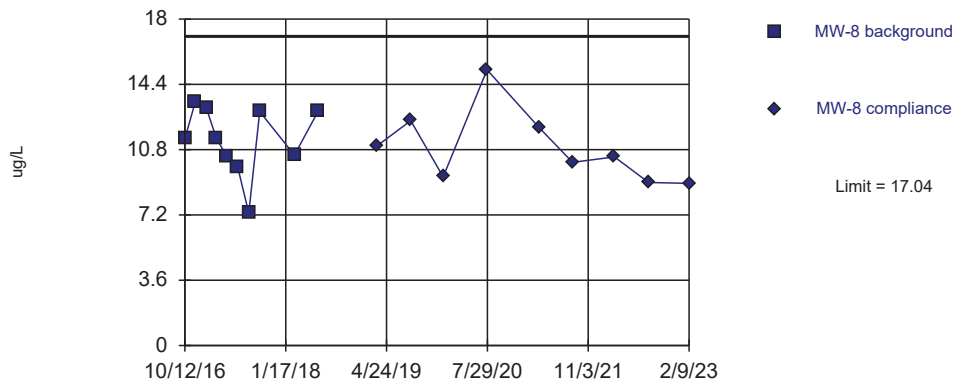


Background Data Summary: Mean=10.36, Std. Dev.=1.073, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9769, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

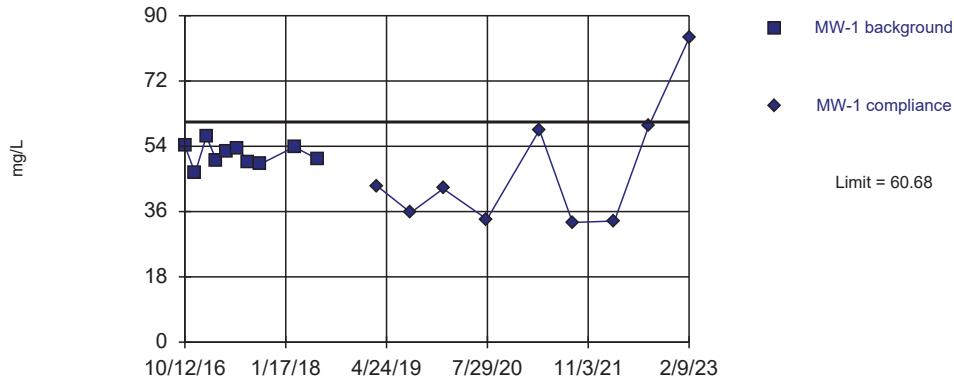


Background Data Summary: Mean=11.31, Std. Dev.=1.9, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9028, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

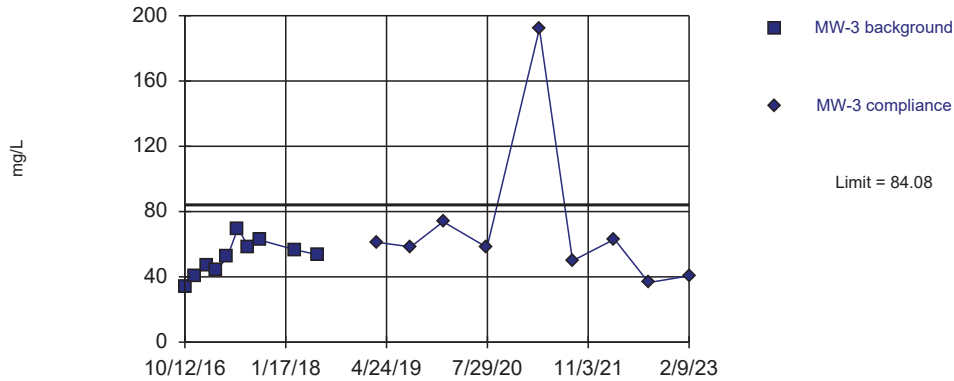
Exceeds Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

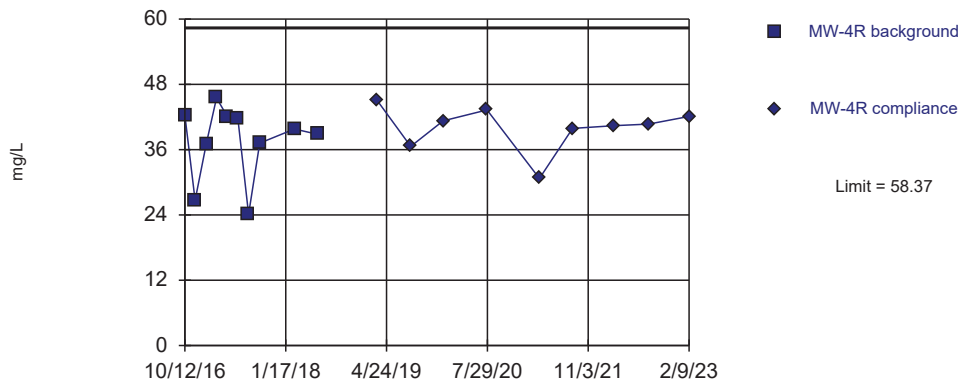


Background Data Summary: Mean=51.88, Std. Dev.=10.67, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9935, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

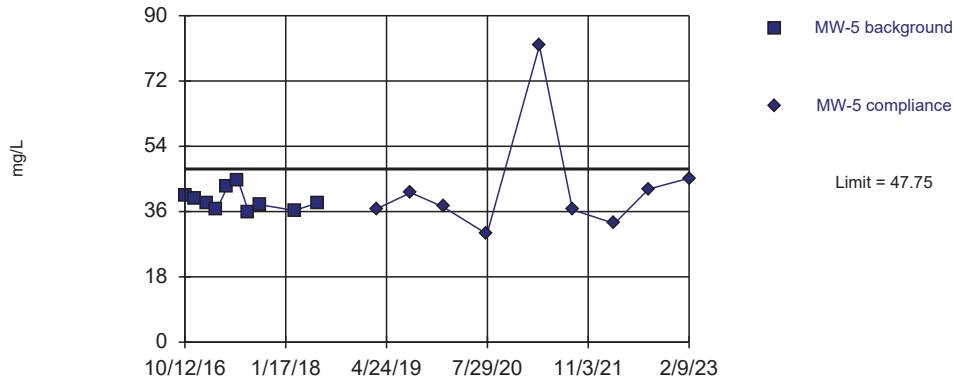
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

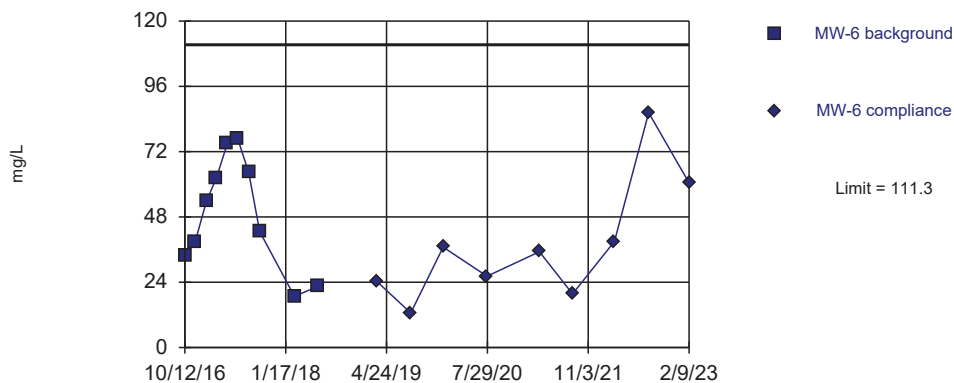


Background Data Summary: Mean=39.12, Std. Dev.=2.859, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9135, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

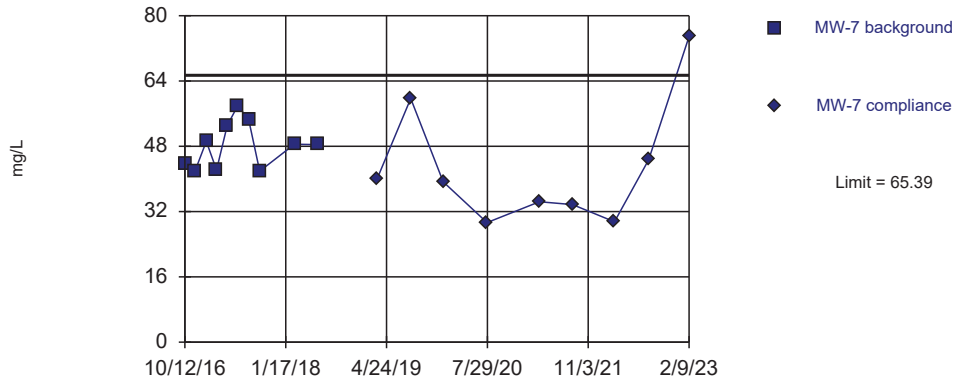
Within Limit

Prediction Limit Intrawell Parametric



Exceeds Limit

Prediction Limit Intrawell Parametric

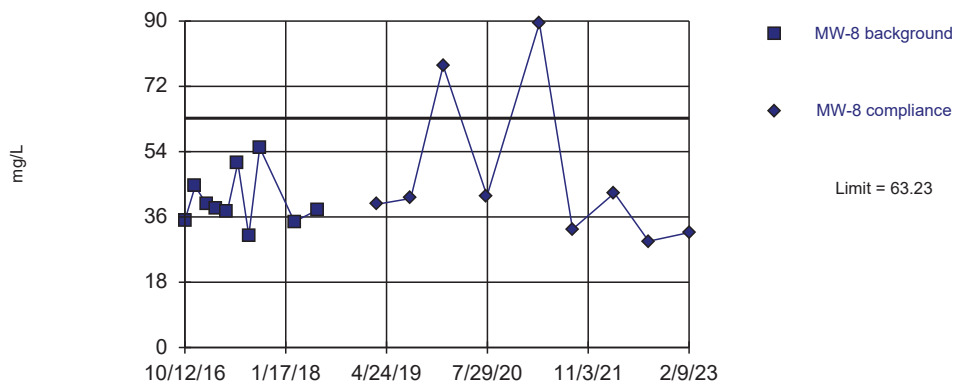


Background Data Summary: Mean=48.14, Std. Dev.=5.715, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9073, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

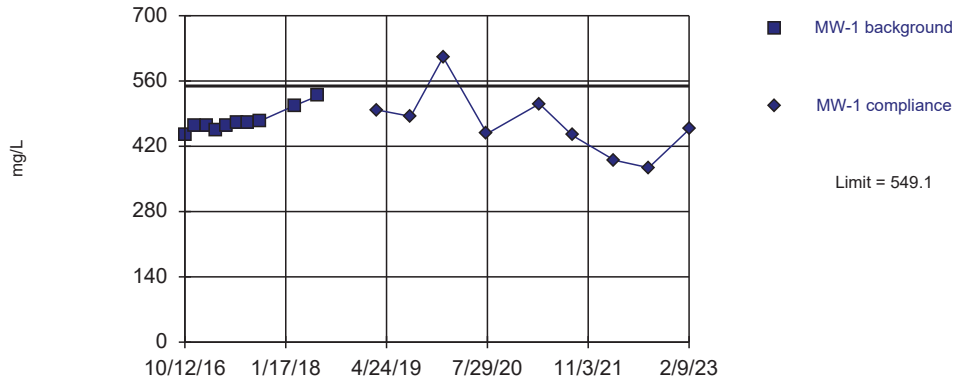


Background Data Summary: Mean=40.48, Std. Dev.=7.538, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9039, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 3/13/2023 8:32 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

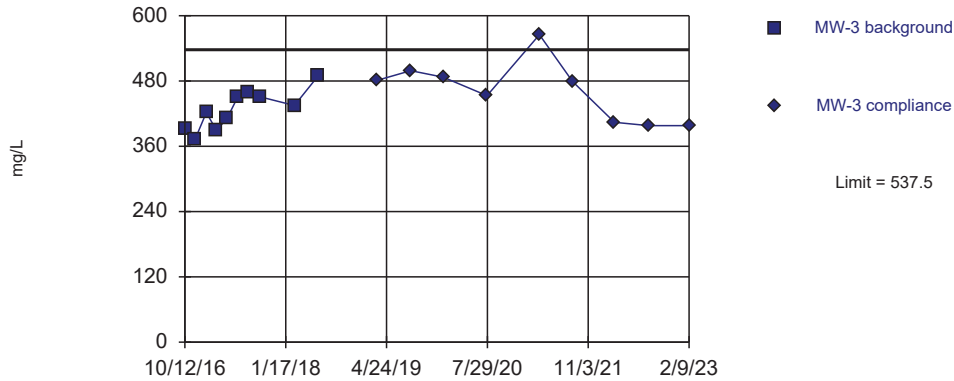
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric



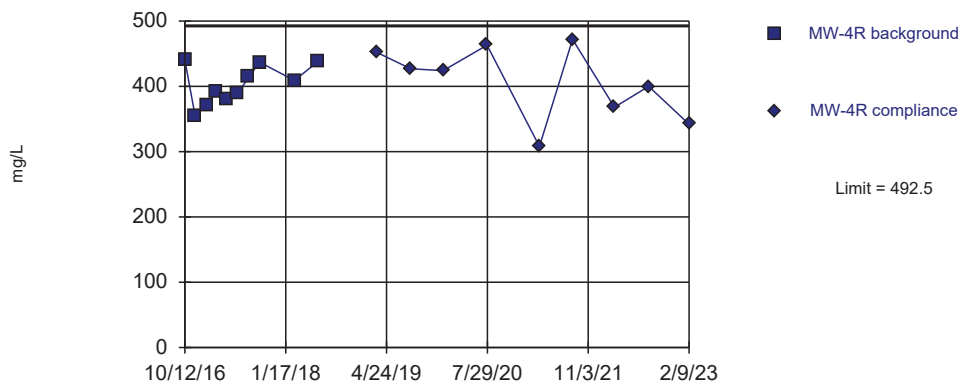
Background Data Summary: Mean=427.4, Std. Dev.=36.49, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.971, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Dissolved Solids Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



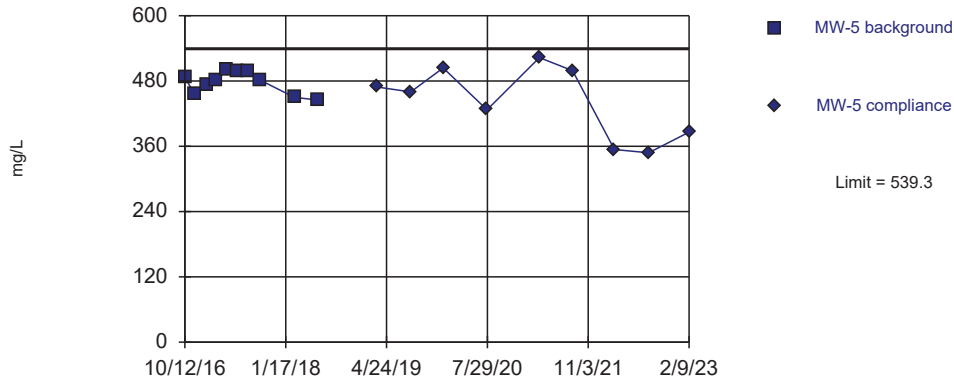
Background Data Summary: Mean=402.6, Std. Dev.=29.8, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.931, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Dissolved Solids Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



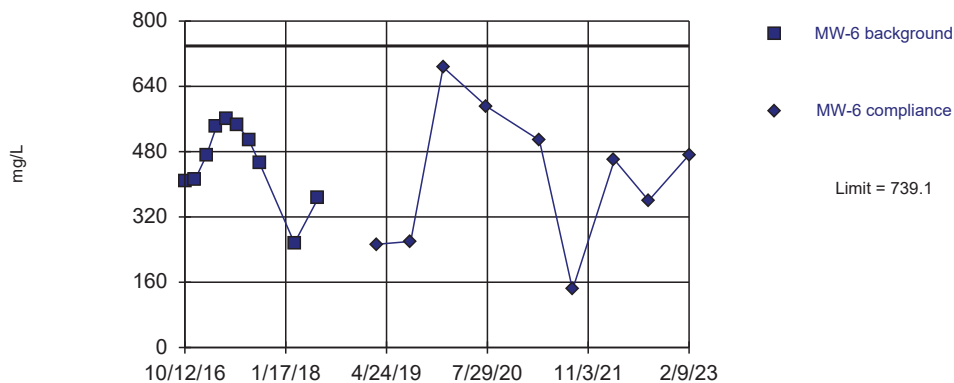
Background Data Summary: Mean=477, Std. Dev.=20.65, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8913, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Dissolved Solids Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



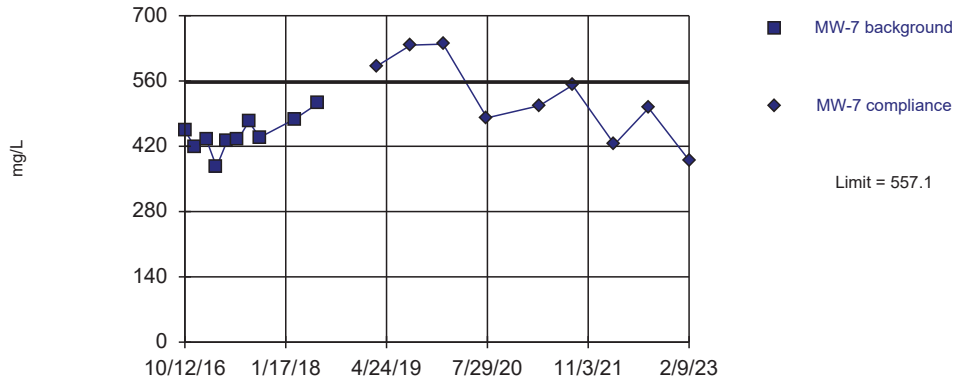
Background Data Summary: Mean=451.7, Std. Dev.=95.24, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9297, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Dissolved Solids Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

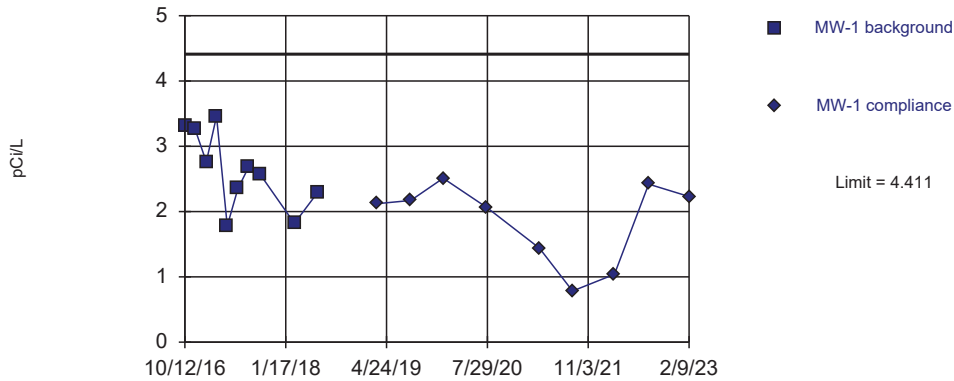
Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.63, Std. Dev.=0.5903, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.937, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

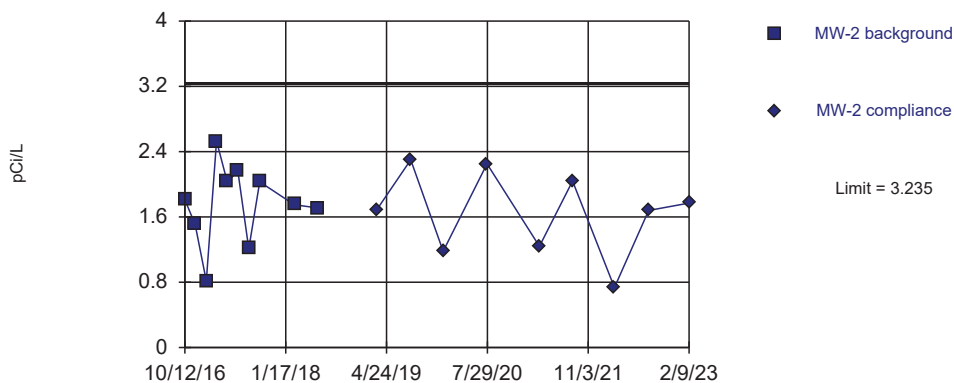
Constituent: Total Radium Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=1.755, Std. Dev.=0.4903, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9723, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

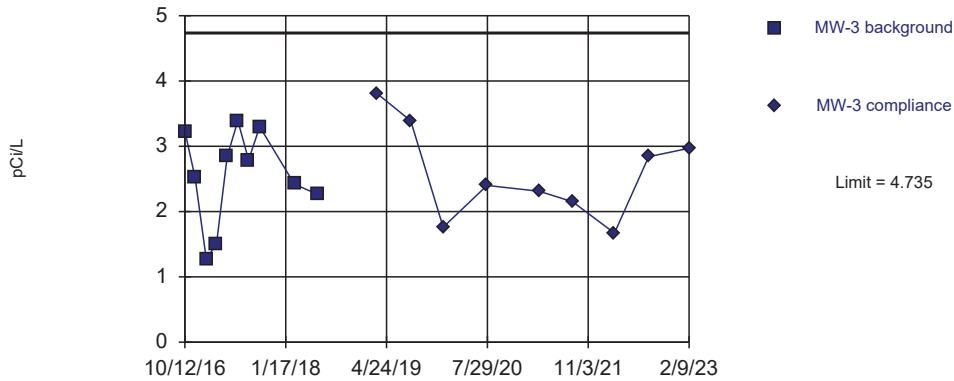
Constituent: Total Radium Analysis Run 3/13/2023 8:32 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.554, Std. Dev.=0.7226, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9177, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

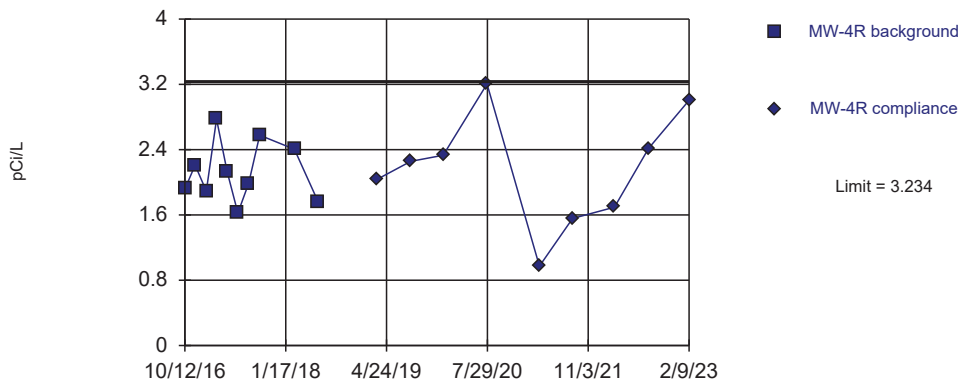
Constituent: Total Radium Analysis Run 3/13/2023 8:33 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



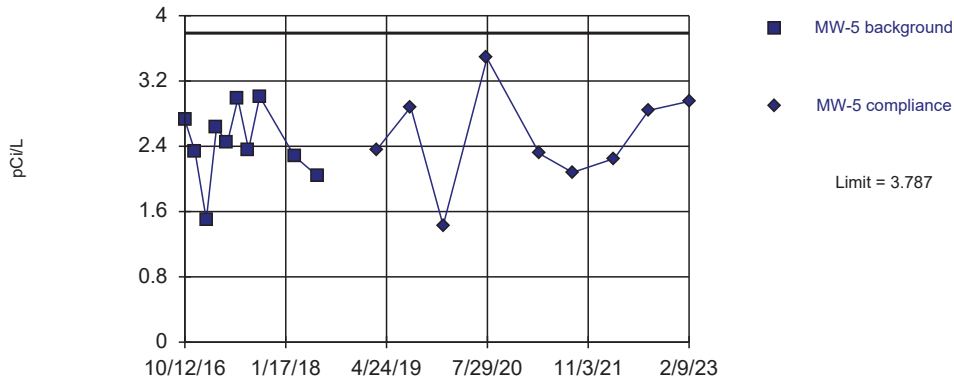
Background Data Summary: Mean=2.127, Std. Dev.=0.3667, n=10. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9621, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Radium Analysis Run 3/13/2023 8:33 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric

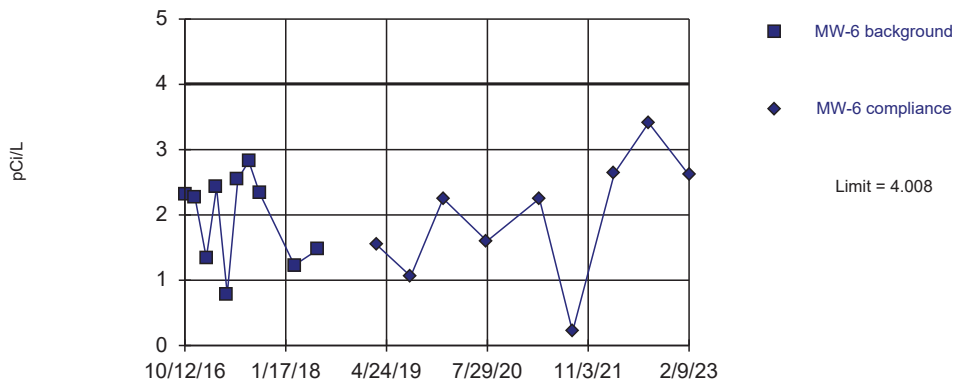


Background Data Summary: Mean=2.428, Std. Dev.=0.4504, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.945, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Radium Analysis Run 3/13/2023 8:33 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

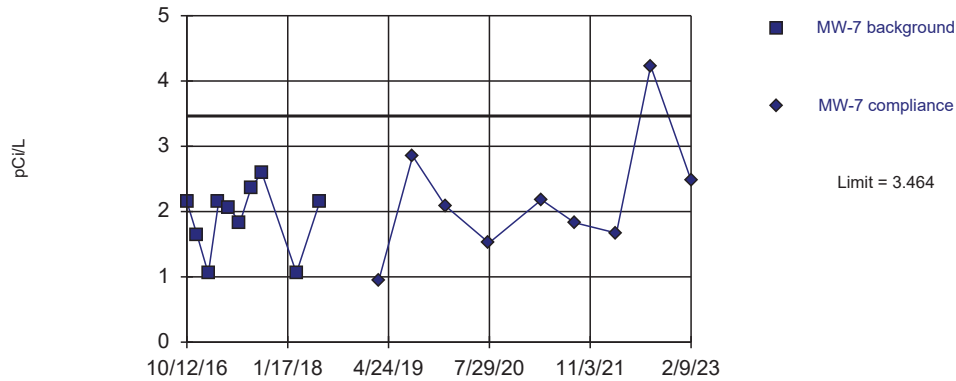
Within Limit

Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit Intrawell Parametric

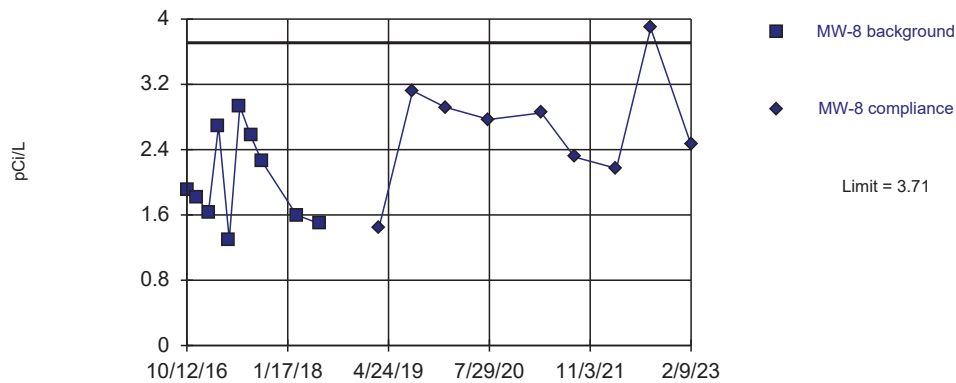


Background Data Summary: Mean=1.904, Std. Dev.=0.5171, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8953, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Radium Analysis Run 3/13/2023 8:33 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=2.019, Std. Dev.=0.5602, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.929, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Radium Analysis Run 3/13/2023 8:33 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

A.3 Interwell Prediction Limits

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 3/13/2023, 9:22 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic [total] (ug/L)	MW-1	5.893	n/a	8/8/2022	4.2	No	17	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-2	5.893	n/a	8/8/2022	4.06	No	17	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-3	5.893	n/a	8/8/2022	3.42	No	17	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-5	5.893	n/a	8/8/2022	4.22	No	17	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-6	5.893	n/a	8/8/2022	3.11	No	17	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-7	5.893	n/a	8/8/2022	3.65	No	17	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-8	5.893	n/a	8/8/2022	2.56	No	17	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-1	152.7	n/a	2/9/2023	145	No	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-2	152.7	n/a	2/9/2023	109	No	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-3	152.7	n/a	2/9/2023	161	Yes	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-5	152.7	n/a	2/9/2023	140	No	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-6	152.7	n/a	2/9/2023	157	Yes	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-7	152.7	n/a	2/9/2023	110	No	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-8	152.7	n/a	2/9/2023	161	Yes	18	0	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-3	433.9	n/a	2/9/2023	103	No	18	33.33	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-5	433.9	n/a	2/9/2023	108	No	18	33.33	No	0.000...	Param Inter 1 of 2
Cadmium [total] (ug/L)	MW-1	0.1	n/a	2/9/2023	0.18	Yes	16	100	n/a	0.005898	NP Inter (NDs) 1 of 2
Cadmium [total] (ug/L)	MW-2	0.1	n/a	2/9/2023	0.105	Yes	16	100	n/a	0.005898	NP Inter (NDs) 1 of 2
Cadmium [total] (ug/L)	MW-7	0.1	n/a	2/9/2023	0.111	Yes	16	100	n/a	0.005898	NP Inter (NDs) 1 of 2
Calcium (mg/L)	MW-1	114.7	n/a	2/9/2023	97.2	No	18	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-2	114.7	n/a	2/9/2023	93.2	No	18	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-3	114.7	n/a	2/9/2023	102	No	18	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-5	114.7	n/a	2/9/2023	95.1	No	18	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-6	114.7	n/a	2/9/2023	120	Yes	18	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-7	114.7	n/a	2/9/2023	68.9	No	18	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-8	114.7	n/a	2/9/2023	96.3	No	18	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-1	51.66	n/a	2/9/2023	65.6	Yes	17	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-2	51.66	n/a	2/9/2023	26	No	17	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-3	51.66	n/a	2/9/2023	40.6	No	17	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-5	51.66	n/a	2/9/2023	39.8	No	17	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-6	51.66	n/a	2/9/2023	61	Yes	17	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-7	51.66	n/a	2/9/2023	43.1	No	17	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-8	51.66	n/a	2/9/2023	31.5	No	17	0	No	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-1	1.127	n/a	2/9/2023	1.22	Yes	18	5.556	x^2	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-2	1.127	n/a	2/9/2023	1.47	Yes	18	5.556	x^2	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-3	1.127	n/a	2/9/2023	0.824	No	18	5.556	x^2	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-5	1.127	n/a	2/9/2023	0.776	No	18	5.556	x^2	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-6	1.127	n/a	2/9/2023	0.638	No	18	5.556	x^2	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-7	1.127	n/a	2/9/2023	0.849	No	18	5.556	x^2	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	MW-8	1.127	n/a	2/9/2023	0.894	No	18	5.556	x^2	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-1	34.91	n/a	2/9/2023	33.2	No	18	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-2	34.91	n/a	2/9/2023	34.4	No	18	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-3	34.91	n/a	2/9/2023	31	No	18	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-5	34.91	n/a	2/9/2023	32.7	No	18	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-6	34.91	n/a	2/9/2023	30.9	No	18	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-7	34.91	n/a	2/9/2023	25	No	18	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-8	34.91	n/a	2/9/2023	30.6	No	18	0	No	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-1	12.57	n/a	2/9/2023	8.5	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-2	12.57	n/a	2/9/2023	6.56	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-3	12.57	n/a	2/9/2023	9.86	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

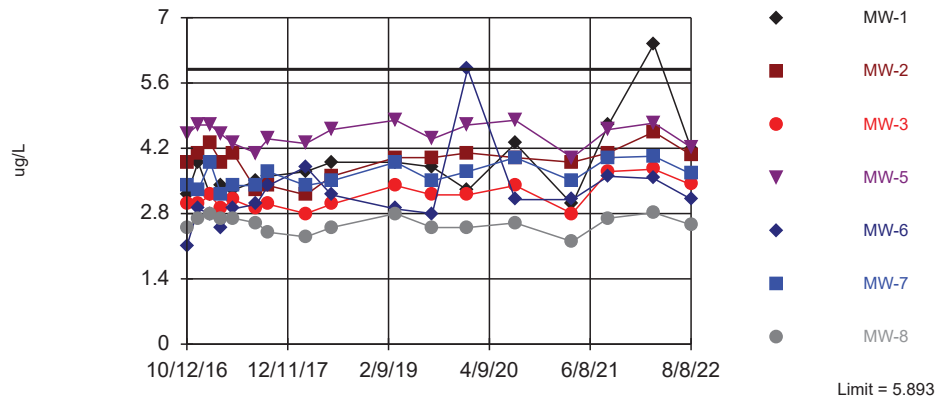
Data: Fremont Department of Utilities Groundwater

Printed 3/13/2023, 9:22 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Molybdenum (ug/L)	MW-5	12.57	n/a	2/9/2023	4.16	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-6	12.57	n/a	2/9/2023	8.21	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-7	12.57	n/a	2/9/2023	6.75	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-8	12.57	n/a	2/9/2023	6.65	No	18	0	x^(1/3)	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-1	7.858	6.455	2/9/2023	7.08	No	18	0	No	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-2	7.858	6.455	2/9/2023	7.15	No	18	0	No	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-3	7.858	6.455	2/9/2023	7.17	No	18	0	No	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-5	7.858	6.455	2/9/2023	7.2	No	18	0	No	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-6	7.858	6.455	2/9/2023	7.16	No	18	0	No	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-7	7.858	6.455	2/9/2023	7.01	No	18	0	No	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-8	7.858	6.455	2/9/2023	7.14	No	18	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-2	11.24	n/a	2/9/2023	8.19	No	17	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-3	11.24	n/a	2/9/2023	7.88	No	17	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-6	11.24	n/a	2/9/2023	6.16	No	17	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-7	11.24	n/a	2/9/2023	7.23	No	17	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-8	11.24	n/a	2/9/2023	8.94	No	17	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-1	50.4	n/a	2/9/2023	83.8	Yes	18	0	x^2	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-2	50.4	n/a	2/9/2023	42.7	No	18	0	x^2	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-3	50.4	n/a	2/9/2023	40.6	No	18	0	x^2	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-5	50.4	n/a	2/9/2023	45.2	No	18	0	x^2	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-6	50.4	n/a	2/9/2023	60.5	Yes	18	0	x^2	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-7	50.4	n/a	2/9/2023	74.9	Yes	18	0	x^2	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-8	50.4	n/a	2/9/2023	31.7	No	18	0	x^2	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-1	514.9	n/a	2/9/2023	456	No	18	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-2	514.9	n/a	2/9/2023	366	No	18	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-3	514.9	n/a	2/9/2023	398	No	18	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-5	514.9	n/a	2/9/2023	386	No	18	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-6	514.9	n/a	2/9/2023	472	No	18	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-7	514.9	n/a	2/9/2023	390	No	18	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-8	514.9	n/a	2/9/2023	368	No	18	0	No	0.000...	Param Inter 1 of 2

Within Limit

Prediction Limit Interwell Parametric

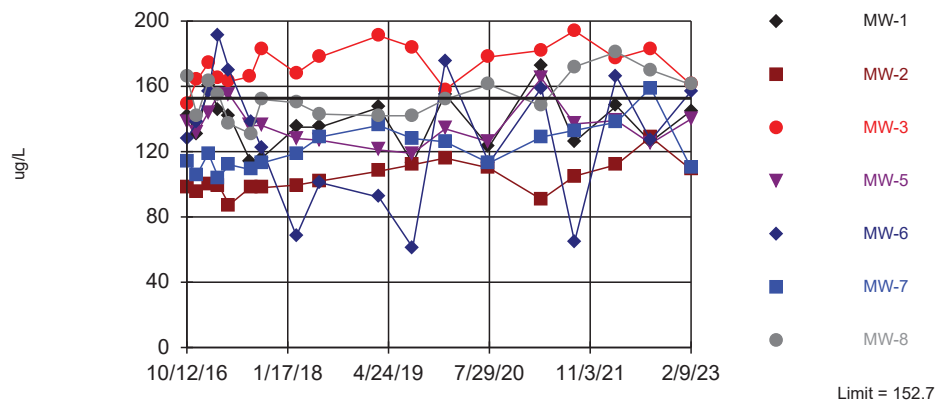


Background Data Summary: Mean=4.189, Std. Dev.=0.6812, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9394, critical = 0.851. Kappa = 2.503 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Arsenic [total] Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit: MW-3, MW-6, MW-8

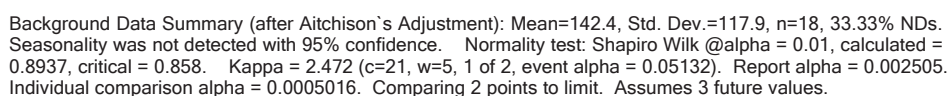
Prediction Limit Interwell Parametric



Background Data Summary: Mean=126.3, Std. Dev.=10.66, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9645, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

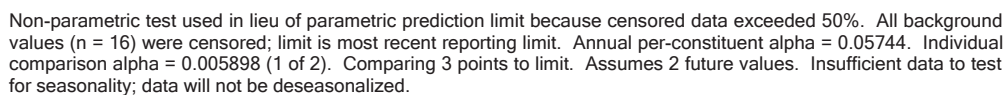
Constituent: Barium [total] Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Interwell Parametric



Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

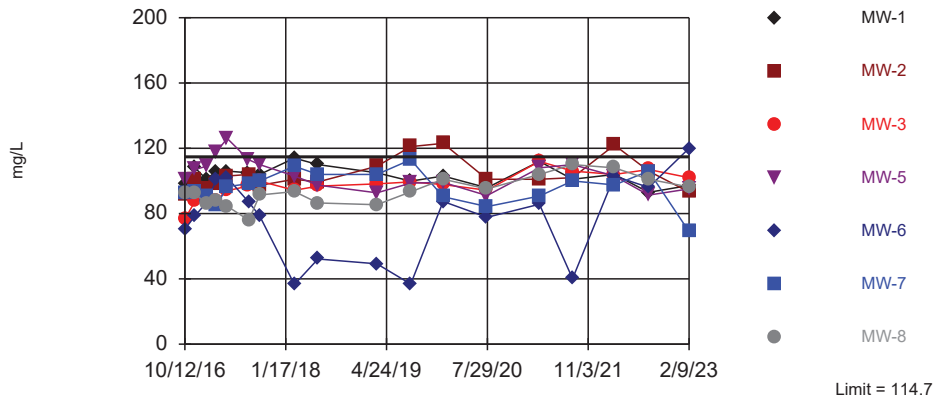
Interwell Non-parametric



Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit: MW-6

Prediction Limit Interwell Parametric

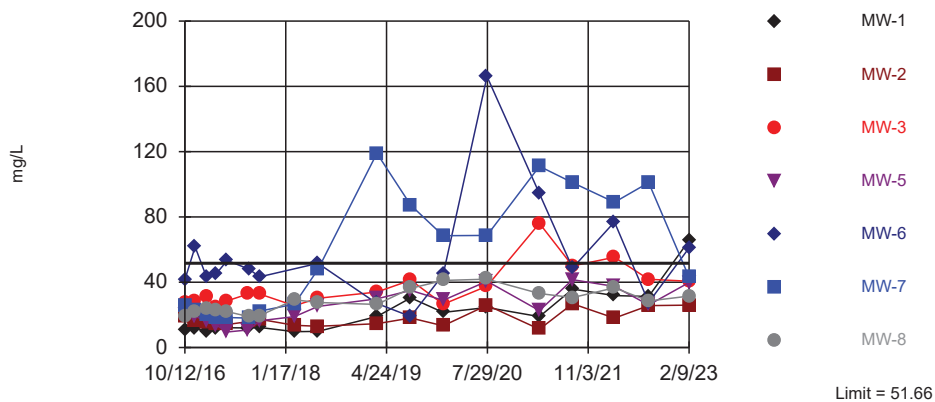


Background Data Summary: Mean=87.24, Std. Dev.=11.12, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9798, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Calcium Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit: MW-1, MW-6

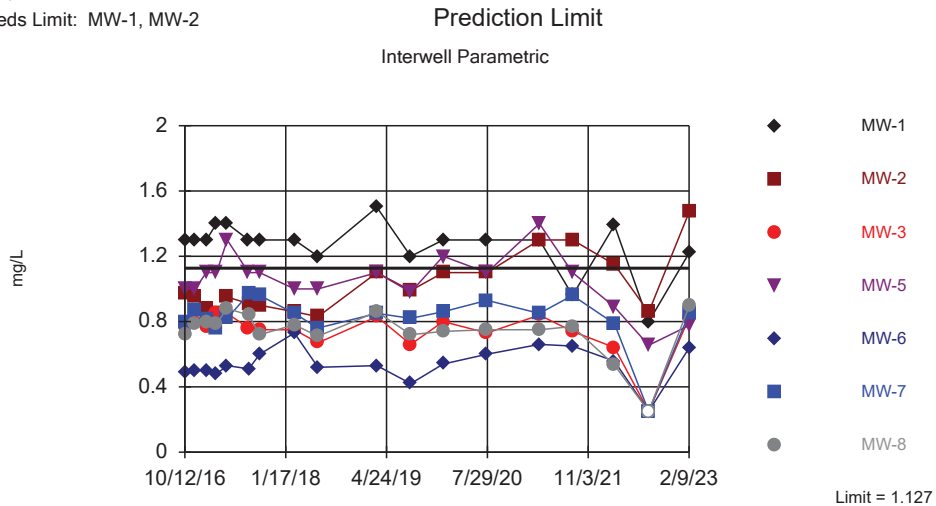
Prediction Limit Interwell Parametric



Background Data Summary: Mean=25.89, Std. Dev.=10.29, n=17. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9761, critical = 0.851. Kappa = 2.503 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Chloride Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

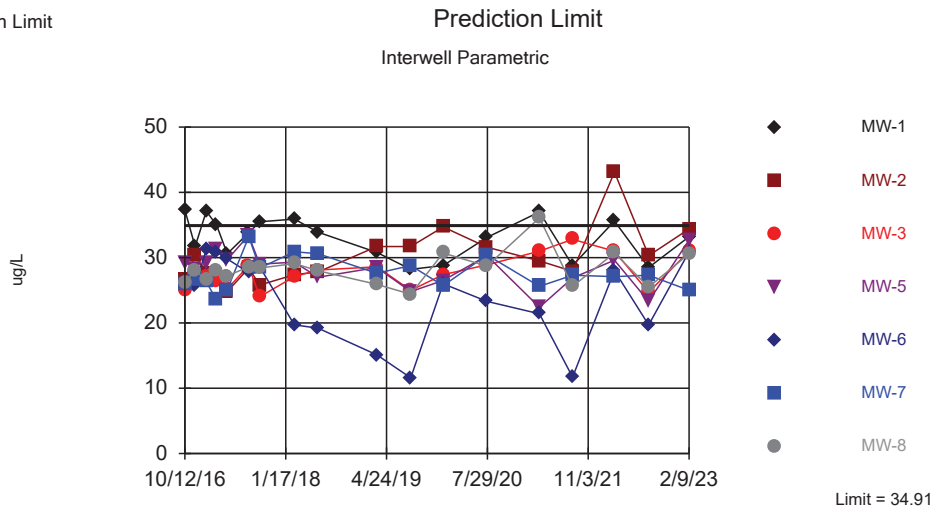
Exceeds Limit: MW-1, MW-2



Background Data Summary (based on square transformation): Mean=0.6914, Std. Dev.=0.2343, n=18, 5.556% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8935, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Fluoride Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

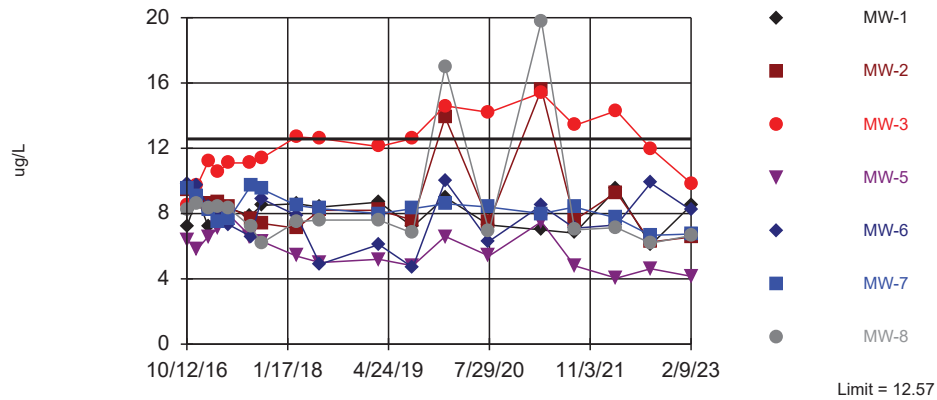


Background Data Summary: Mean=25.62, Std. Dev.=3.761, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8891, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Lithium Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Interwell Parametric

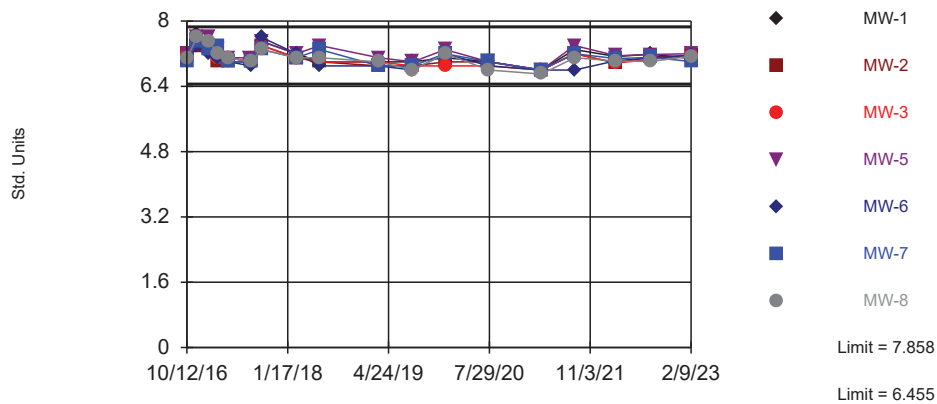


Background Data Summary (based on cube root transformation): Mean=1.84, Std. Dev.=0.1963, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8682, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Molybdenum Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit Interwell Parametric

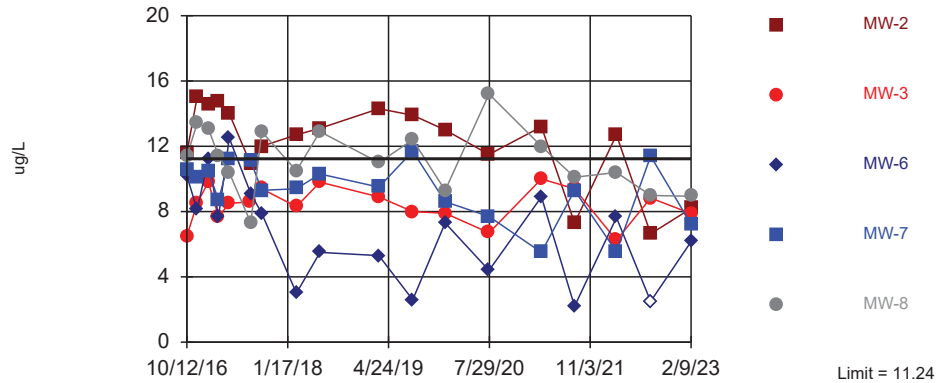


Background Data Summary: Mean=7.156, Std. Dev.=0.2838, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9267, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0002508. Comparing 7 points to limit.

Constituent: pH Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Interwell Parametric

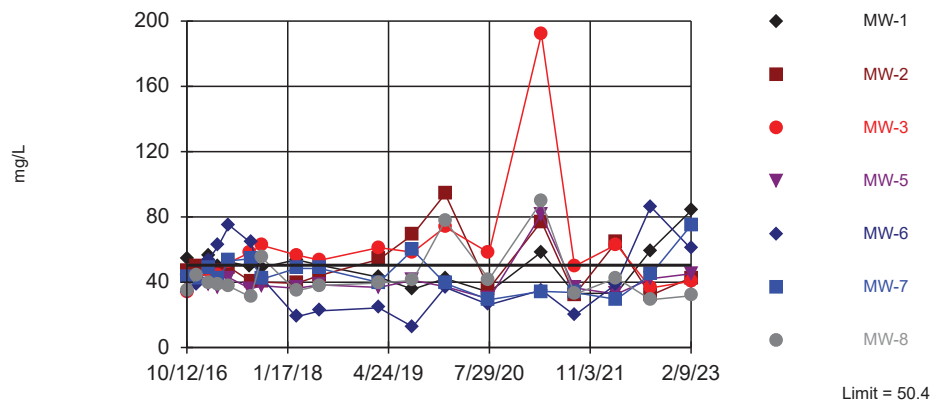


Background Data Summary: Mean=7.658, Std. Dev.=1.43, n=17. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9627, critical = 0.851. Kappa = 2.503 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 5 points to limit.

Constituent: Selenium [total] Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit: MW-1, MW-6, MW-7

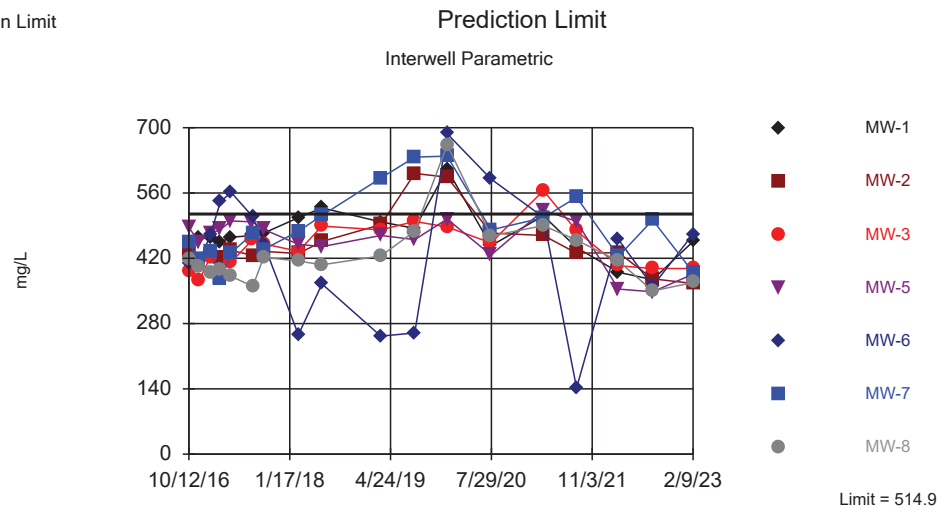
Prediction Limit Interwell Parametric



Background Data Summary (based on square transformation): Mean=1518, Std. Dev.=413.5, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8996, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Sulfate Analysis Run 3/13/2023 9:11 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit



Background Data Summary: Mean=405.2, Std. Dev.=44.37, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9713, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

A.4 Sen's Slope/Mann-Kendall Analysis

Confidence Interval

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 3/13/2023, 9:31 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony [total] (ug/L)	MW-1	1	0.5	6	No	16	93.75	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-2	1	0.5	6	No	16	93.75	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-3	1	0.5	6	No	16	100	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-4R (bg)	1	0.5	6	No	16	100	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-5	1	0.5	6	No	16	100	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-6	1	0.5	6	No	16	100	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-7	1	0.5	6	No	16	100	No	0.01	NP (NDs)
Antimony [total] (ug/L)	MW-8	1	0.5	6	No	16	100	No	0.01	NP (NDs)
Arsenic [total] (ug/L)	MW-1	4.2	3.2	10	No	18	0	No	0.01	NP (normality)
Arsenic [total] (ug/L)	MW-2	4.118	3.705	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-3	3.32	2.966	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-4R (bg)	4.558	3.71	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-5	4.625	4.315	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-6	3.55	2.8	10	No	18	0	No	0.01	NP (normality)
Arsenic [total] (ug/L)	MW-7	3.761	3.426	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-8	2.68	2.473	10	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-1	147.2	127.4	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-2	109.7	97.79	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-3	181.2	167	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-4R (bg)	133	120.1	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-5	144.7	129.4	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-6	154.7	105.9	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-7	130.7	114.1	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-8	160.8	143.8	200	No	18	0	No	0.01	Param.
Boron (ug/L)	MW-1	145.7	128.4	172.5	No	18	0	No	0.01	Param.
Boron (ug/L)	MW-2	138	115	172.5	No	17	0	No	0.01	NP (normality)
Boron (ug/L)	MW-3	115	50	172.5	No	18	27.78	No	0.01	NP (Cohens/xfrm)
Boron (ug/L)	MW-4R (bg)	232.3	105.1	172.5	No	18	27.78	No	0.01	Param.
Boron (ug/L)	MW-5	137	120	172.5	No	18	0	No	0.01	NP (normality)
Boron (ug/L)	MW-6	138	50	172.5	No	18	44.44	No	0.01	NP (normality)
Boron (ug/L)	MW-7	175.1	132.3	172.5	No	18	11.11	x^2	0.01	Param.
Boron (ug/L)	MW-8	161	109	172.5	No	16	0	No	0.01	NP (normality)
Calcium (mg/L)	MW-1	107.3	100.7	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-2	115	98	86.52	Yes	18	0	No	0.01	NP (normality)
Calcium (mg/L)	MW-3	101.9	91.94	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-4R (bg)	93.23	79.8	86.52	No	18	0	No	0.01	Param.
Calcium (mg/L)	MW-5	111.4	99.47	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-6	91.33	65.85	86.52	No	18	0	x^2	0.01	Param.
Calcium (mg/L)	MW-7	102.7	92.89	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-8	98.54	87.87	86.52	Yes	18	0	No	0.01	Param.
Chloride (mg/L)	MW-1	30.4	10.9	250	No	18	0	No	0.01	NP (normality)
Chloride (mg/L)	MW-2	19.77	14.27	250	No	17	0	x^(1/3)	0.01	Param.
Chloride (mg/L)	MW-3	41.8	27.5	250	No	18	0	No	0.01	NP (normality)
Chloride (mg/L)	MW-4R (bg)	30.86	18.08	250	No	17	0	No	0.01	Param.
Chloride (mg/L)	MW-5	29.7	17.33	250	No	18	0	No	0.01	Param.
Chloride (mg/L)	MW-6	69.78	36.48	250	No	17	0	x^(1/3)	0.01	Param.
Chloride (mg/L)	MW-7	101	19.1	250	No	18	0	No	0.01	NP (normality)
Chloride (mg/L)	MW-8	32.35	23.41	250	No	18	0	No	0.01	Param.
Chromium [total] (ug/L)	MW-1	1.7	0.5	50	No	16	93.75	No	0.01	NP (NDs)
Chromium [total] (ug/L)	MW-2	2.5	0.5	50	No	16	100	No	0.01	NP (NDs)

Confidence Interval

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater Printed 3/13/2023, 9:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Chromium [total] (ug/L)	MW-3	2.5	0.5	50	No	16	100	No	0.01	NP (NDs)
Chromium [total] (ug/L)	MW-4R (bg)	1.9	0.5	50	No	16	93.75	No	0.01	NP (NDs)
Chromium [total] (ug/L)	MW-5	2.5	0.5	50	No	16	100	No	0.01	NP (NDs)
Chromium [total] (ug/L)	MW-6	2.5	0.5	50	No	16	100	No	0.01	NP (NDs)
Chromium [total] (ug/L)	MW-7	2.5	0.5	50	No	16	100	No	0.01	NP (NDs)
Chromium [total] (ug/L)	MW-8	2.5	0.5	50	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-1	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-2	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-3	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-4R (bg)	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-5	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-6	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-7	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Cobalt [total] (ug/L)	MW-8	0.5	0.25	0.4688	No	16	100	No	0.01	NP (NDs)
Fluoride (mg/L)	MW-1	1.4	1.2	4	No	18	0	No	0.01	NP (normality)
Fluoride (mg/L)	MW-2	1.083	0.9108	4	No	18	0	sqrt(x)	0.01	Param.
Fluoride (mg/L)	MW-3	0.8224	0.7009	4	No	18	5.556	x^3	0.01	Param.
Fluoride (mg/L)	MW-4R (bg)	0.9263	0.7492	4	No	18	5.556	x^2	0.01	Param.
Fluoride (mg/L)	MW-5	1.18	0.9787	4	No	18	0	No	0.01	Param.
Fluoride (mg/L)	MW-6	0.6006	0.4746	4	No	18	5.556	No	0.01	Param.
Fluoride (mg/L)	MW-7	0.9102	0.7839	4	No	18	5.556	x^3	0.01	Param.
Fluoride (mg/L)	MW-8	0.8271	0.6953	4	No	18	5.556	x^3	0.01	Param.
Lead [total] (ug/L)	MW-1	0.5	0.25	50	No	16	100	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-2	0.5	0.25	50	No	16	100	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-3	0.5	0.25	50	No	16	100	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-4R (bg)	1.4	0.25	50	No	15	93.33	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-5	0.5	0.25	50	No	16	100	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-6	1.9	0.25	50	No	17	94.12	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-7	0.5	0.25	50	No	16	100	No	0.01	NP (NDs)
Lead [total] (ug/L)	MW-8	0.5	0.25	50	No	16	100	No	0.01	NP (NDs)
Lithium (ug/L)	MW-1	35.4	31.28	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-2	31.7	26.7	40	No	17	0	No	0.01	NP (normality)
Lithium (ug/L)	MW-3	29.55	26.24	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-4R (bg)	27.75	23.73	40	No	18	0	x^2	0.01	Param.
Lithium (ug/L)	MW-5	31.13	26.37	40	No	18	0	ln(x)	0.01	Param.
Lithium (ug/L)	MW-6	27.87	19.87	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-7	30.03	26.24	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-8	29.72	26.43	40	No	17	0	sqrt(x)	0.01	Param.
Mercury (ug/L)	MW-1	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-2	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-3	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-4R (bg)	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-5	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-6	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-7	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Mercury (ug/L)	MW-8	0.1	0.1	2	No	16	100	No	0.01	NP (NDs)
Molybdenum (ug/L)	MW-1	8.523	7.409	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-2	9.3	7.5	100	No	18	0	No	0.01	NP (normality)
Molybdenum (ug/L)	MW-3	13.29	11.15	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-4R (bg)	7.637	5.326	100	No	18	0	ln(x)	0.01	Param.

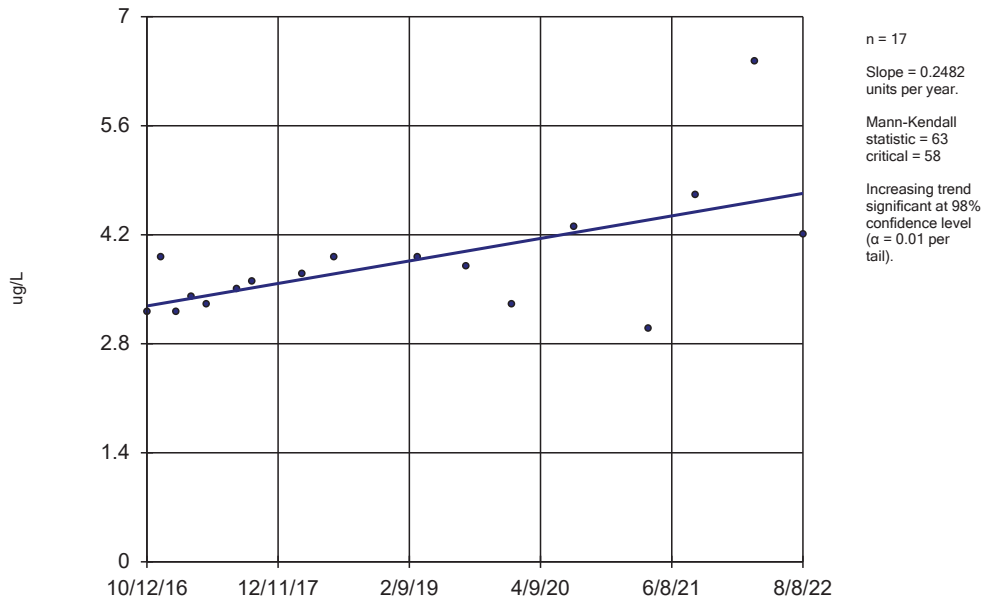
Confidence Interval

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater Printed 3/13/2023, 9:31 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Molybdenum (ug/L)	MW-5	6.638	5.29	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-6	8.715	6.76	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-7	8.796	7.871	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-8	8.4	6.9	100	No	17	0	No	0.01	NP (normality)
Selenium [total] (ug/L)	MW-1	12.92	9.485	50	No	18	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-2	14.33	11.13	50	No	18	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-3	9.106	7.757	50	No	18	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-4R (bg)	8.518	6.688	50	No	17	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-5	8.592	7.101	50	No	18	5.556	x^3	0.01	Param.
Selenium [total] (ug/L)	MW-6	9.15	5.12	50	No	18	5.556	No	0.01	Param.
Selenium [total] (ug/L)	MW-7	10.76	8.449	50	No	18	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-8	12.4	10.1	50	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-1	52.82	42.26	250	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-2	59.94	40.45	250	No	17	0	sqrt(x)	0.01	Param.
Sulfate (mg/L)	MW-3	63.1	43.9	250	No	18	0	No	0.01	NP (normality)
Sulfate (mg/L)	MW-4R (bg)	42.02	35.59	250	No	18	0	x^2	0.01	Param.
Sulfate (mg/L)	MW-5	42.2	36.3	250	No	18	0	No	0.01	NP (normality)
Sulfate (mg/L)	MW-6	56.05	29.36	250	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-7	49.44	38.55	250	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-8	50.9	34.7	250	No	18	0	No	0.01	NP (normality)
Thallium [total] (ug/L)	MW-1	4.08	0.5	2	No	16	93.75	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-2	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-3	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-4R (bg)	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-5	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-6	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-7	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Thallium [total] (ug/L)	MW-8	0.5	0.5	2	No	16	100	No	0.01	NP (NDs)
Total Dissolved Solids (mg/L)	MW-1	503.3	441	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-2	474	426	500	No	18	0	No	0.01	NP (normality)
Total Dissolved Solids (mg/L)	MW-3	476.2	417.1	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-4R (bg)	433	382.5	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-5	492.3	442	500	No	18	0	x^3	0.01	Param.
Total Dissolved Solids (mg/L)	MW-6	516.7	347.4	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-7	533.3	442.6	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-8	468	389	500	No	18	0	No	0.01	NP (normality)
Total Radium (pCi/L)	MW-1	2.709	1.829	5	No	18	0	No	0.01	Param.
Total Radium (pCi/L)	MW-2	2.011	1.397	5	No	18	0	No	0.01	Param.
Total Radium (pCi/L)	MW-3	2.982	2.115	5	No	18	0	No	0.01	Param.
Total Radium (pCi/L)	MW-4R (bg)	2.561	1.67	5	No	18	0	No	0.01	Param.
Total Radium (pCi/L)	MW-5	2.75	2.129	5	No	18	0	No	0.01	Param.
Total Radium (pCi/L)	MW-6	2.403	1.428	5	No	18	0	No	0.01	Param.
Total Radium (pCi/L)	MW-7	2.416	1.548	5	No	18	0	sqrt(x)	0.01	Param.
Total Radium (pCi/L)	MW-8	2.742	1.887	5	No	18	0	No	0.01	Param.

Sen's Slope Estimator

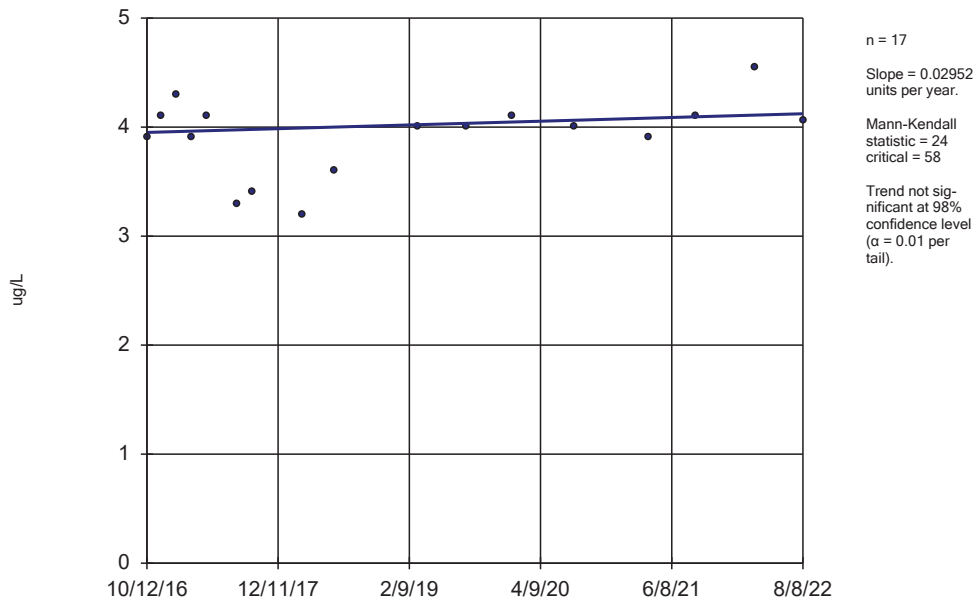
MW-1



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

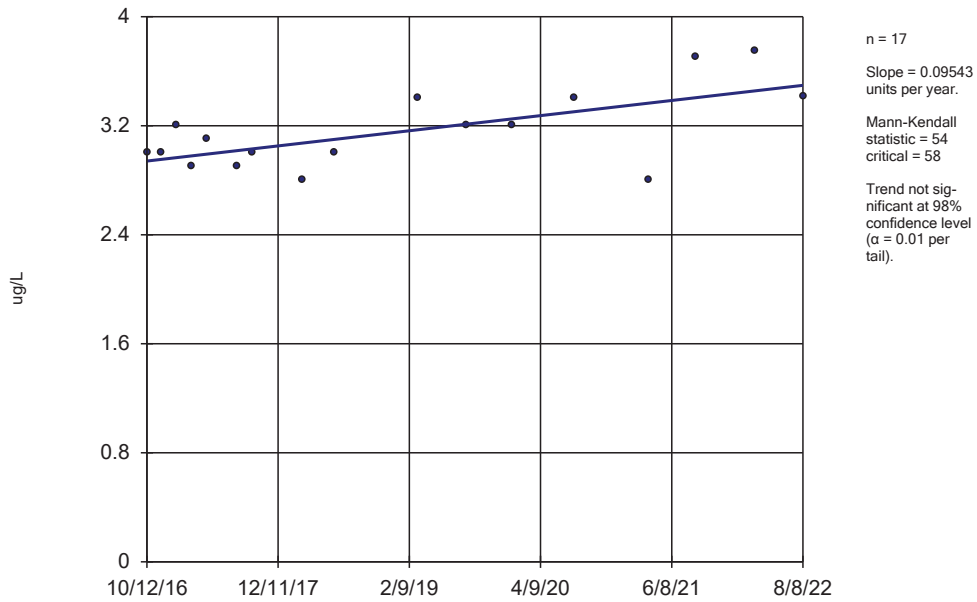
MW-2



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

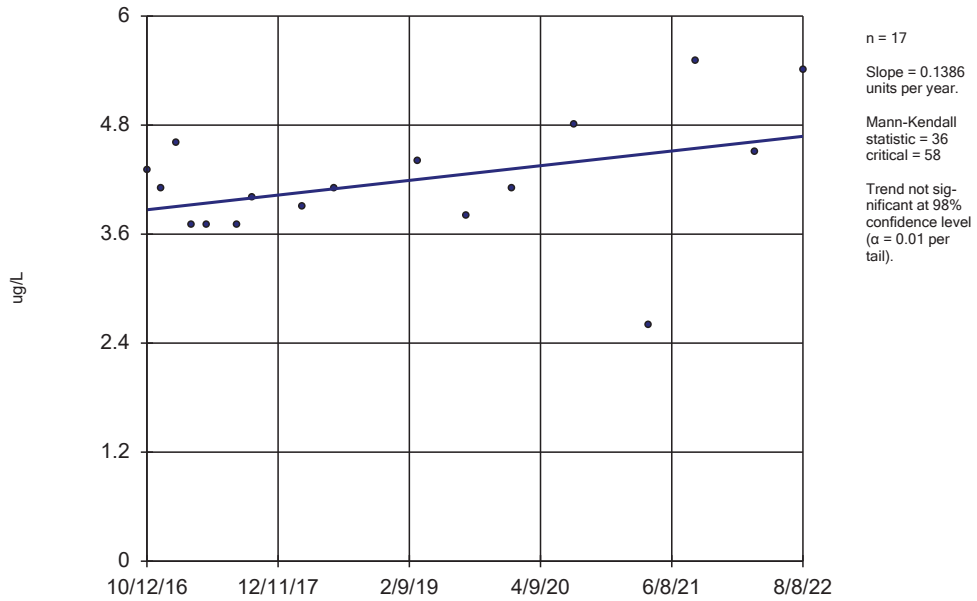
MW-3



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

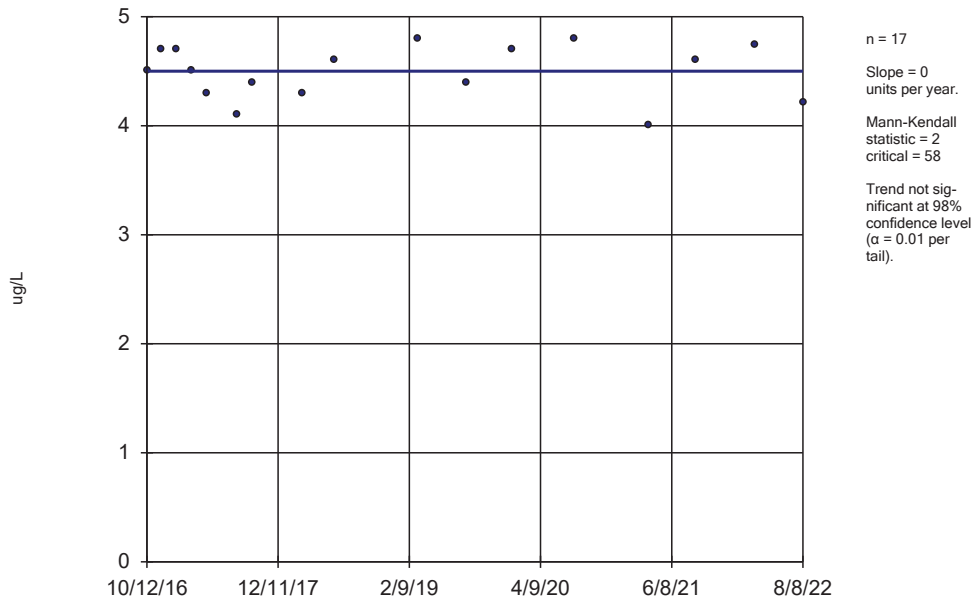
MW-4R (bg)



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

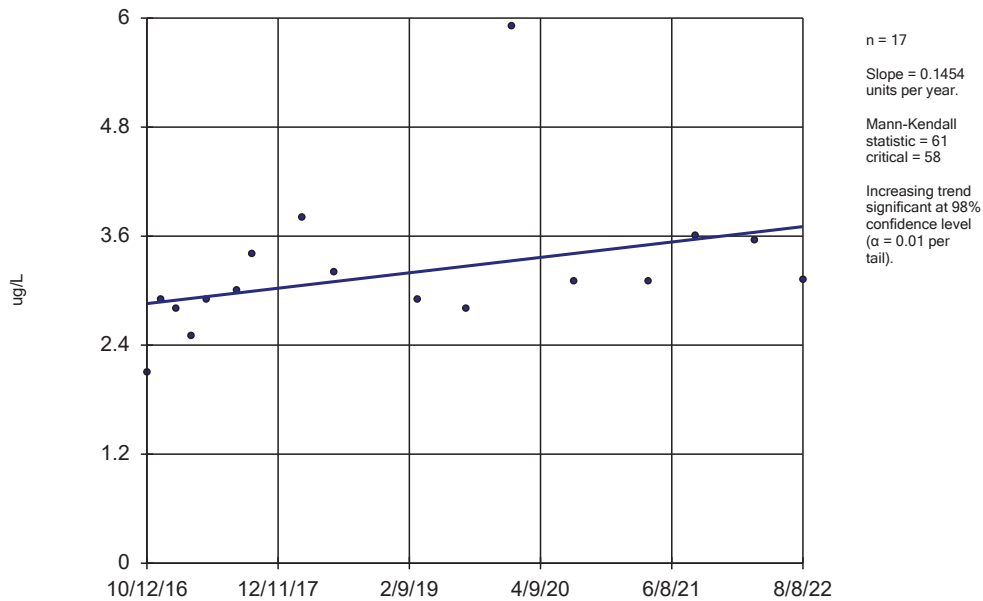
MW-5



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

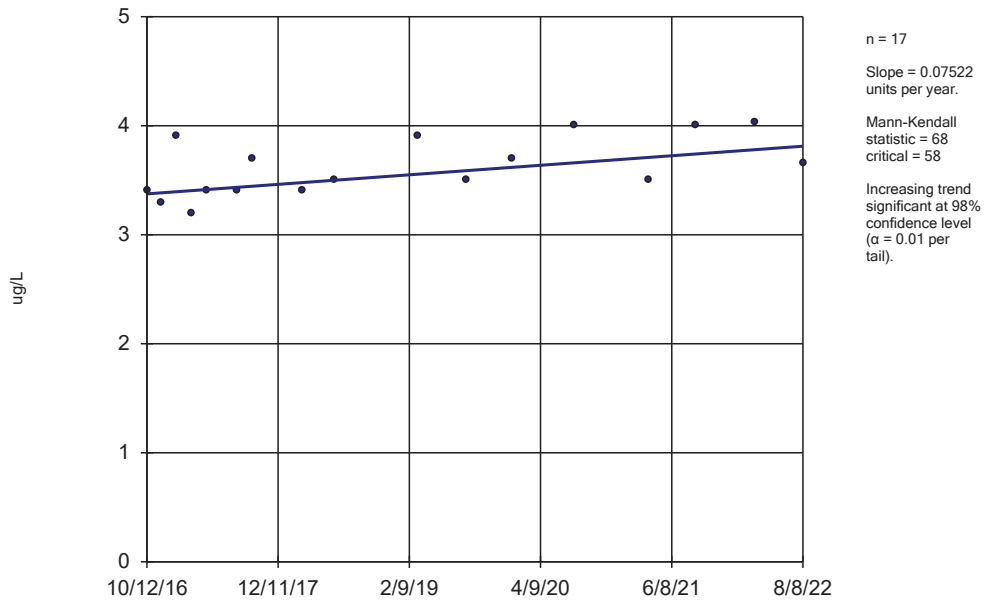
MW-6



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

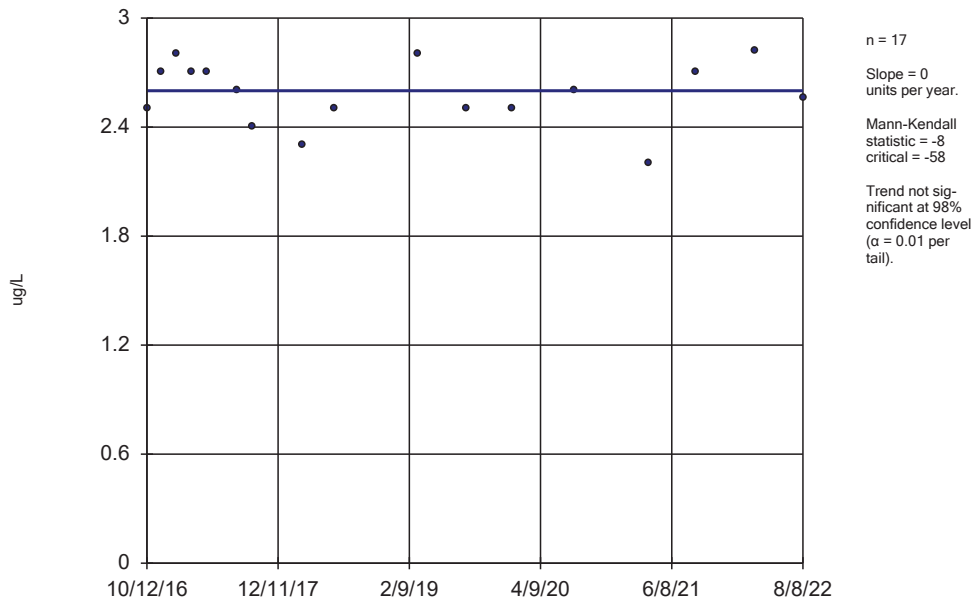
MW-7



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

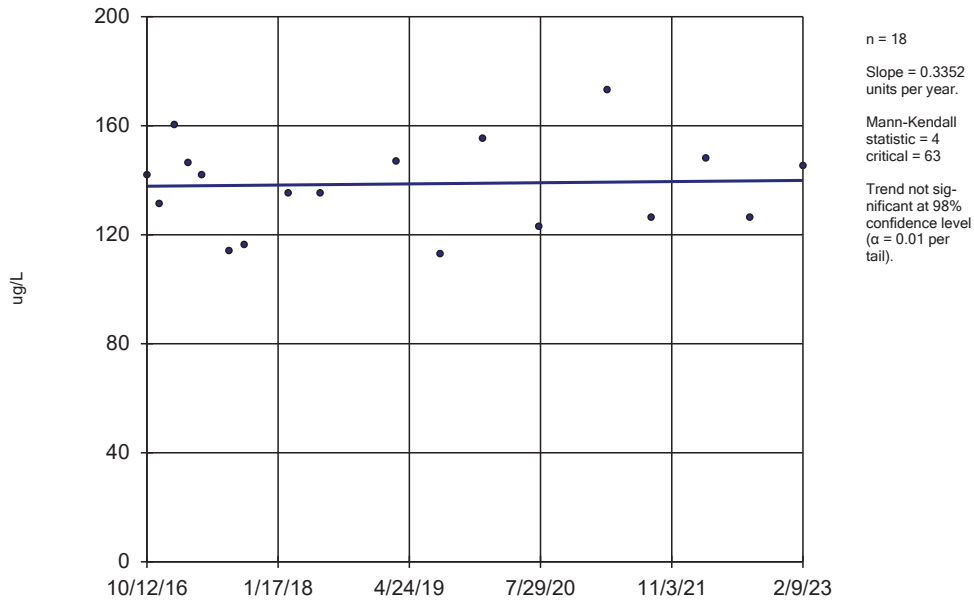
MW-8



Constituent: Arsenic [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

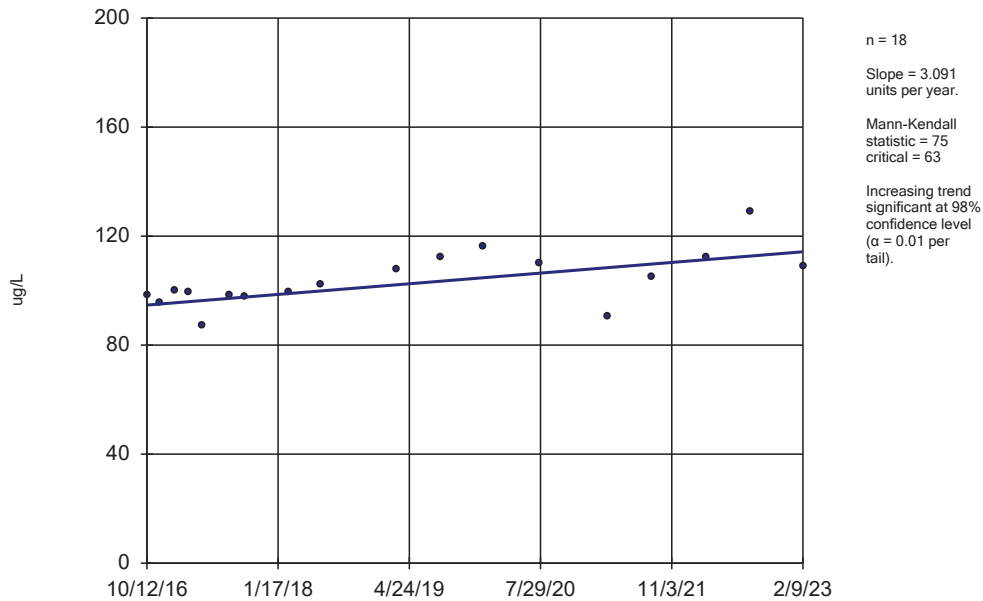
MW-1



Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

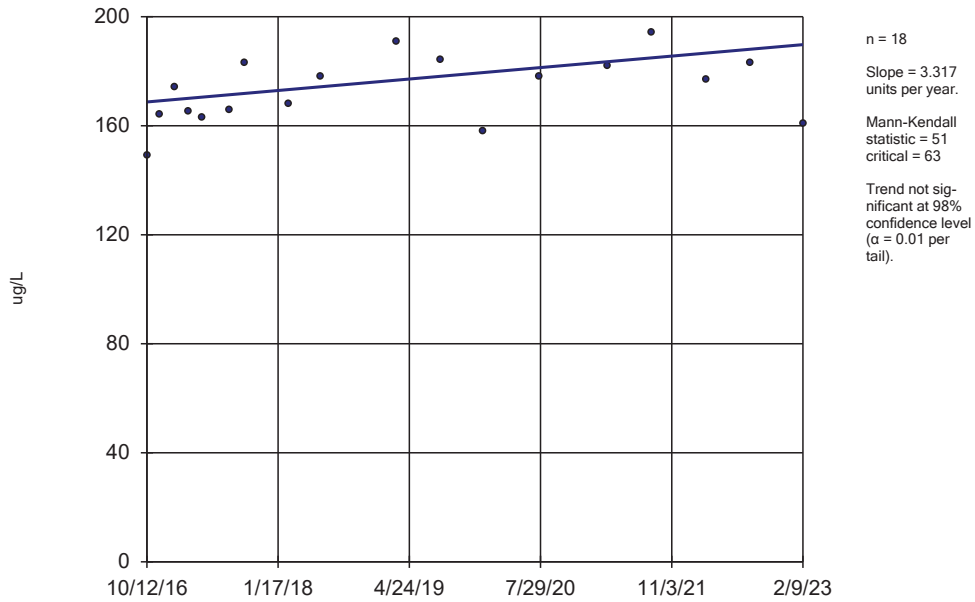
MW-2



Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

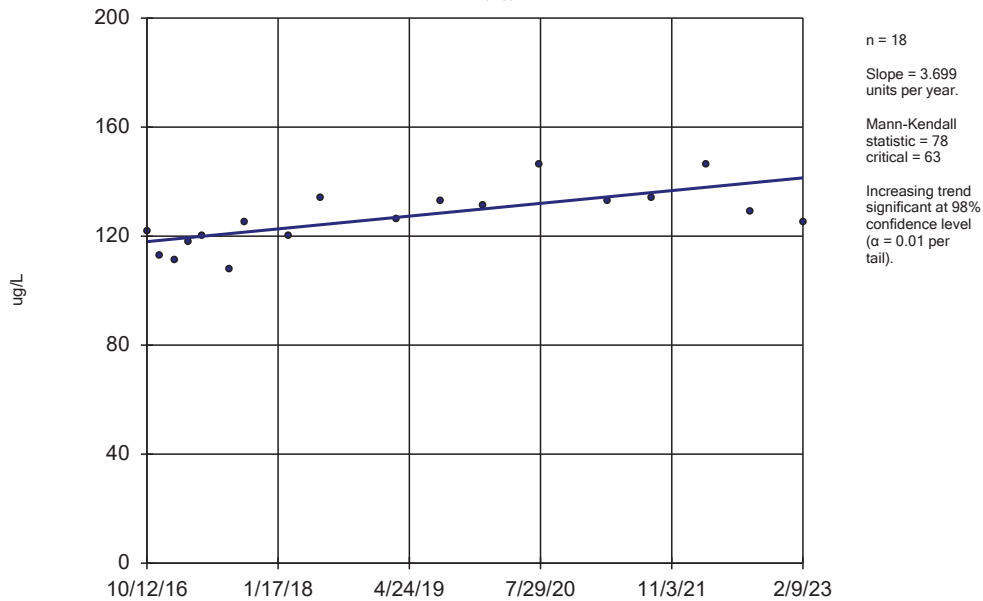
MW-3



Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

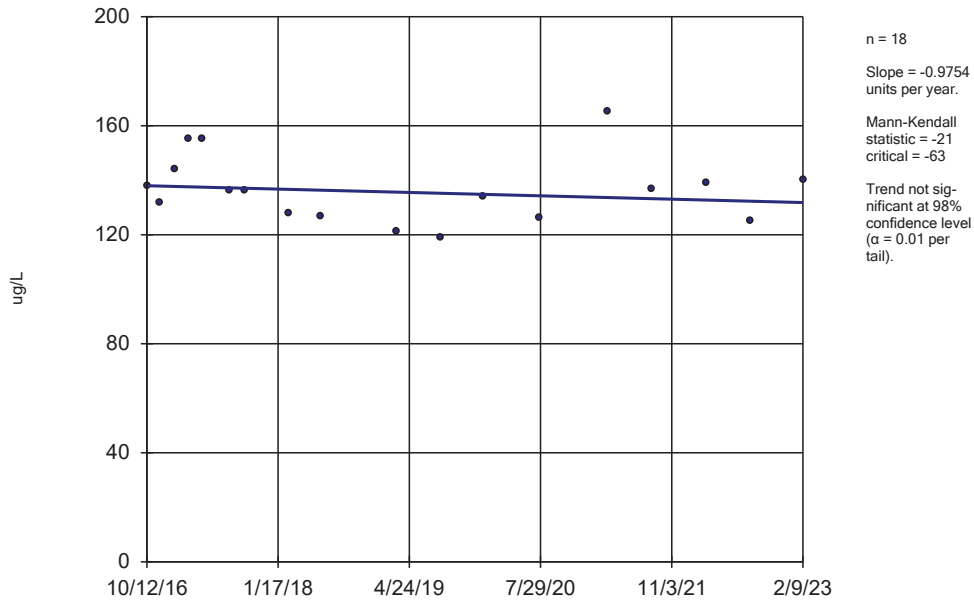
MW-4R (bg)



Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

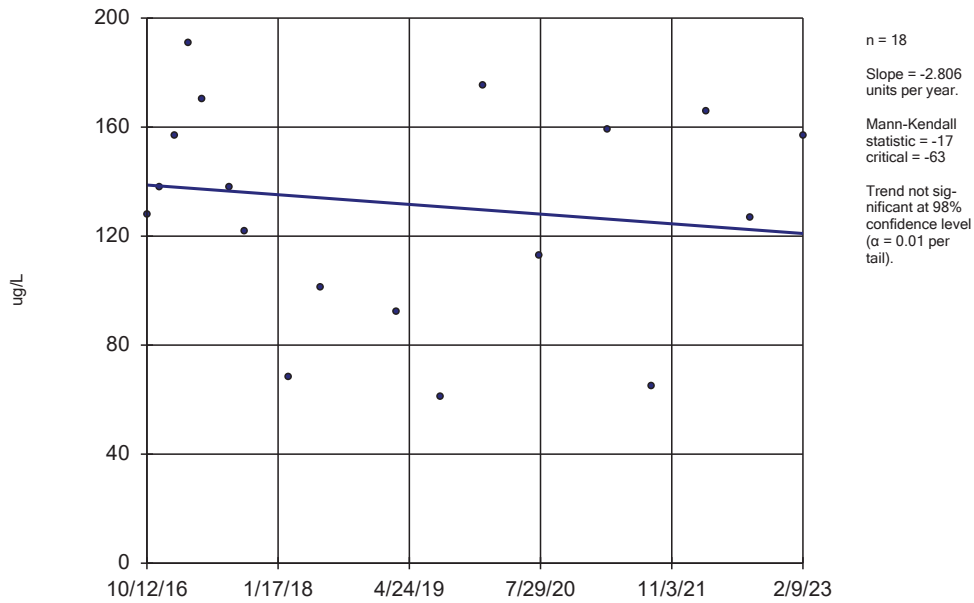
MW-5



Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

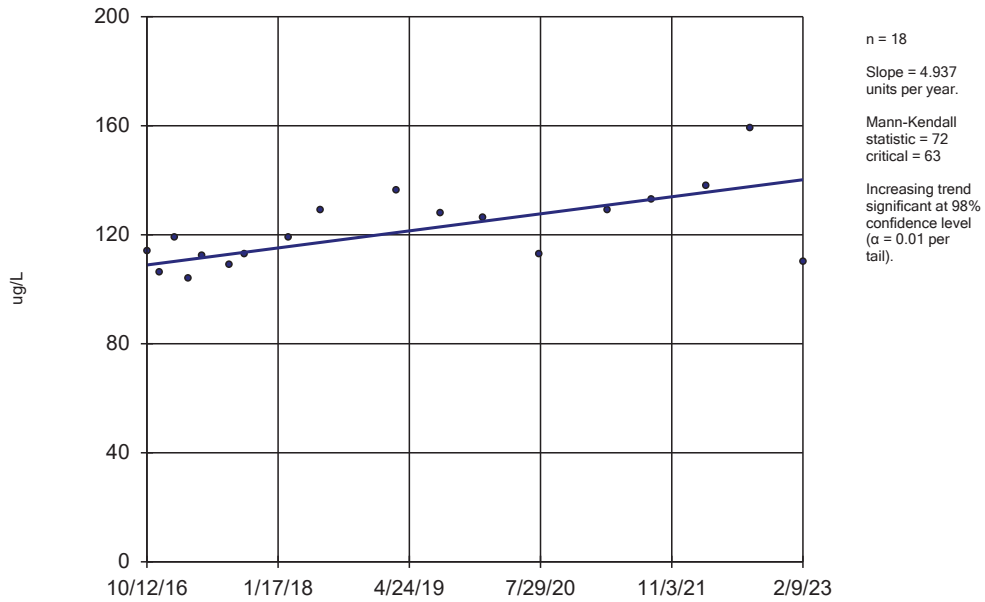
MW-6



Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

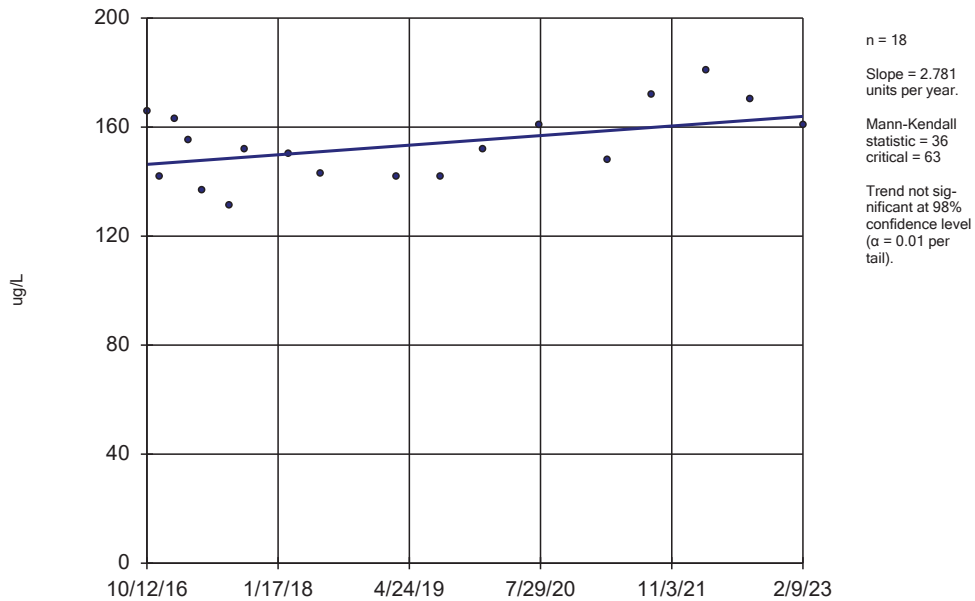
MW-7



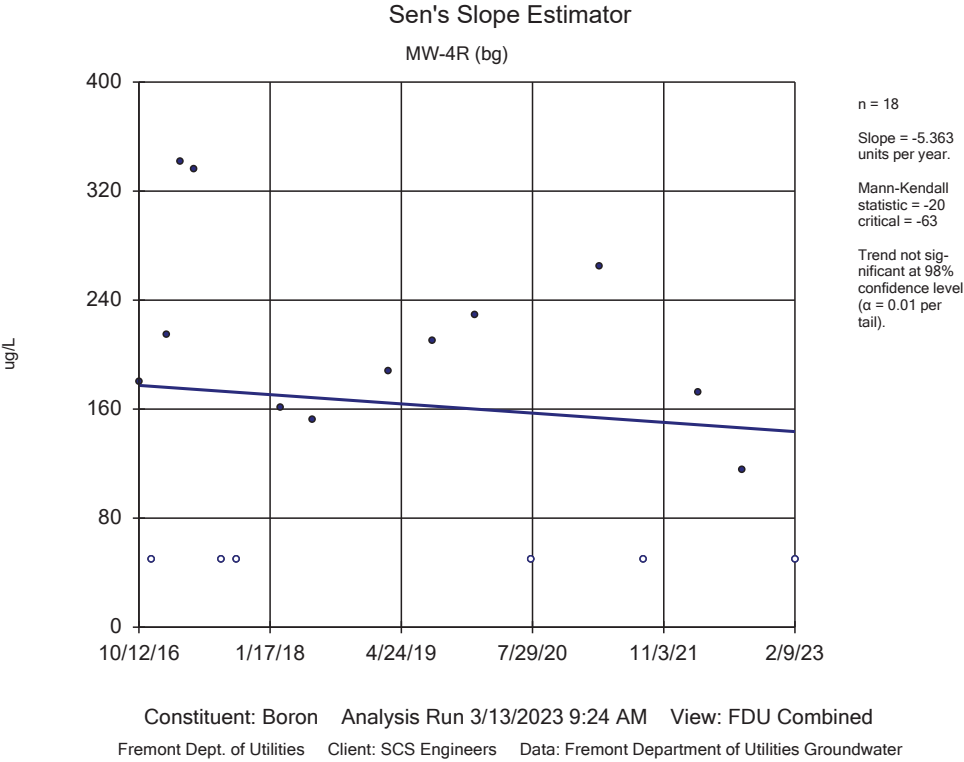
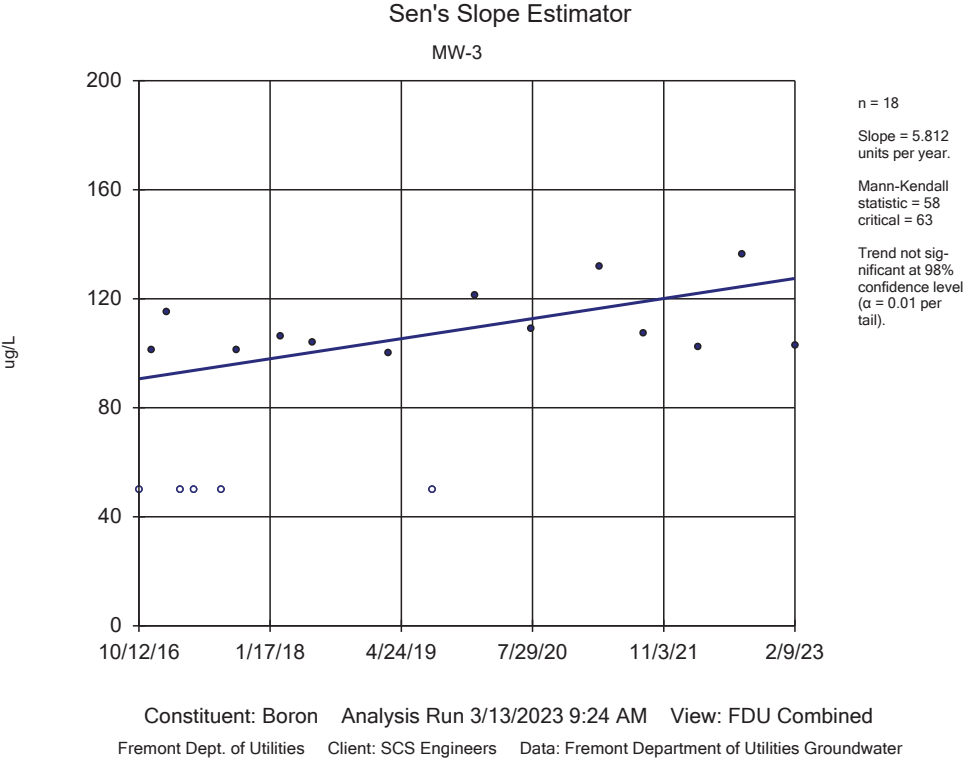
Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

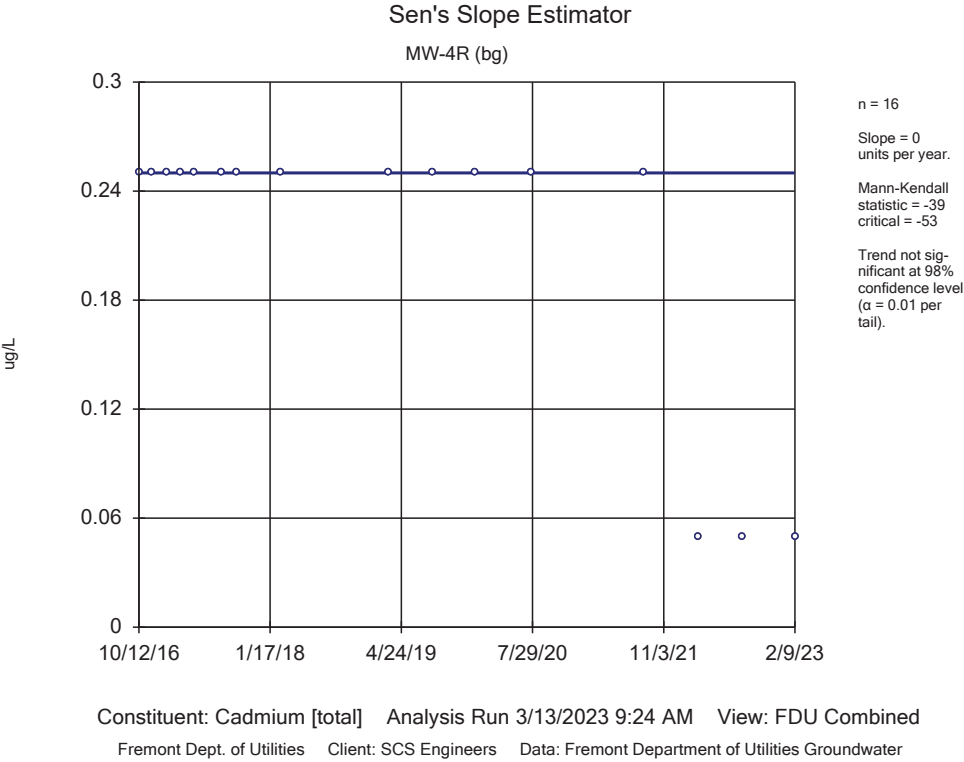
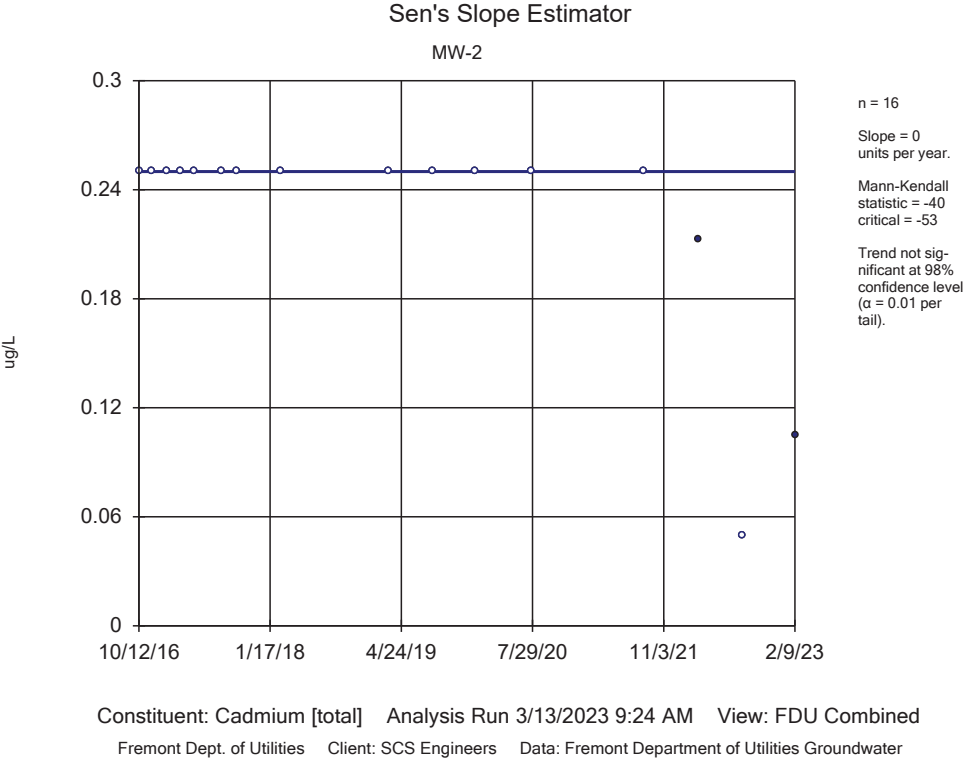
Sen's Slope Estimator

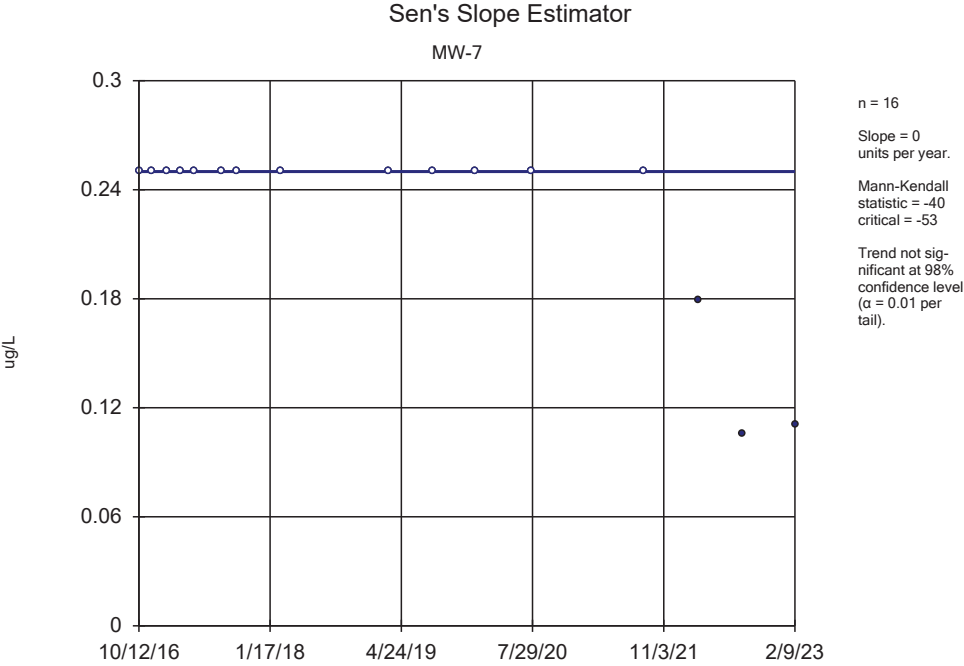
MW-8



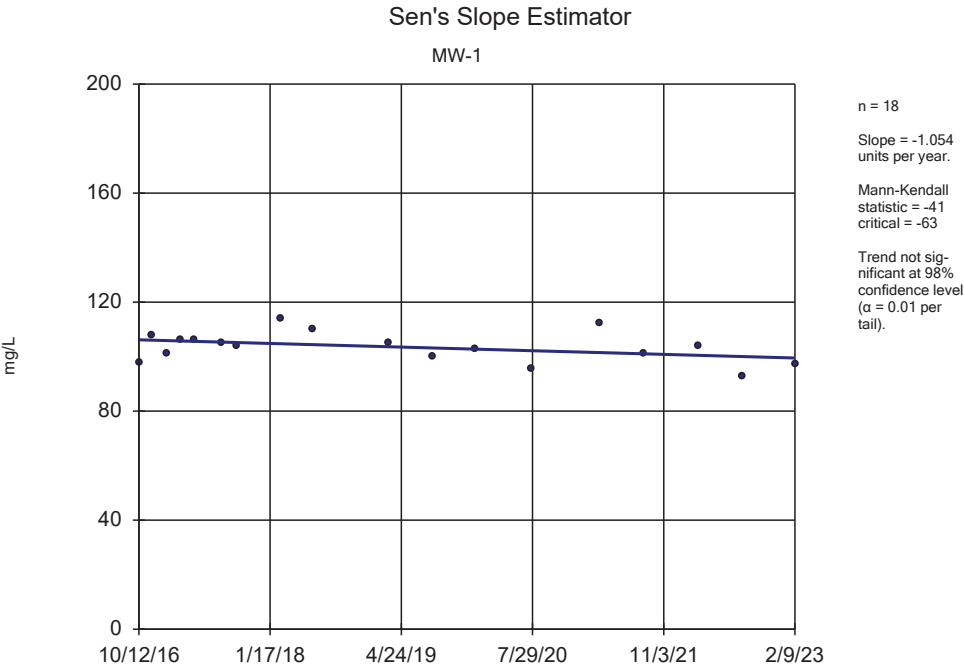
Constituent: Barium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater







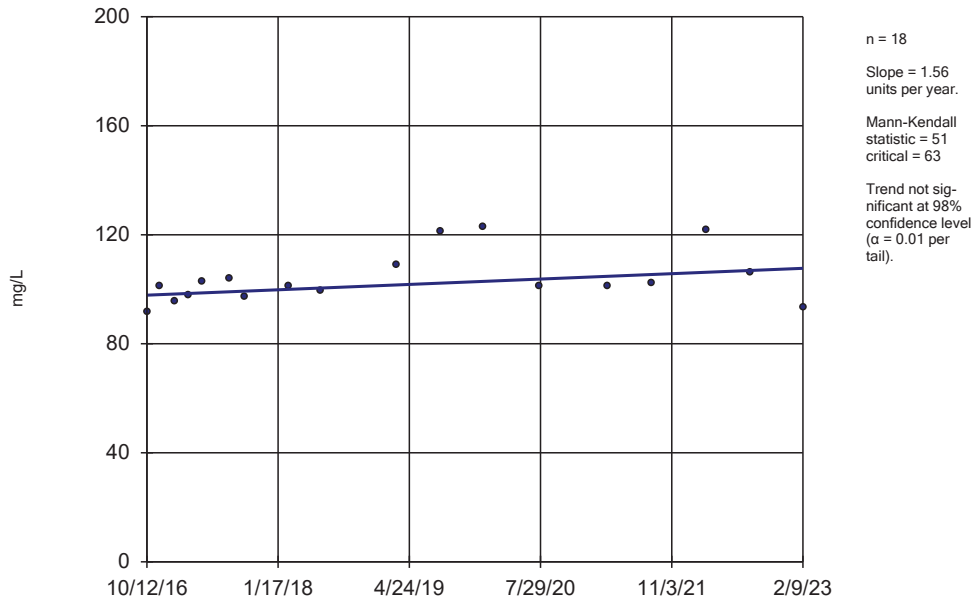
Constituent: Cadmium [total] Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Calcium Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

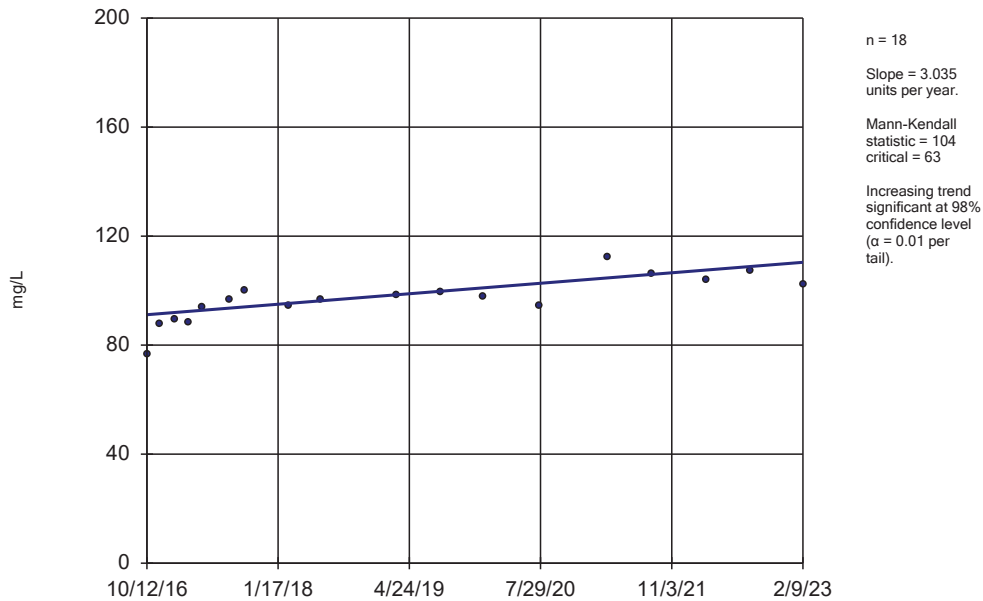
MW-2



Constituent: Calcium Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

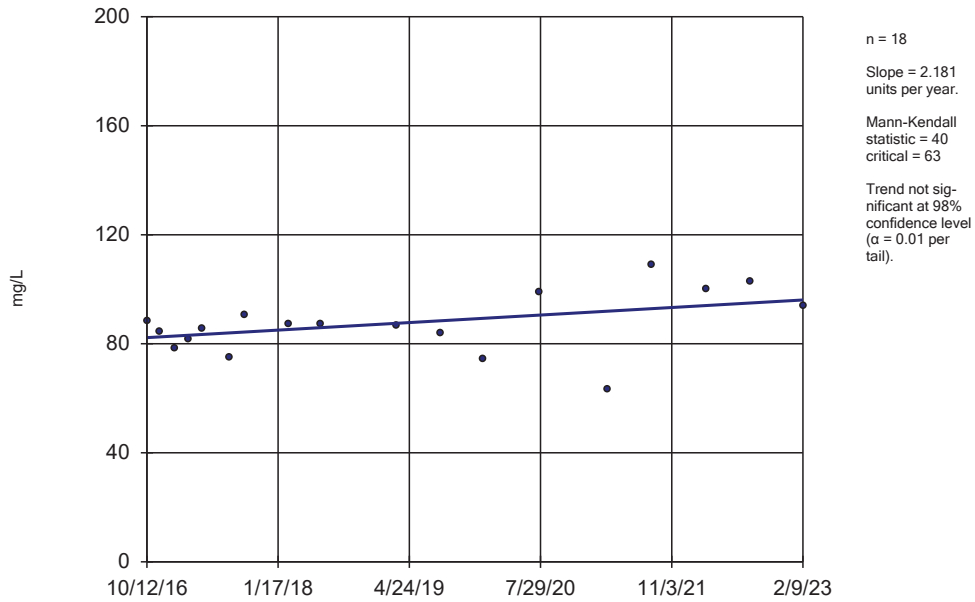
MW-3



Constituent: Calcium Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

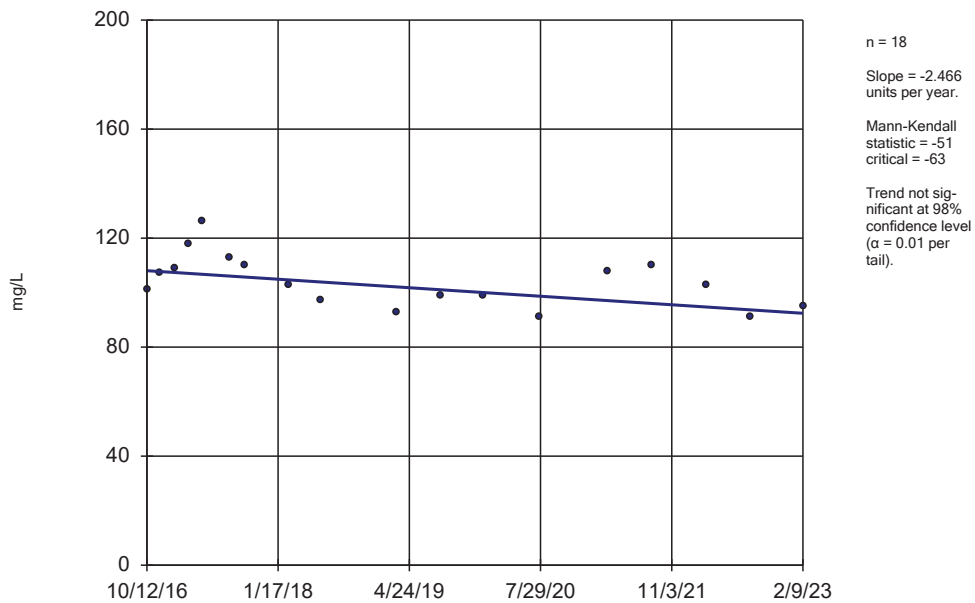
MW-4R (bg)



Constituent: Calcium Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

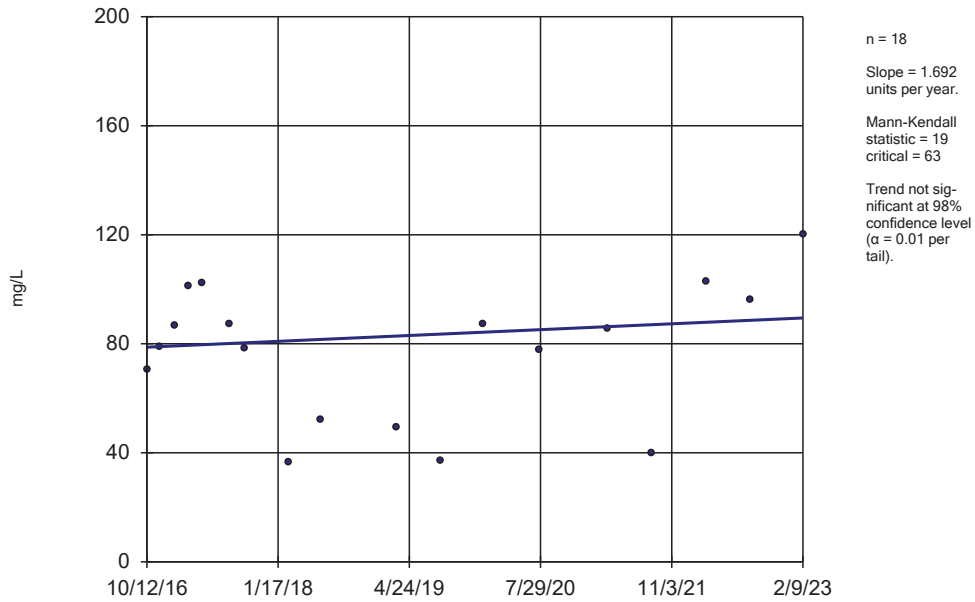
MW-5



Constituent: Calcium Analysis Run 3/13/2023 9:24 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

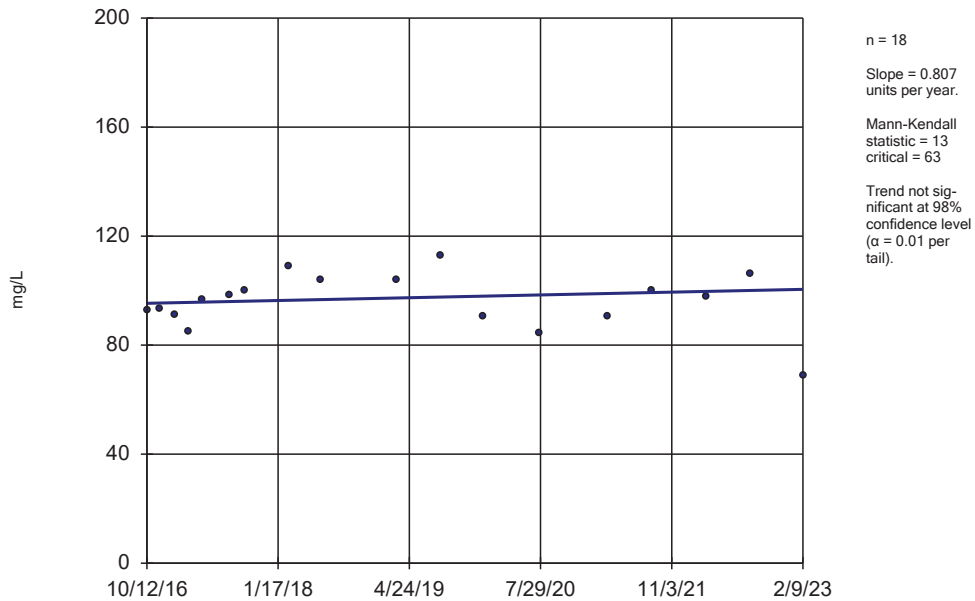
MW-6



Constituent: Calcium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

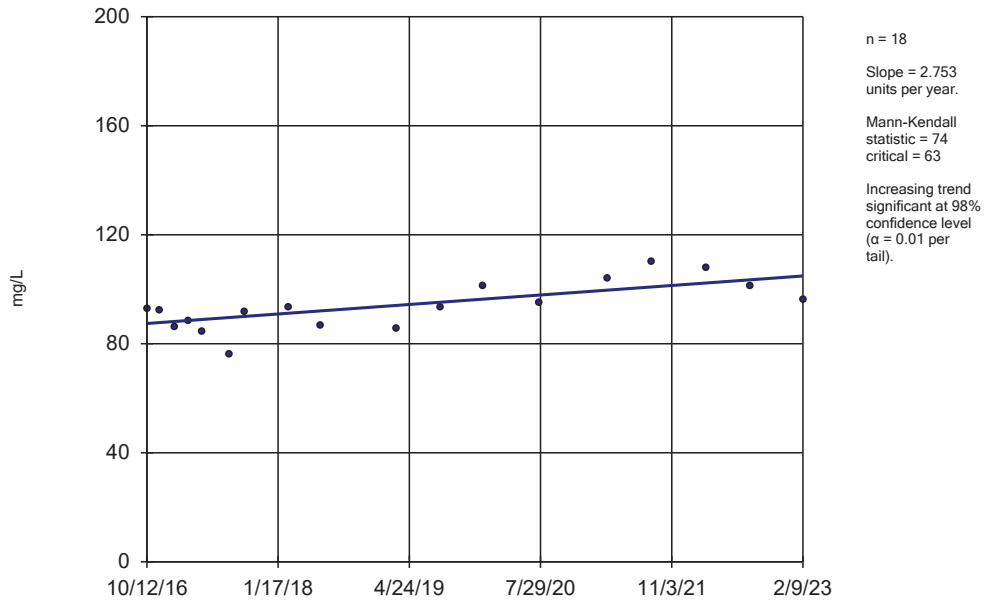
MW-7



Constituent: Calcium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

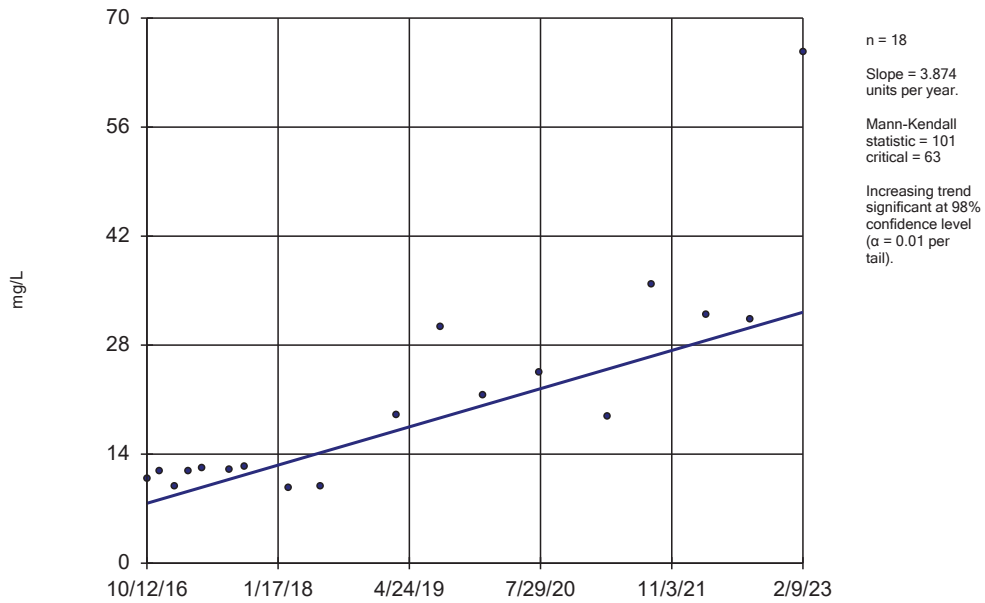
MW-8



Constituent: Calcium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

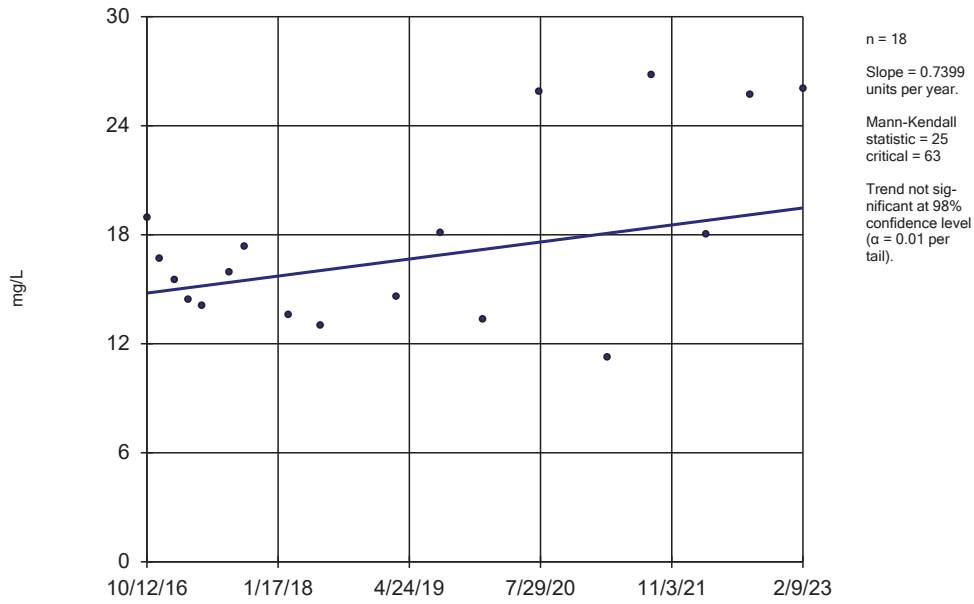
MW-1



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

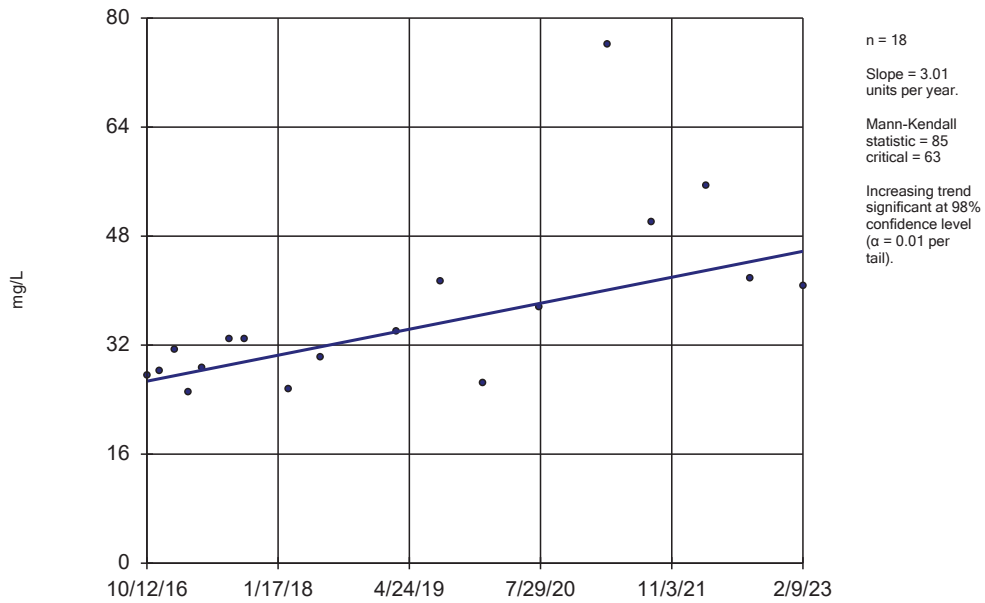
MW-2



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

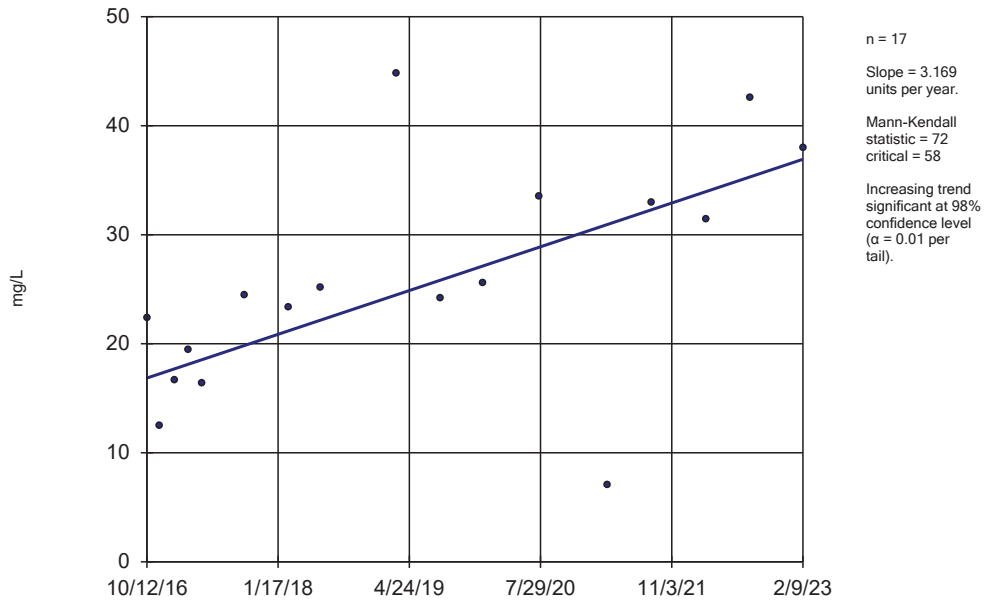
MW-3



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

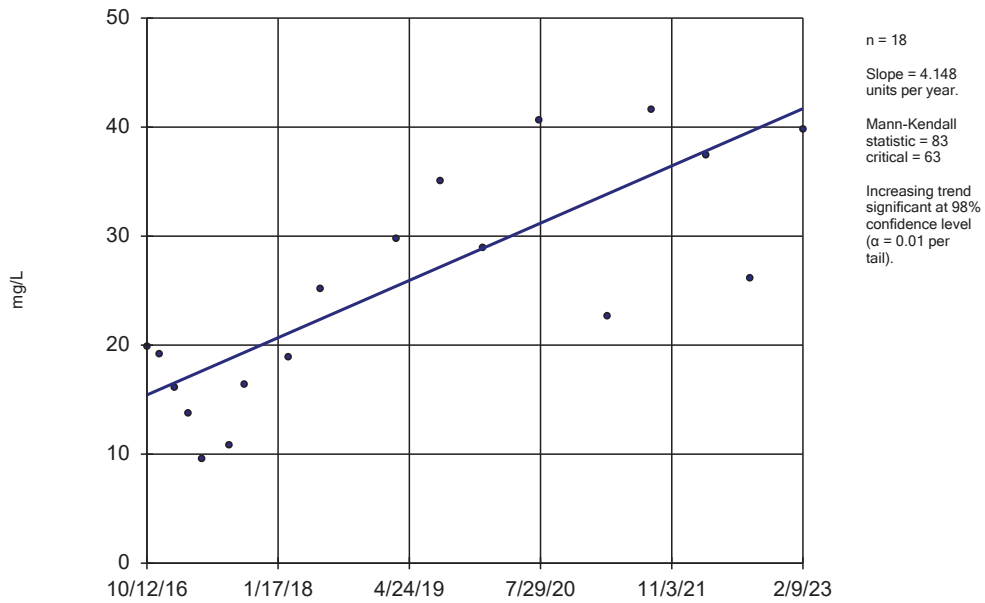
MW-4R (bg)



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

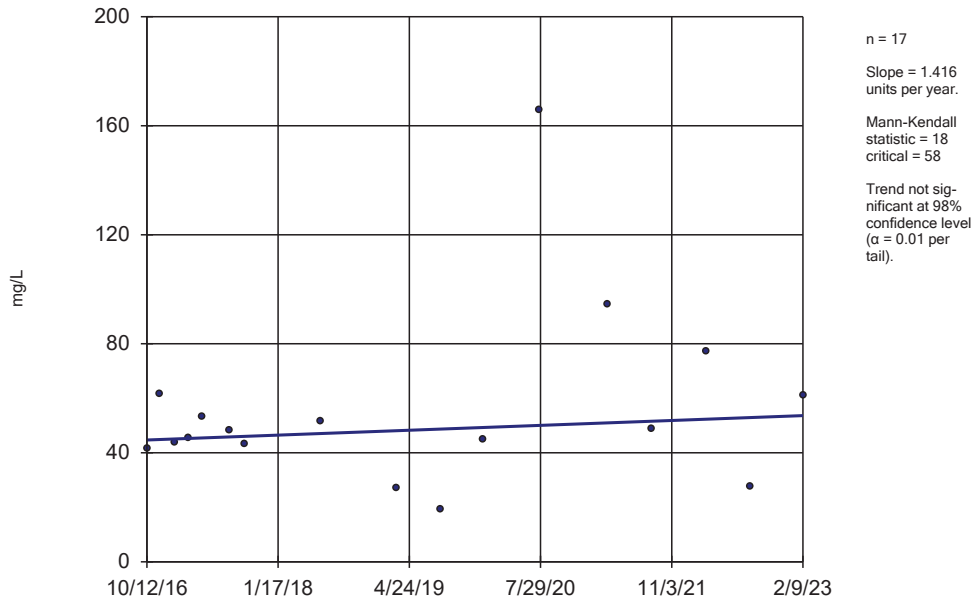
MW-5



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

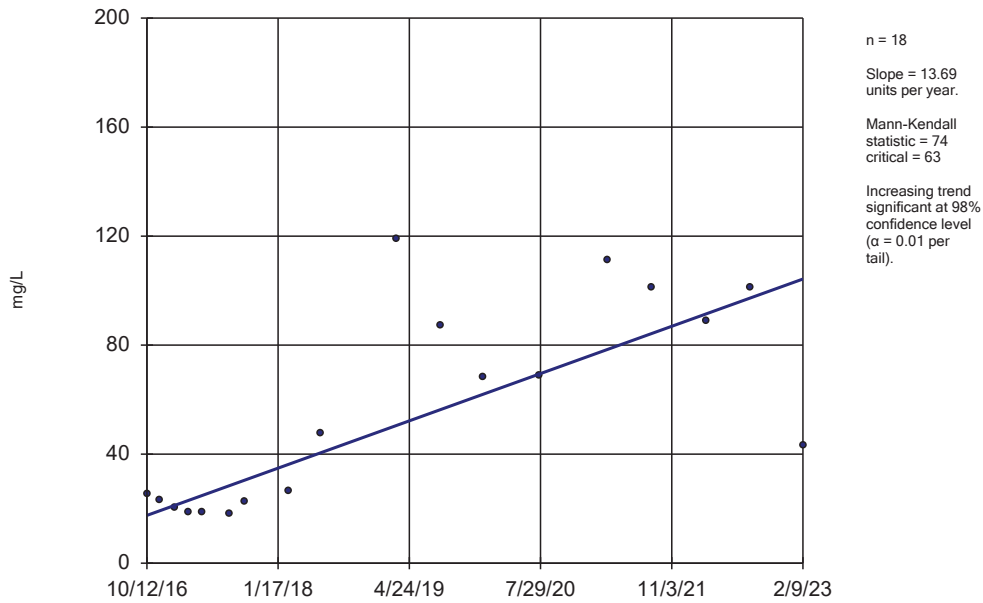
MW-6



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

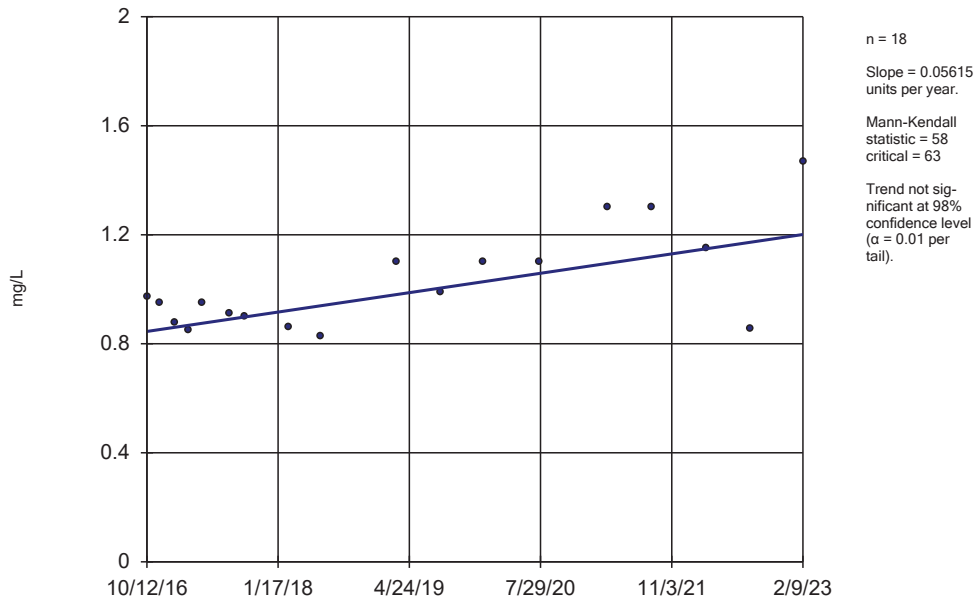
MW-7



Constituent: Chloride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

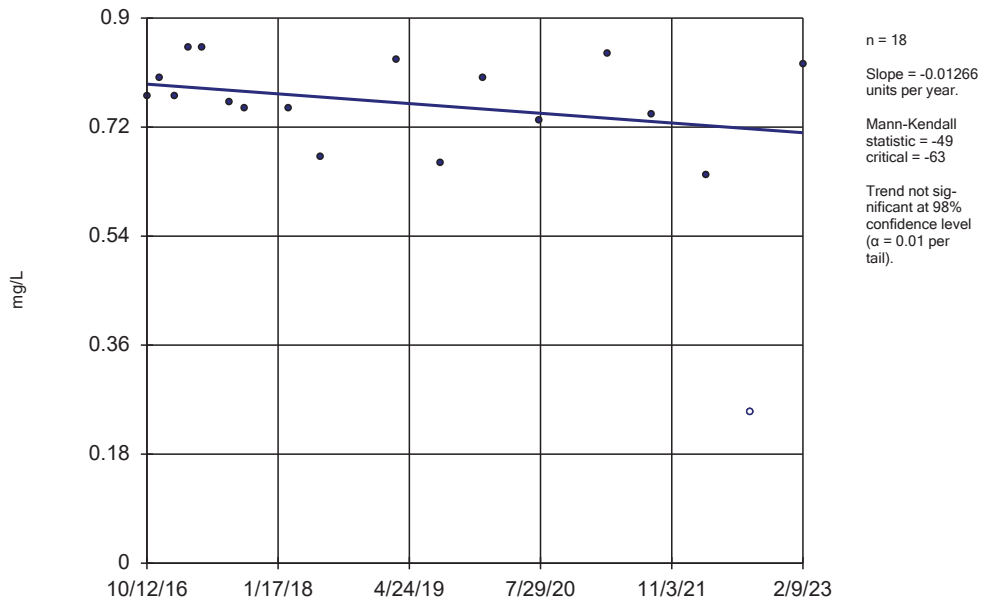
MW-2



Constituent: Fluoride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

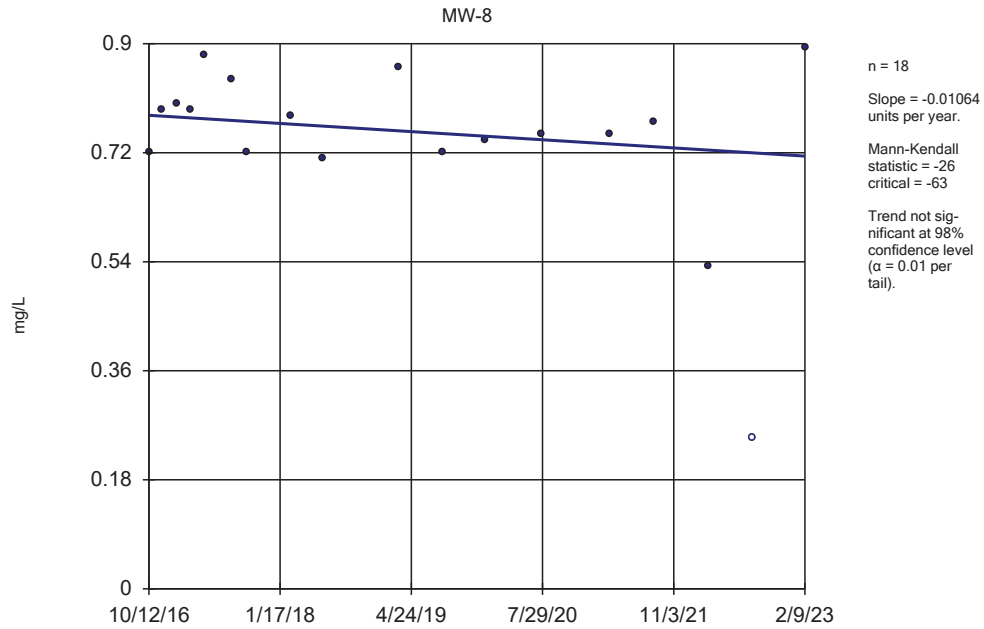
Sen's Slope Estimator

MW-3



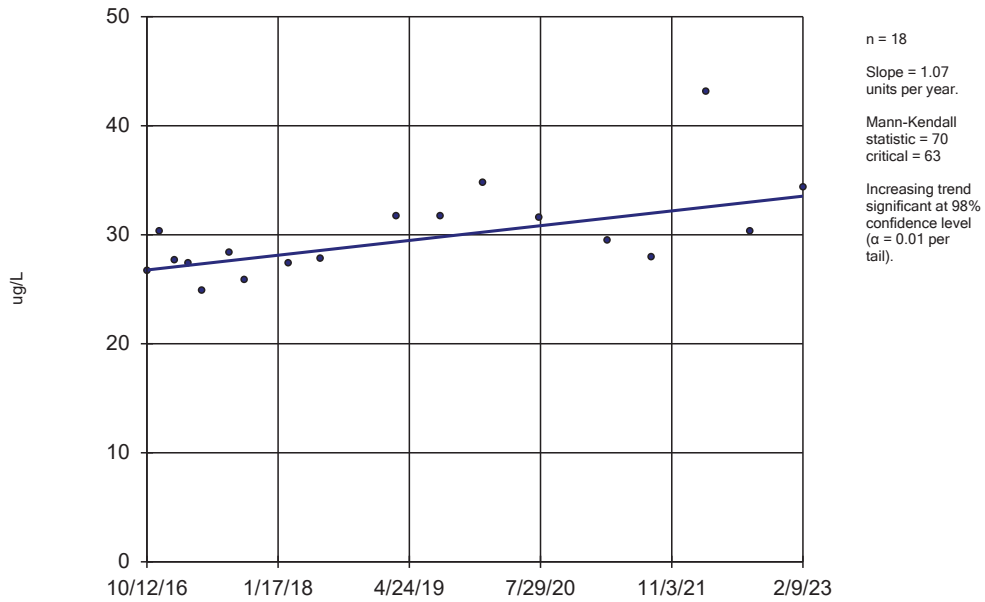
Constituent: Fluoride Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator



Sen's Slope Estimator

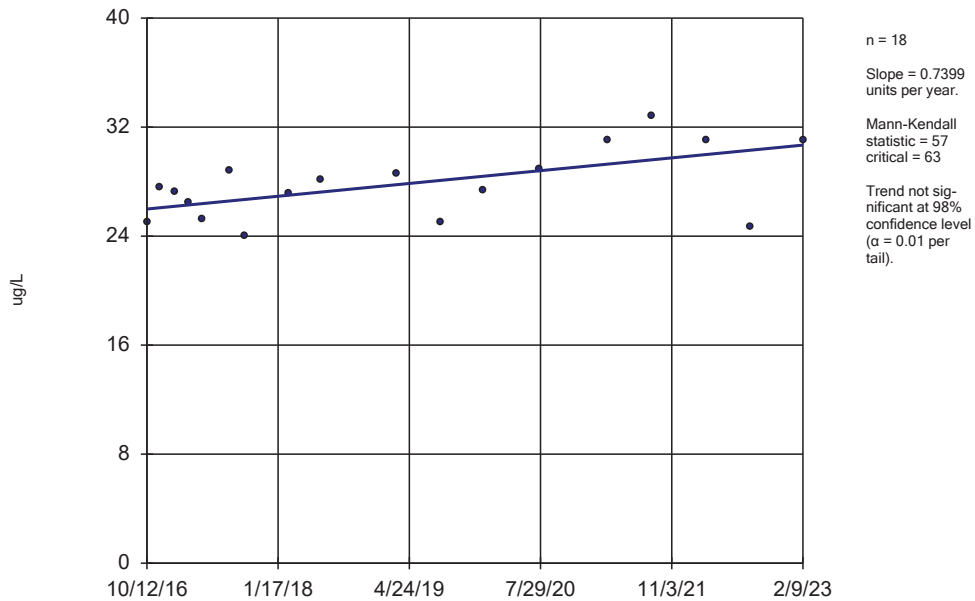
MW-2



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

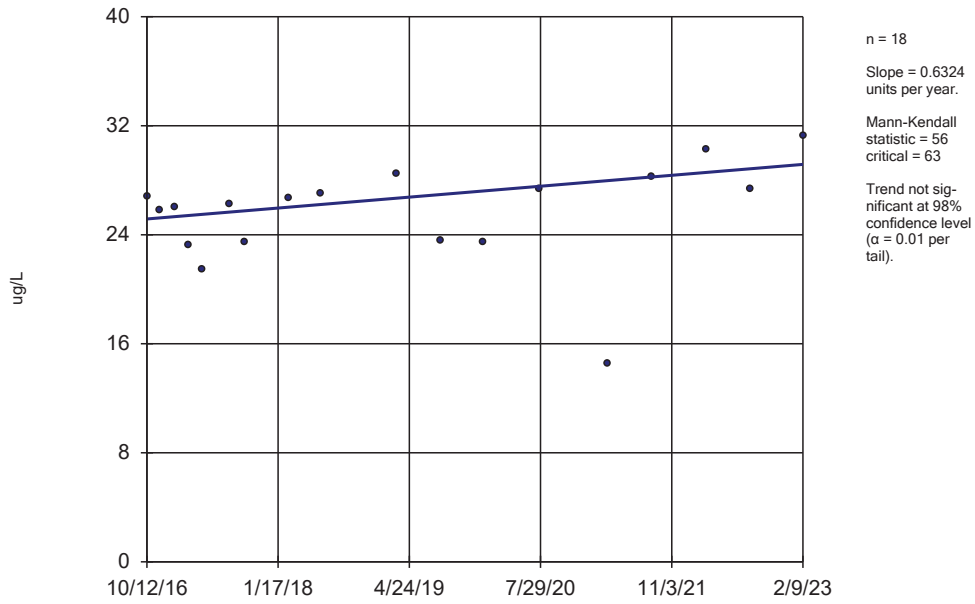
MW-3



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

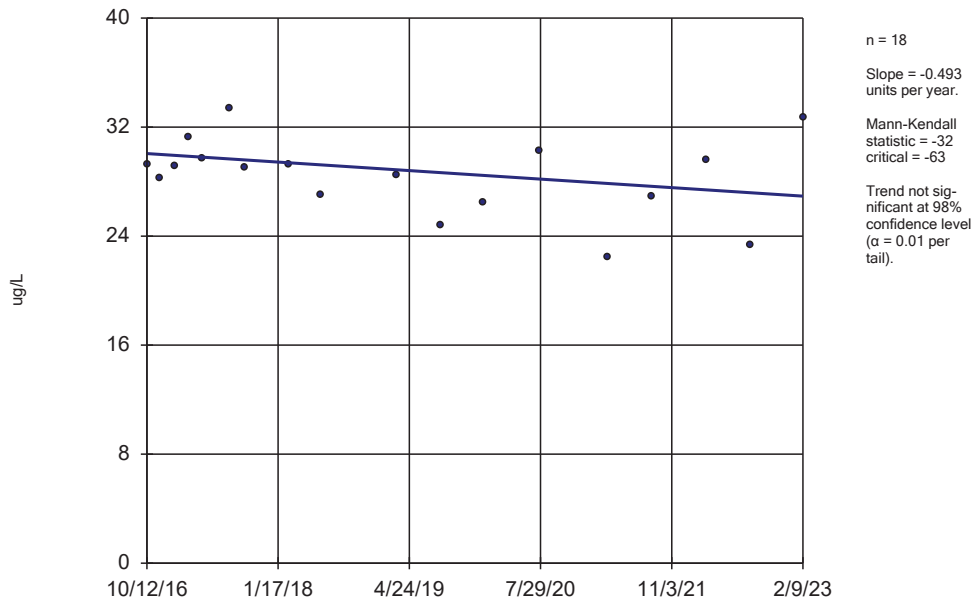
MW-4R (bg)



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

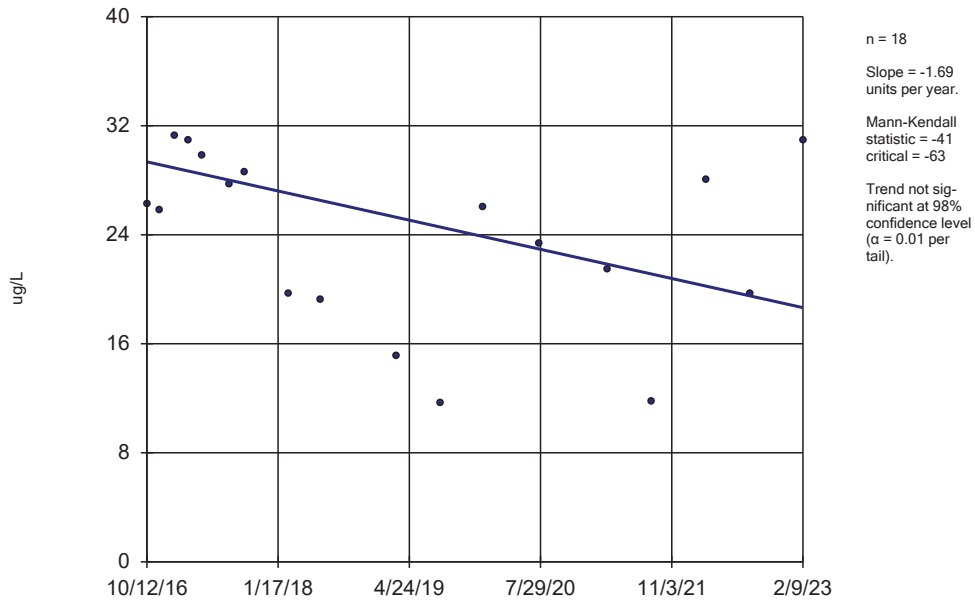
MW-5



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

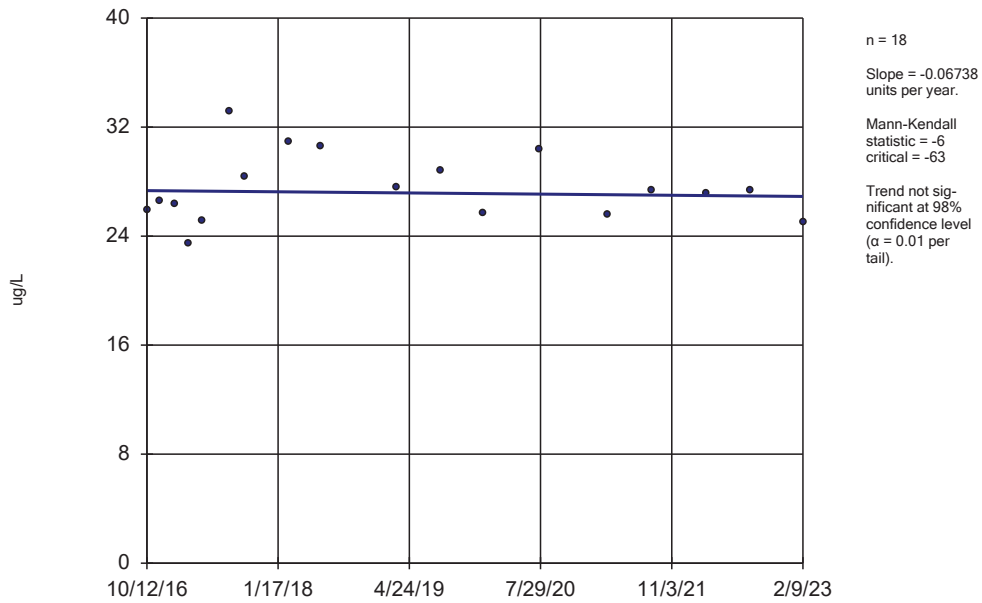
MW-6



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

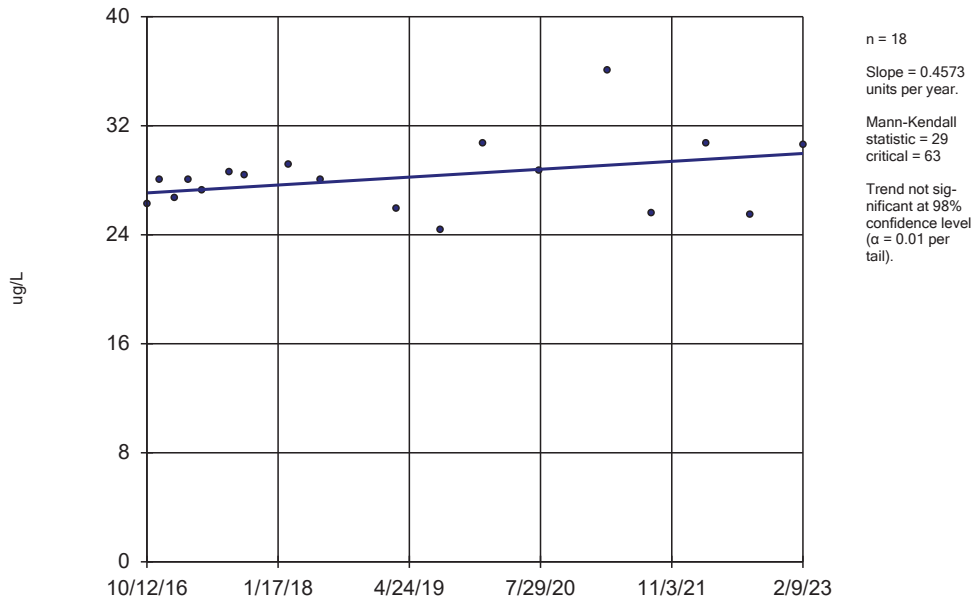
MW-7



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

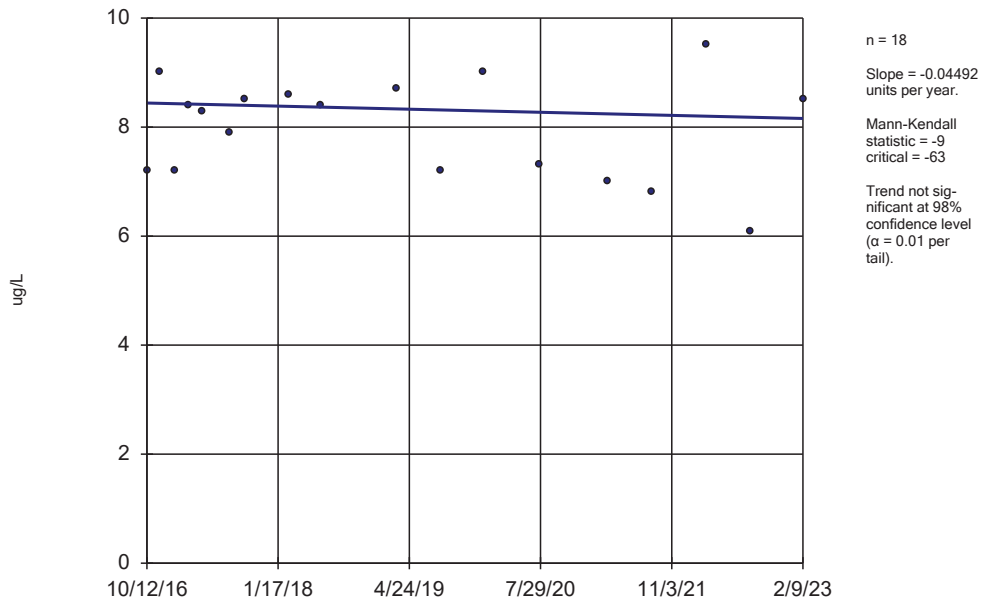
MW-8



Constituent: Lithium Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

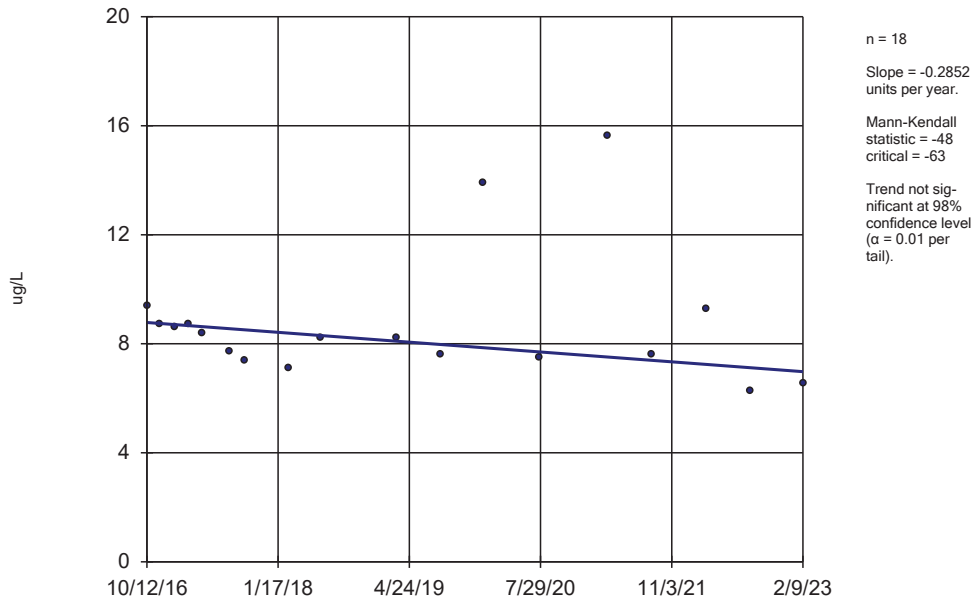
MW-1



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

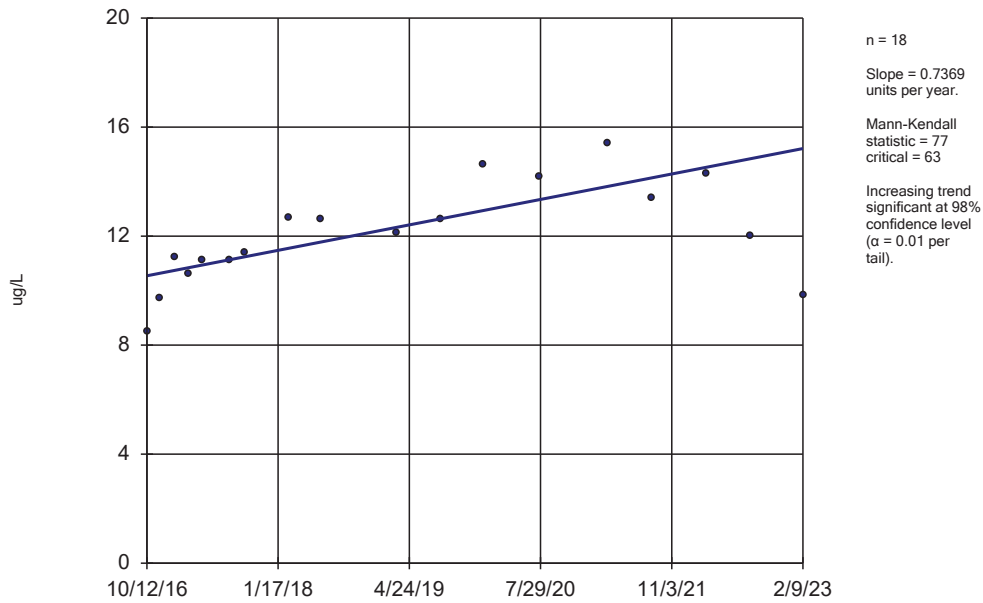
MW-2



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

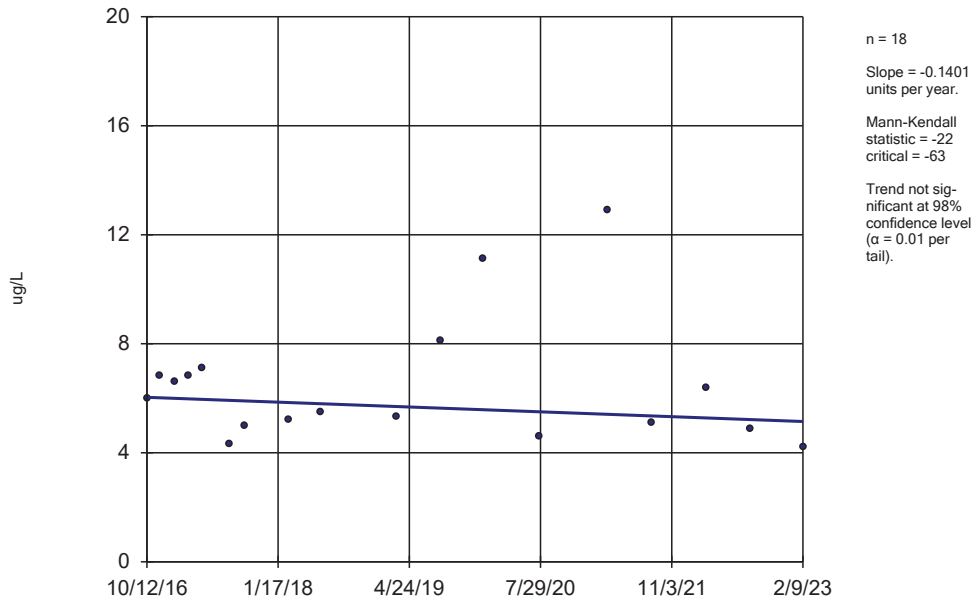
MW-3



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

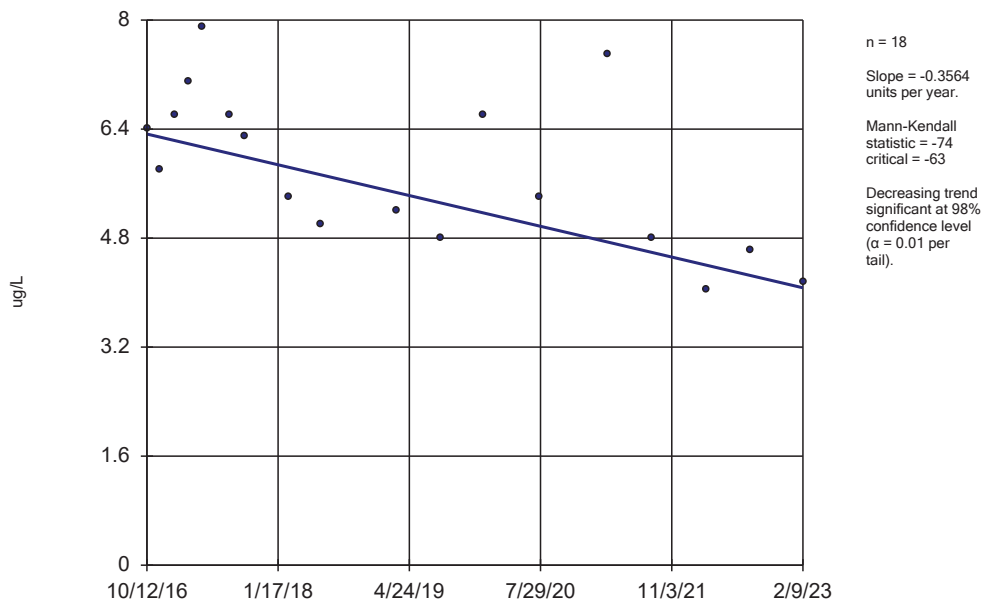
MW-4R (bg)



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

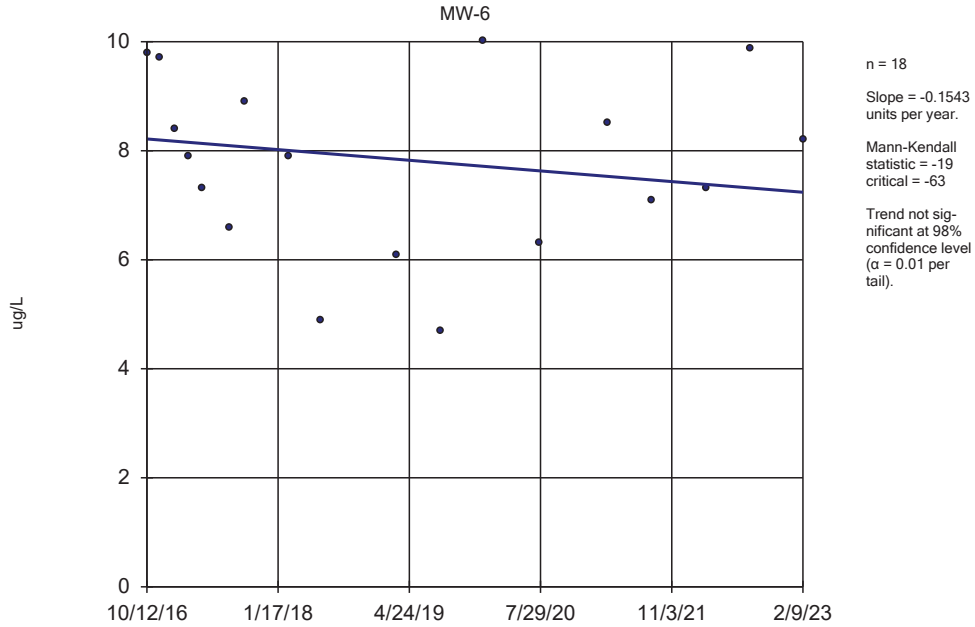
Sen's Slope Estimator

MW-5



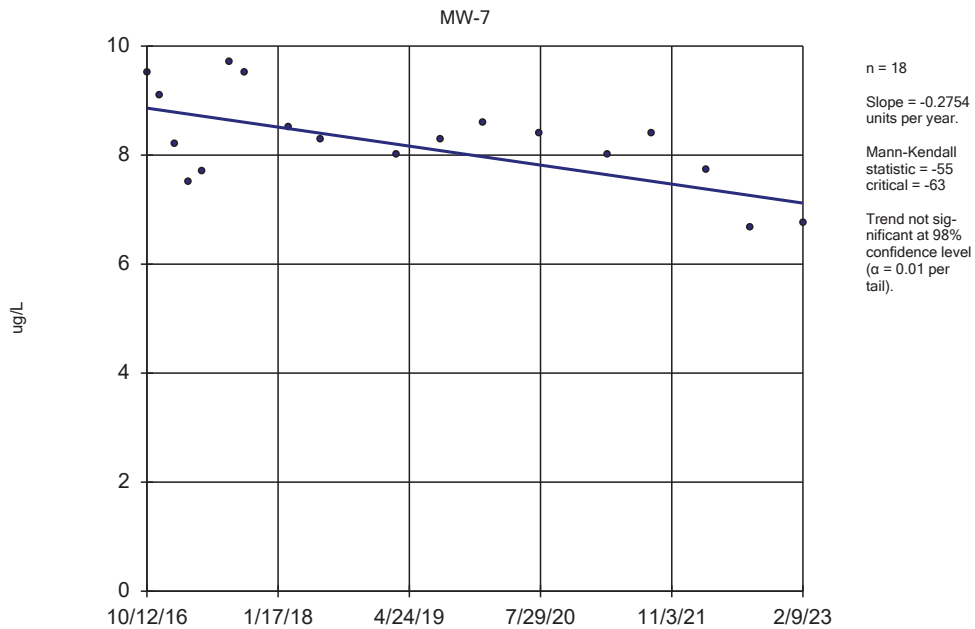
Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

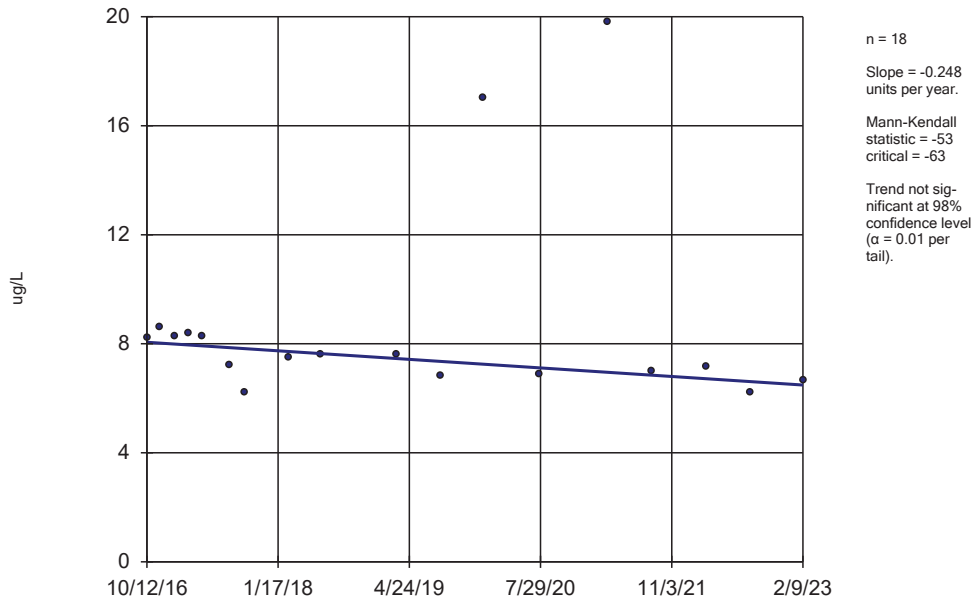
Sen's Slope Estimator



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

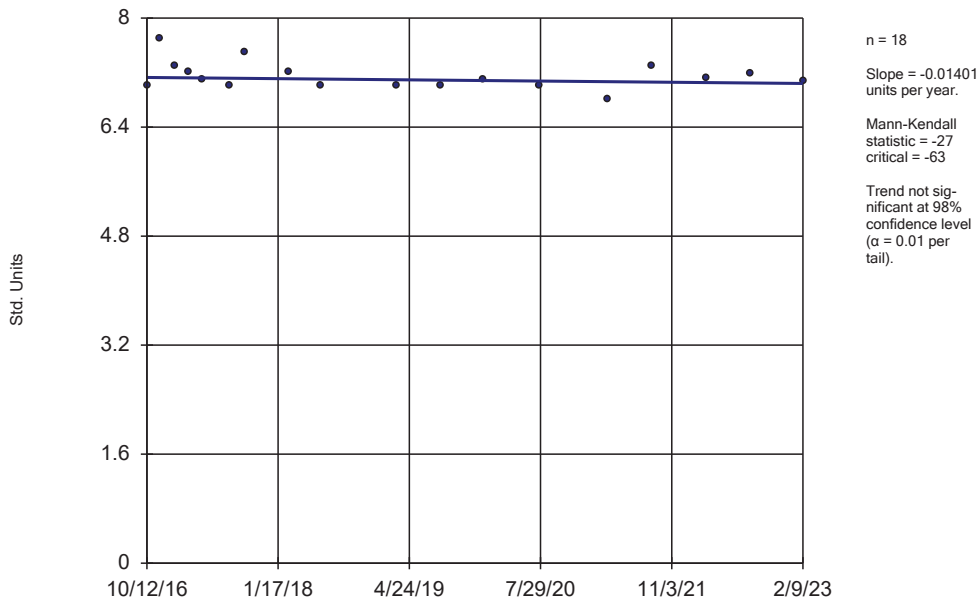
MW-8



Constituent: Molybdenum Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

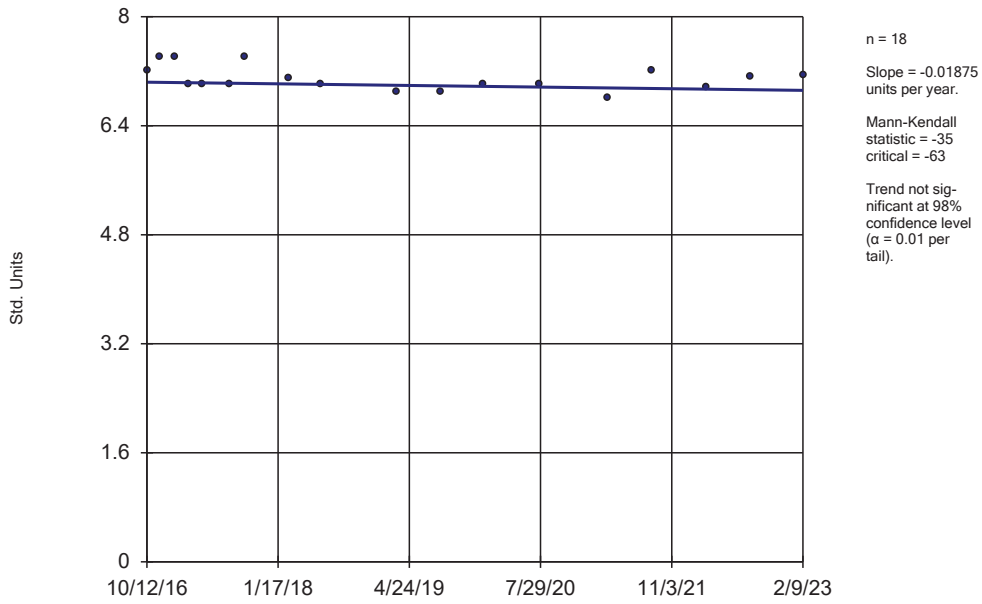
MW-1



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

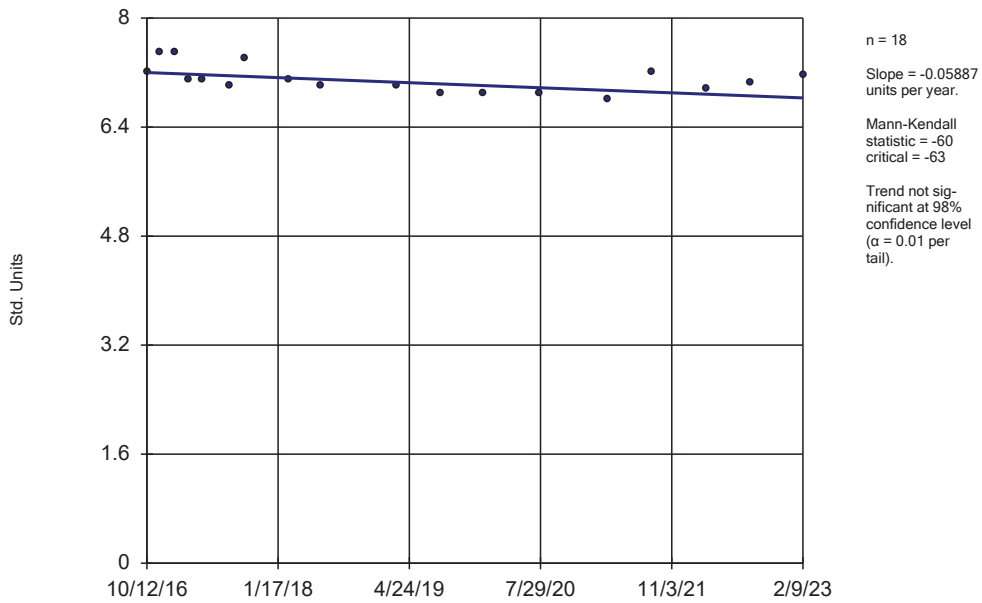
MW-2



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

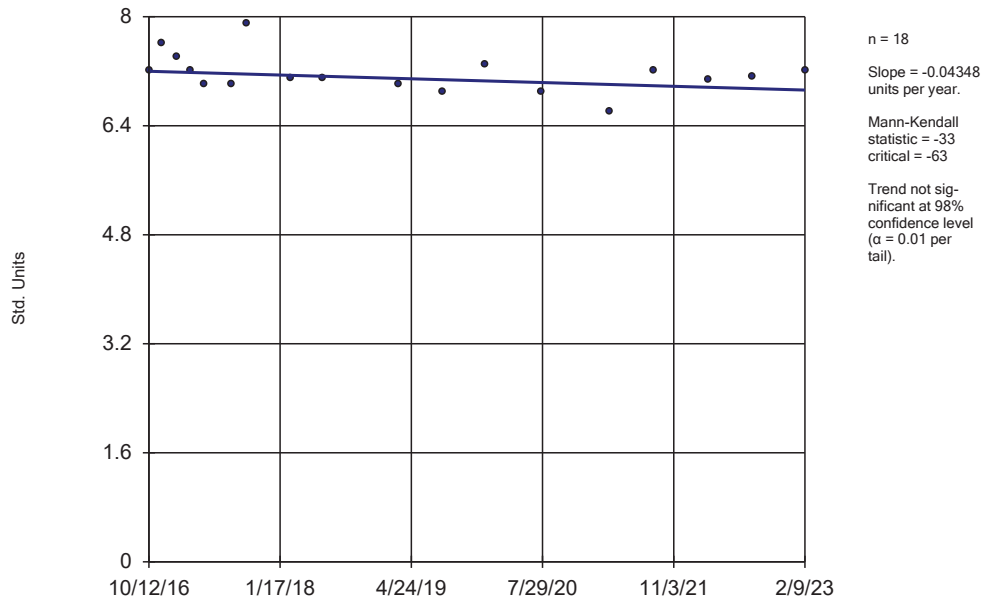
MW-3



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

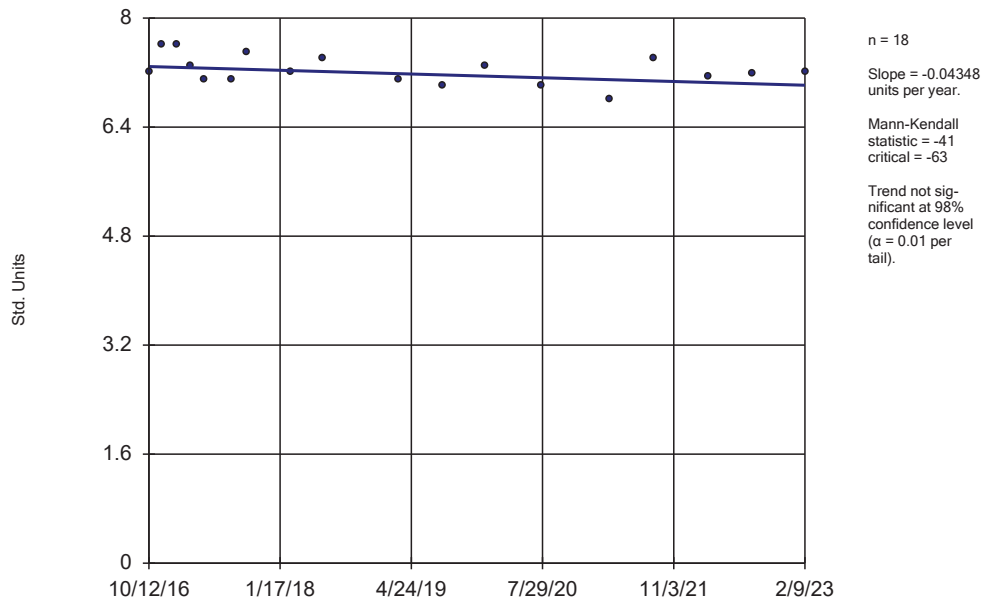
MW-4R (bg)



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

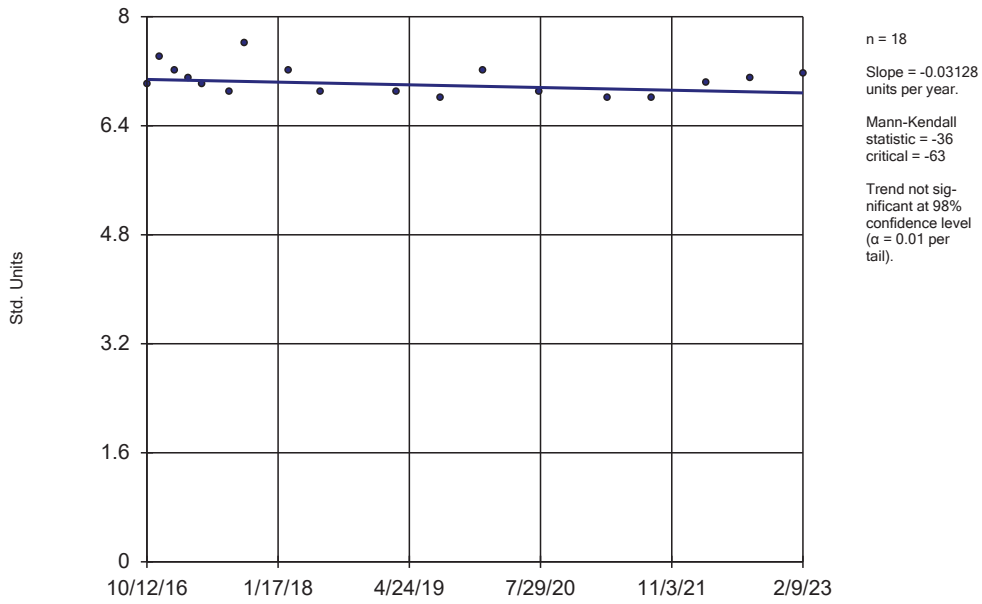
MW-5



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

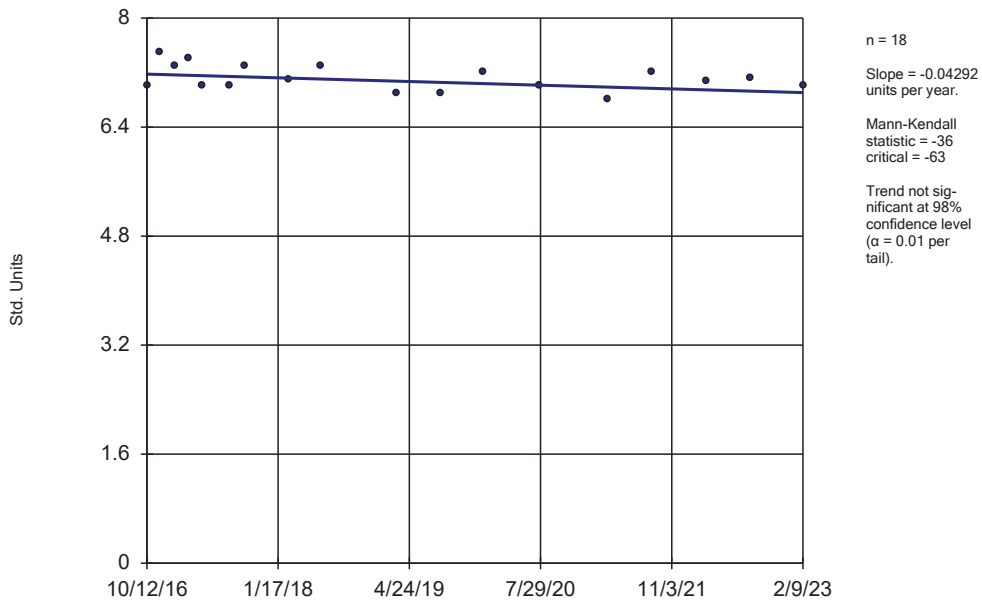
MW-6



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

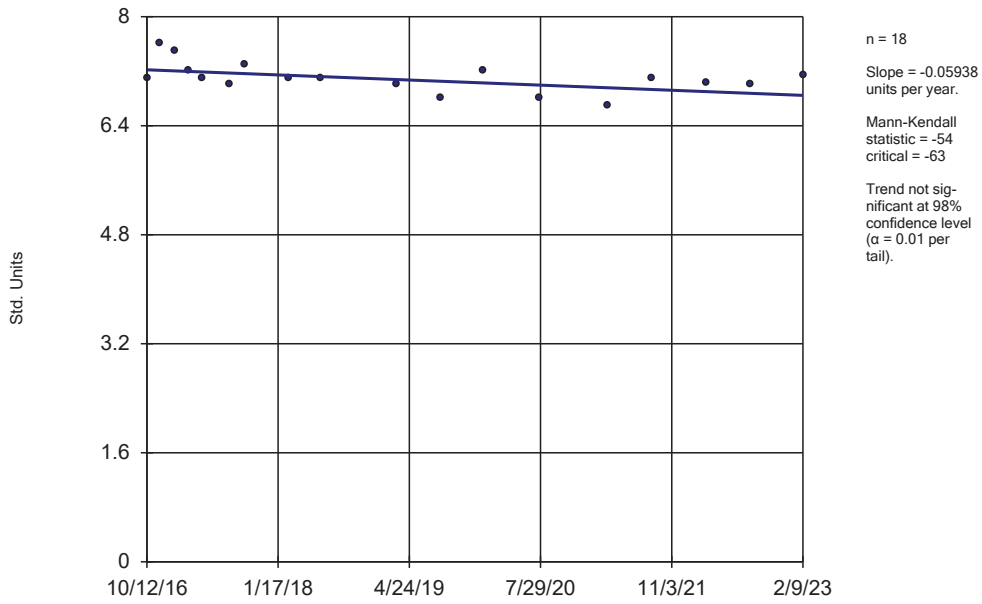
MW-7



Constituent: pH Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

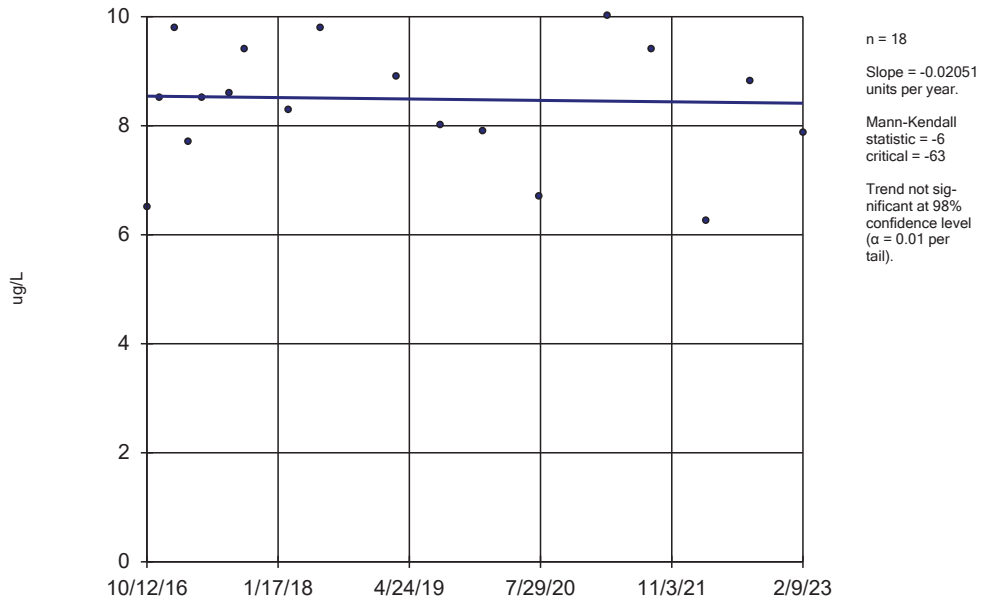
Sen's Slope Estimator

MW-8



Sen's Slope Estimator

MW-3

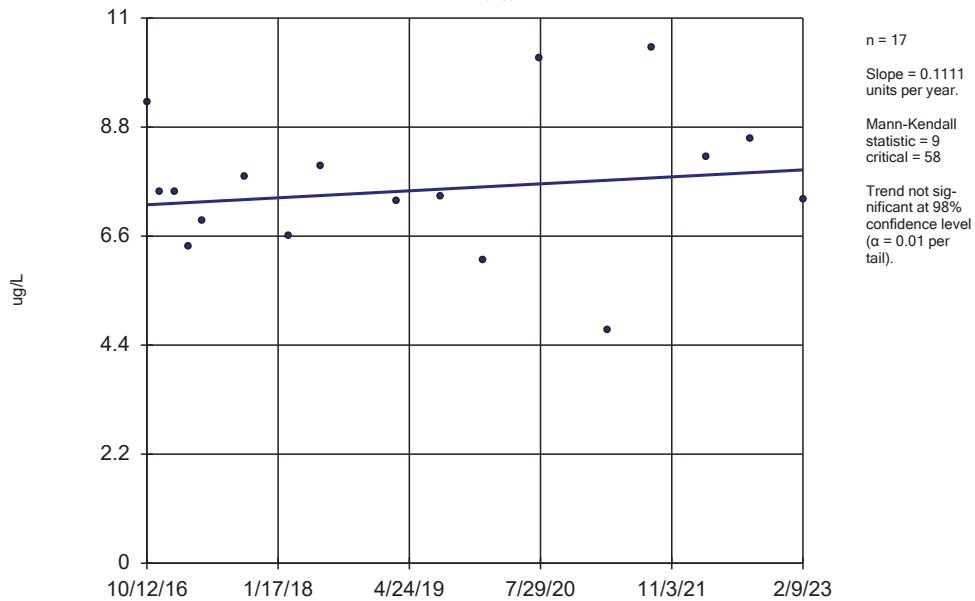


Constituent: Selenium [total] Analysis Run 3/13/2023 9:25 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-4R (bg)

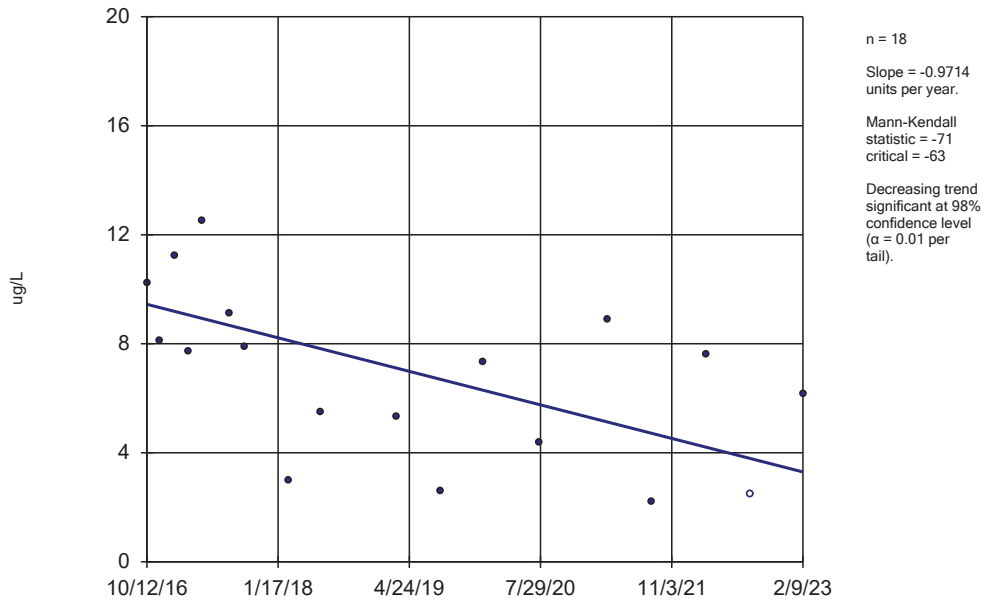


Constituent: Selenium [total] Analysis Run 3/13/2023 9:25 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

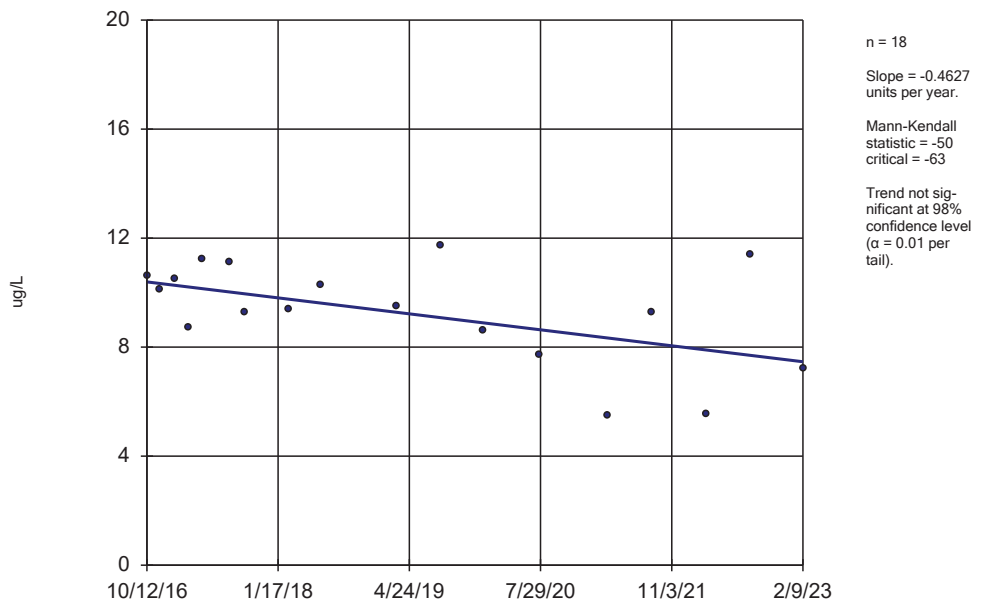
MW-6



Constituent: Selenium [total] Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

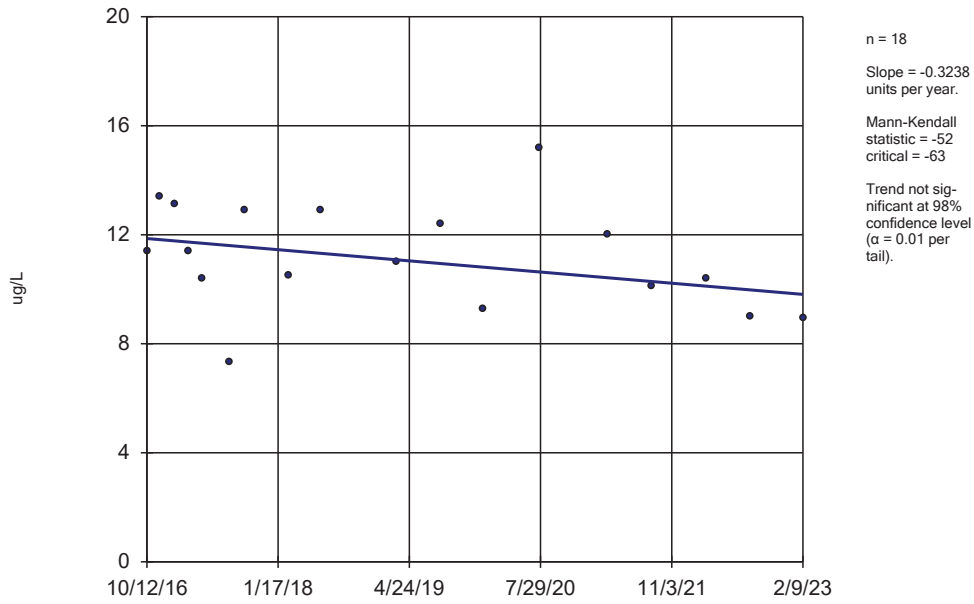
MW-7



Constituent: Selenium [total] Analysis Run 3/13/2023 9:25 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

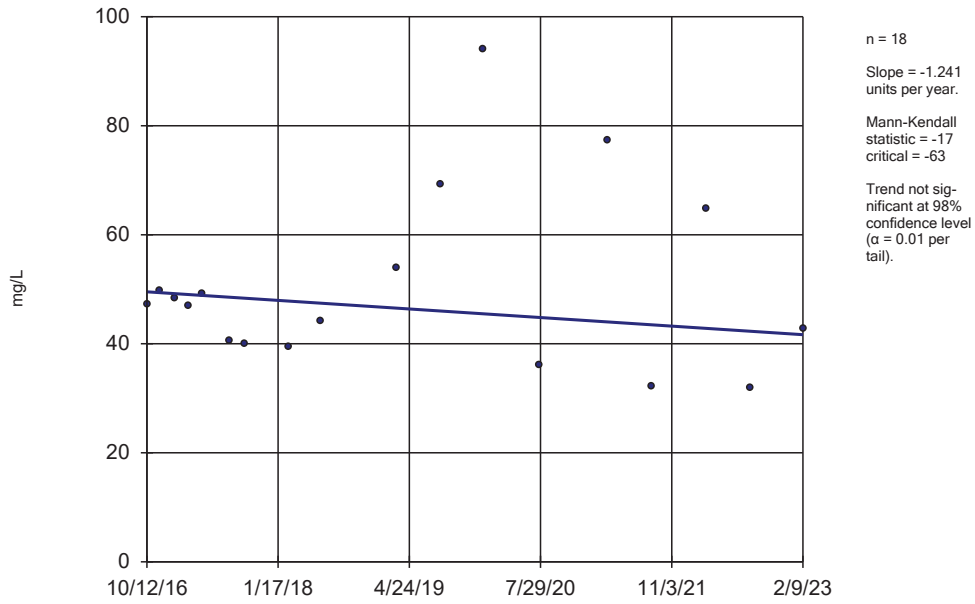
Sen's Slope Estimator

MW-8



Sen's Slope Estimator

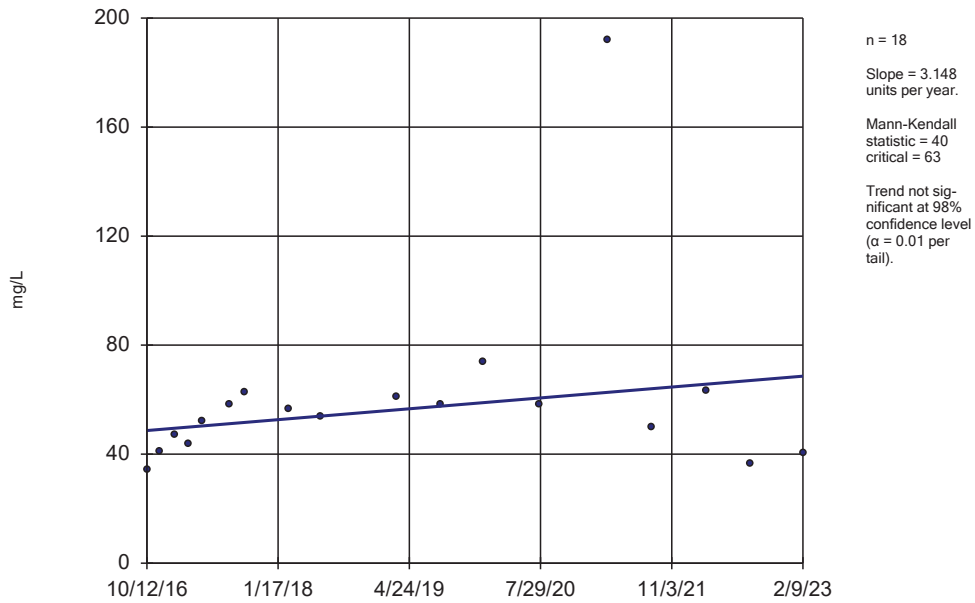
MW-2



Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

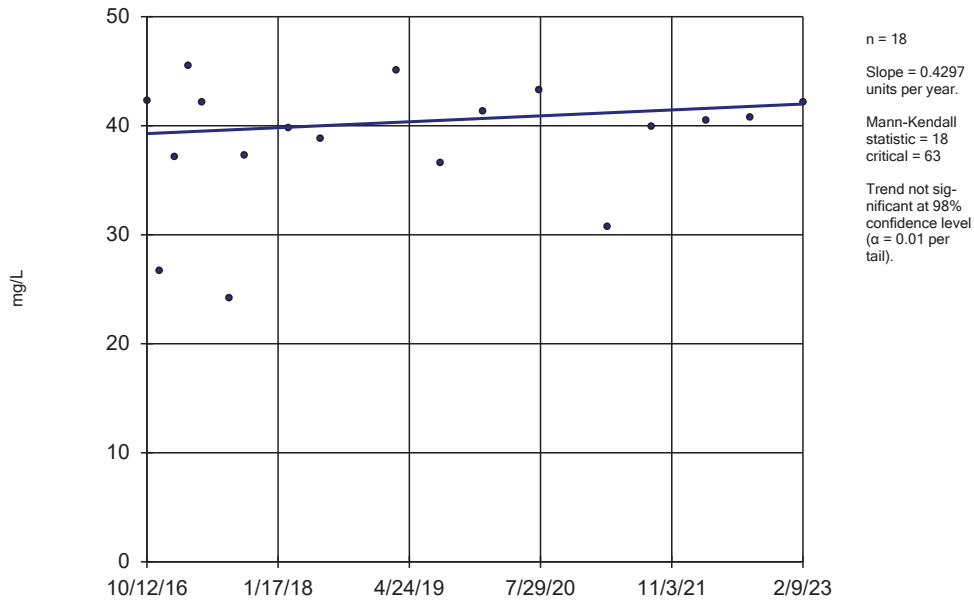
MW-3



Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

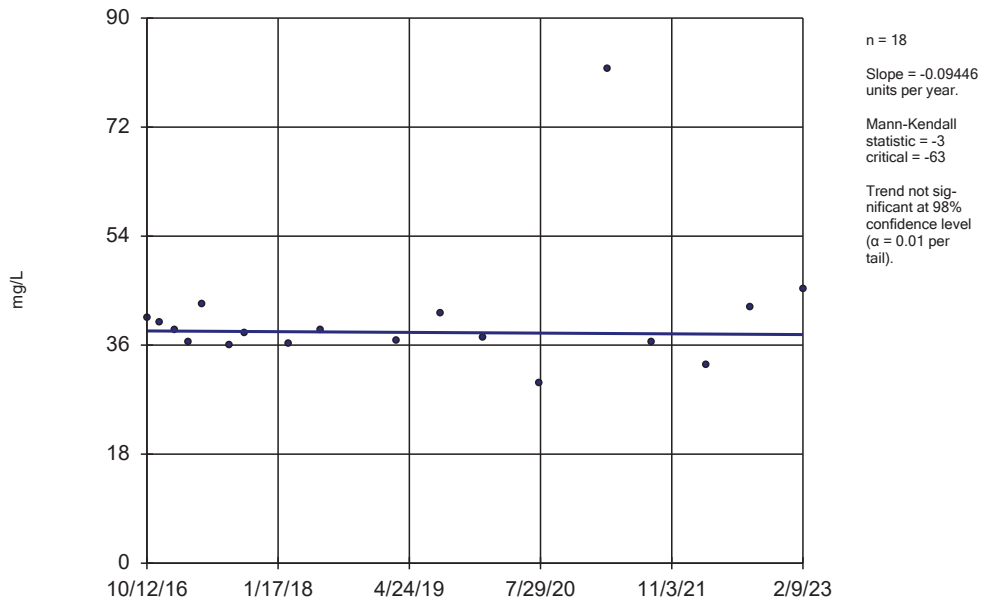
MW-4R (bg)



Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

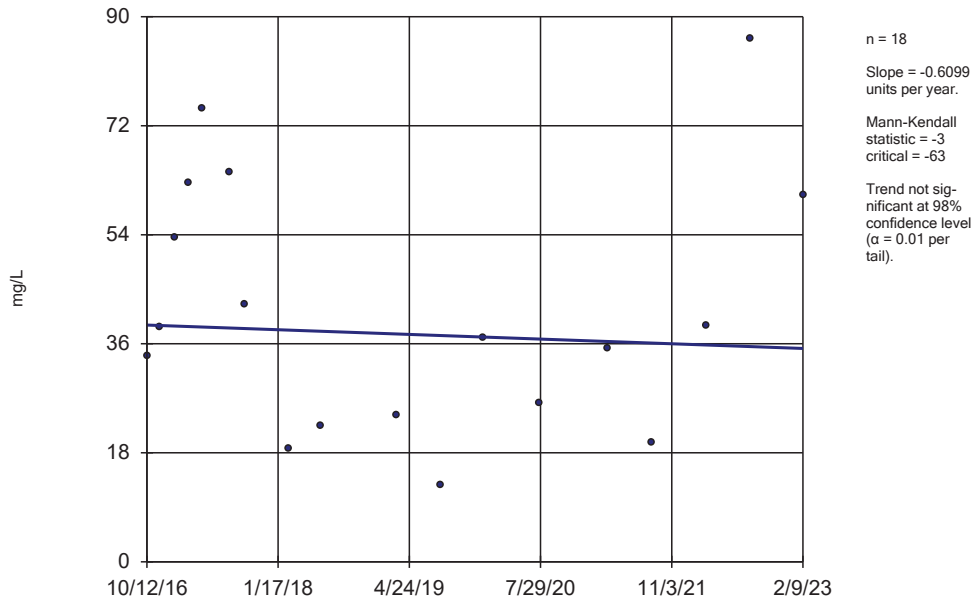
MW-5



Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

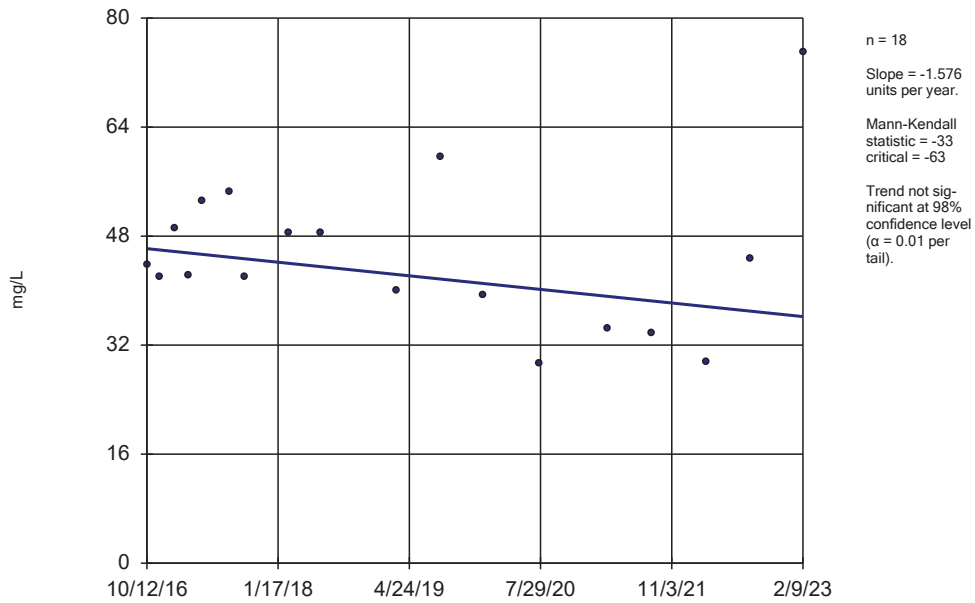
MW-6



Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

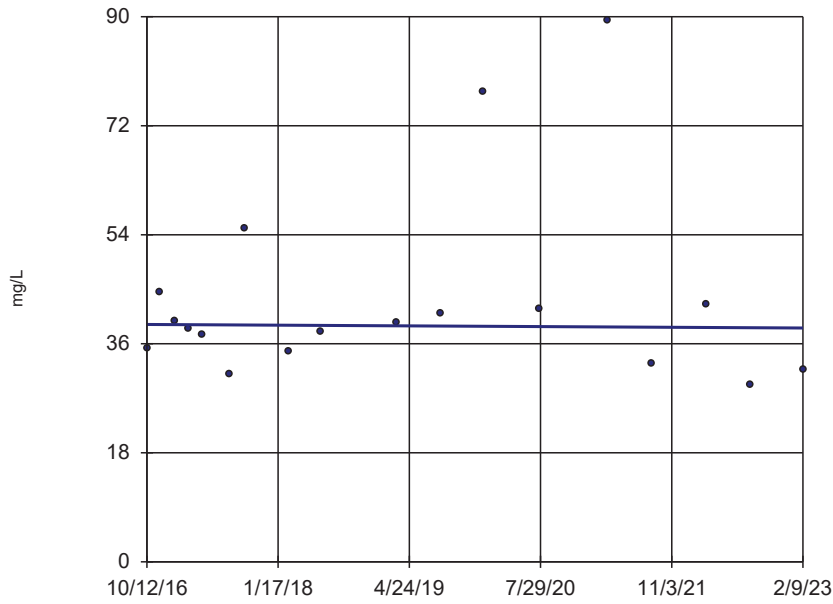
MW-7



Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-8

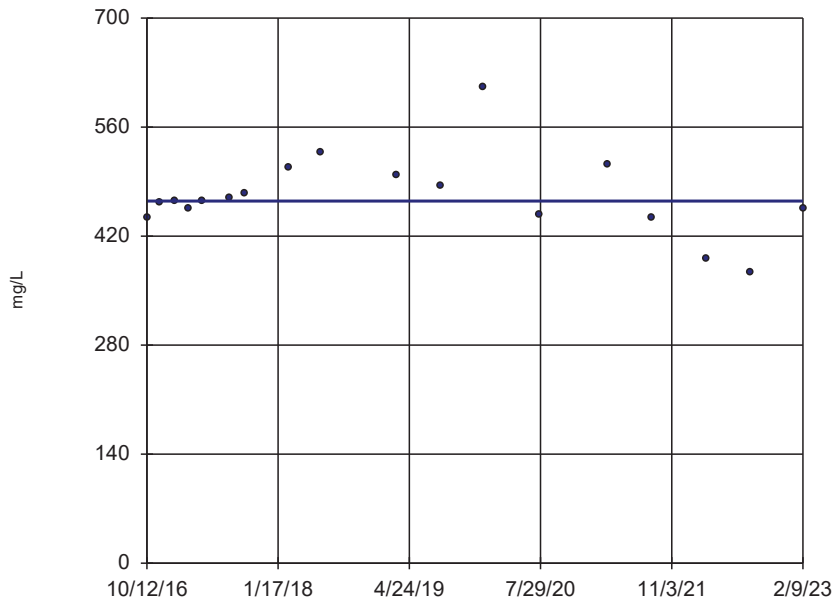


n = 18
Slope = -0.09335
units per year.
Mann-Kendall
statistic = -1
critical = -63
Trend not sig-
nificant at 98%
confidence level
($\alpha = 0.01$ per
tail).

Constituent: Sulfate Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

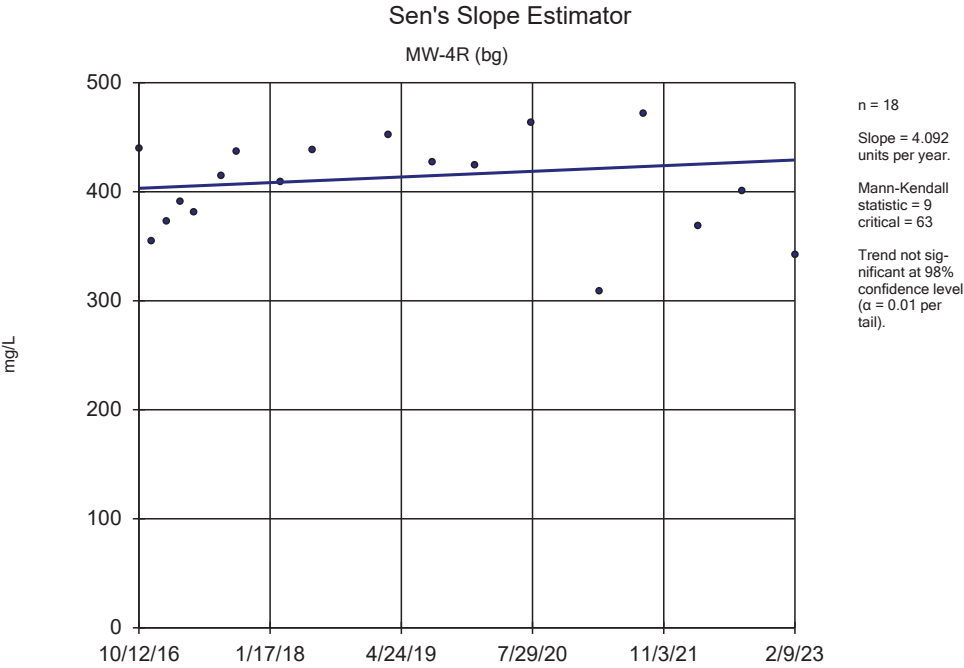
MW-1



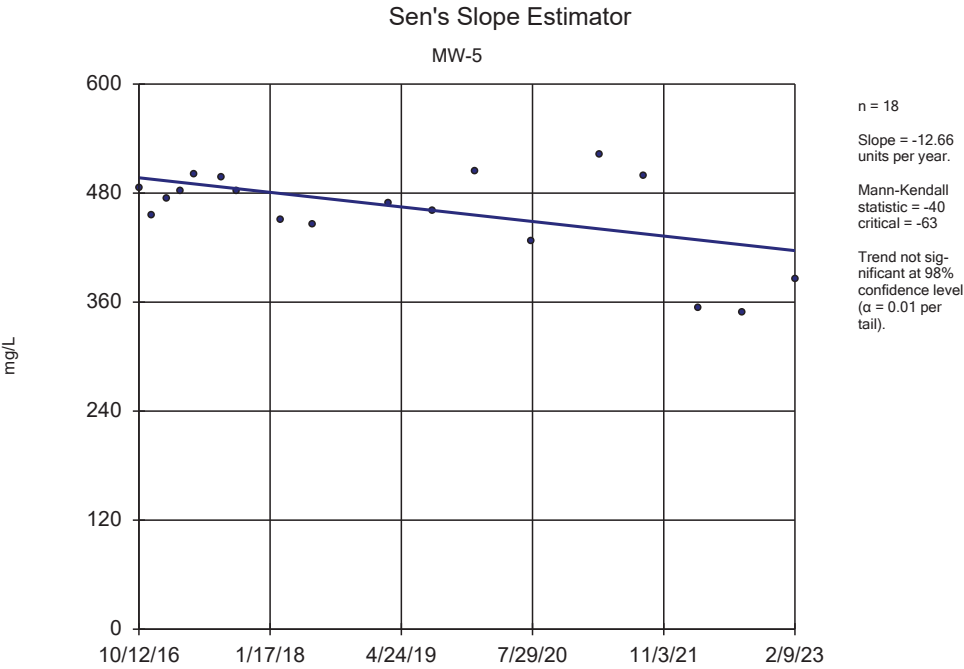
n = 18
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 63
Trend not sig-
nificant at 98%
confidence level
($\alpha = 0.01$ per
tail).

Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

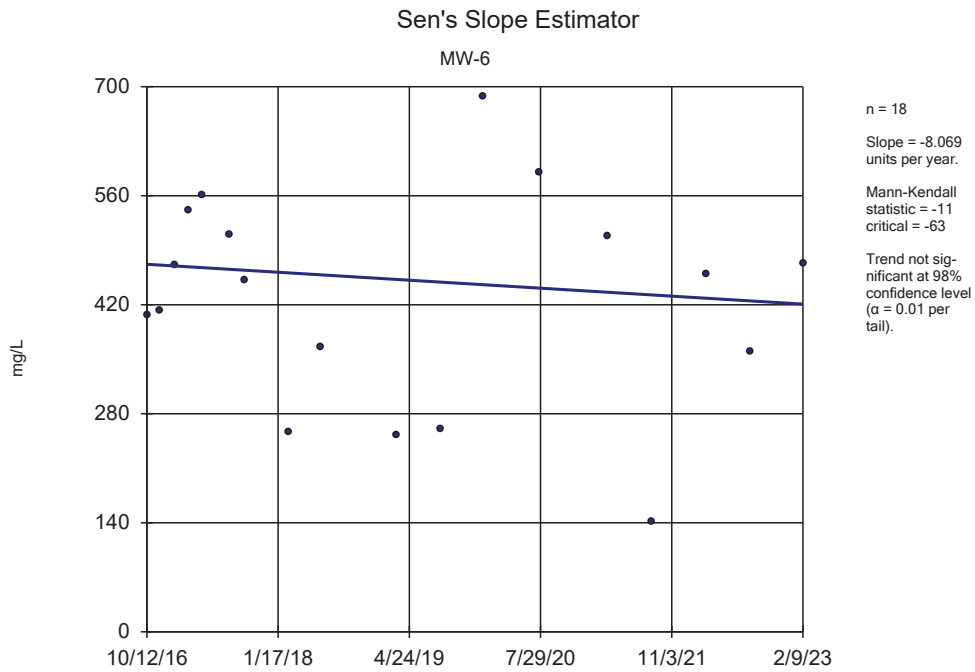
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



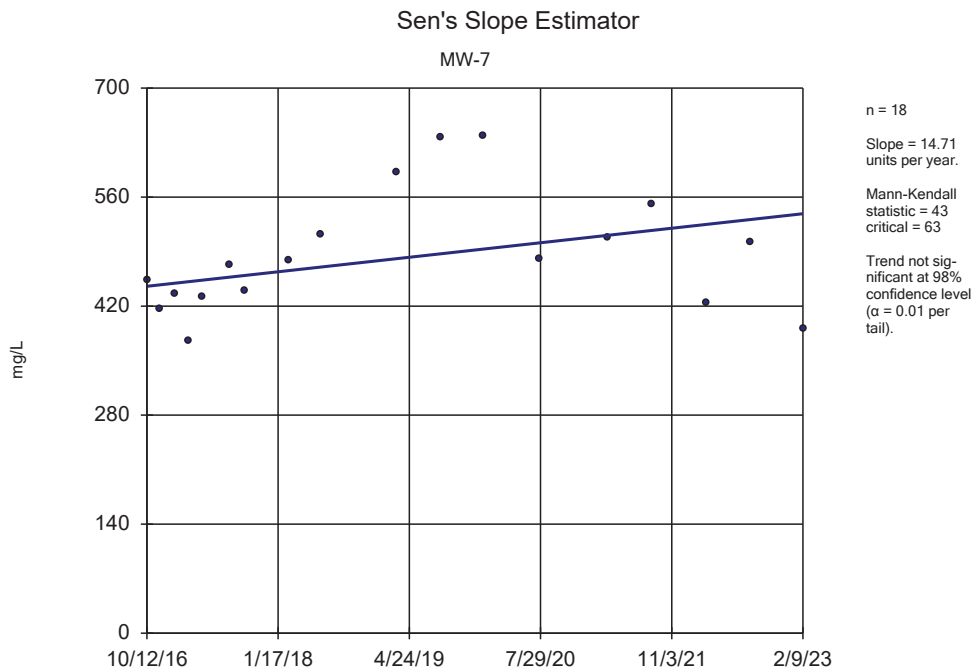
Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



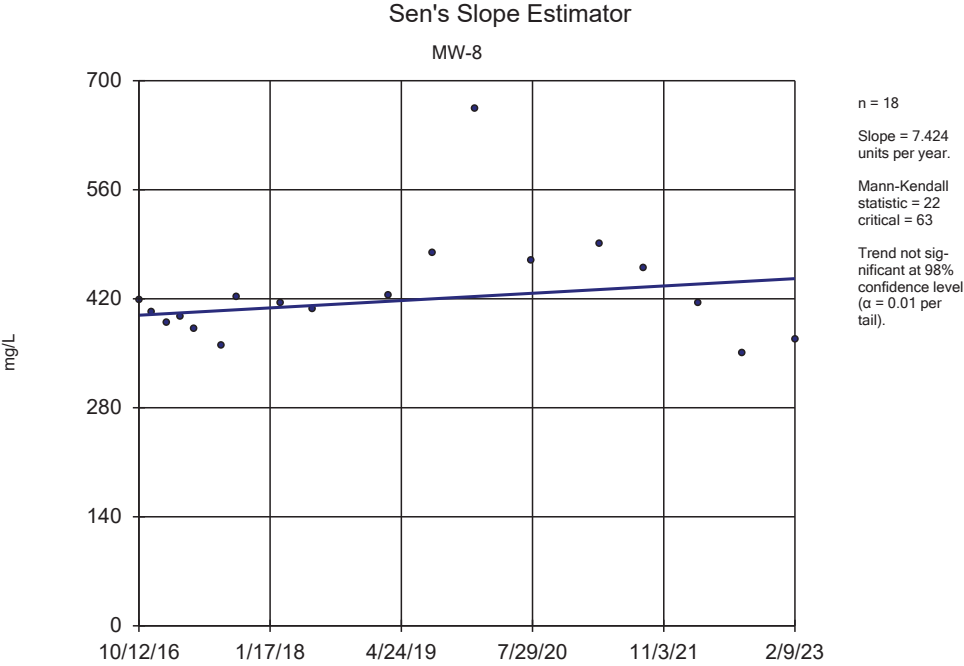
Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:26 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:26 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:26 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

A.5 Confidence Interval Analysis

Confidence Interval

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 3/13/2023, 9:44 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic [total] (ug/L)	MW-1	4.2	3.3	10	No	17	0	No	0.01	NP (normality)
Arsenic [total] (ug/L)	MW-2	4.133	3.692	10	No	17	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-3	3.343	2.982	10	No	17	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-4R (bg)	4.616	3.762	10	No	17	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-5	4.646	4.338	10	No	17	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-6	3.55	2.8	10	No	17	0	No	0.01	NP (normality)
Arsenic [total] (ug/L)	MW-7	3.784	3.449	10	No	17	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-8	2.691	2.471	10	No	17	0	No	0.01	Param.
Barium [total] (ug/L)	MW-1	147.5	127.7	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-2	109.9	97.92	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-3	180.6	165.9	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-4R (bg)	132.8	119.9	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-5	143.9	129.1	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-6	153.2	105.5	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-7	130.5	113.6	200	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-8	161.9	145.7	200	No	18	0	No	0.01	Param.
Boron (ug/L)	MW-3	115	50	172.5	No	18	27.78	No	0.01	NP (normality)
Boron (ug/L)	MW-4R (bg)	229	50	172.5	No	18	33.33	No	0.01	NP (normality)
Boron (ug/L)	MW-5	137	114	172.5	No	18	0	No	0.01	NP (normality)
Cadmium [total] (ug/L)	MW-1	0.25	0.18	5	No	16	93.75	No	0.01	NP (NDs)
Cadmium [total] (ug/L)	MW-2	0.25	0.213	5	No	16	87.5	No	0.01	NP (NDs)
Cadmium [total] (ug/L)	MW-4R (bg)	0.25	0.05	5	No	16	100	No	0.01	NP (NDs)
Cadmium [total] (ug/L)	MW-7	0.25	0.179	5	No	16	81.25	No	0.01	NP (NDs)
Calcium (mg/L)	MW-1	106.9	100.1	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-2	109	97.3	86.52	Yes	18	0	No	0.01	NP (normality)
Calcium (mg/L)	MW-3	101.9	91.94	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-4R (bg)	93.97	80.52	86.52	No	18	0	No	0.01	Param.
Calcium (mg/L)	MW-5	109.8	98.34	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-6	92.2	62.12	86.52	No	18	0	No	0.01	Param.
Calcium (mg/L)	MW-7	102.1	89.52	86.52	Yes	18	0	No	0.01	Param.
Calcium (mg/L)	MW-8	98.93	88.3	86.52	Yes	18	0	No	0.01	Param.
Chloride (mg/L)	MW-1	31.3	10.9	250	No	18	0	No	0.01	NP (normality)
Chloride (mg/L)	MW-2	20.11	14.56	250	No	18	0	ln(x)	0.01	Param.
Chloride (mg/L)	MW-3	42.26	29.5	250	No	18	0	ln(x)	0.01	Param.
Chloride (mg/L)	MW-4R (bg)	32.34	19.44	250	No	17	0	No	0.01	Param.
Chloride (mg/L)	MW-5	31.4	18.75	250	No	18	0	No	0.01	Param.
Chloride (mg/L)	MW-6	70.06	36.6	250	No	17	0	x^(1/3)	0.01	Param.
Chloride (mg/L)	MW-7	101	20.3	250	No	18	0	No	0.01	NP (normality)
Chloride (mg/L)	MW-8	32.8	23.97	250	No	18	0	No	0.01	Param.
Fluoride (mg/L)	MW-1	1.36	1.215	4	No	18	0	x^5	0.01	Param.
Fluoride (mg/L)	MW-2	1.126	0.9144	4	No	18	0	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MW-3	0.8073	0.7008	4	No	18	5.556	x^3	0.01	Param.
Fluoride (mg/L)	MW-4R (bg)	0.9154	0.7567	4	No	18	5.556	x^3	0.01	Param.
Fluoride (mg/L)	MW-5	1.153	0.9466	4	No	18	0	No	0.01	Param.
Fluoride (mg/L)	MW-6	0.603	0.4754	4	No	18	5.556	No	0.01	Param.
Fluoride (mg/L)	MW-7	0.8976	0.7894	4	No	18	5.556	x^4	0.01	Param.
Fluoride (mg/L)	MW-8	0.8166	0.6969	4	No	18	5.556	x^3	0.01	Param.
Lithium (ug/L)	MW-1	34.95	31.14	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-2	32.26	27.54	40	No	18	0	ln(x)	0.01	Param.
Lithium (ug/L)	MW-3	29.3	26.25	40	No	18	0	No	0.01	Param.

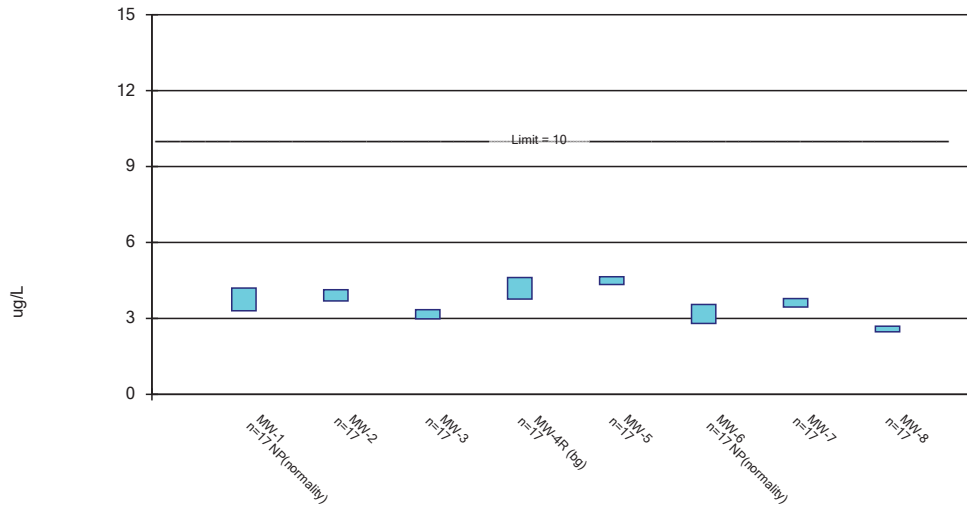
Confidence Interval

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater Printed 3/13/2023, 9:44 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Lithium (ug/L)	MW-4R (bg)	27.86	23.73	40	No	18	0	x^2	0.01	Param.
Lithium (ug/L)	MW-5	30.16	26.65	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-6	27.58	19.85	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-7	29.02	26.02	40	No	18	0	No	0.01	Param.
Lithium (ug/L)	MW-8	29.8	26.62	40	No	18	0	sqrt(x)	0.01	Param.
Molybdenum (ug/L)	MW-1	8.537	7.417	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-2	9.3	7.4	100	No	18	0	No	0.01	NP (normality)
Molybdenum (ug/L)	MW-3	13.2	10.96	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-4R (bg)	7.372	5.106	100	No	18	0	ln(x)	0.01	Param.
Molybdenum (ug/L)	MW-5	6.479	5.101	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-6	8.728	6.77	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-7	8.782	7.757	100	No	18	0	No	0.01	Param.
Molybdenum (ug/L)	MW-8	8.4	6.8	100	No	18	0	No	0.01	NP (normality)
pH (Std. Units)	MW-1	7.284	7.002	8.5	No	18	0	ln(x)	0.005	Param.
pH (Std. Units)	MW-2	7.208	6.965	8.5	No	18	0	No	0.005	Param.
pH (Std. Units)	MW-3	7.238	6.962	8.5	No	18	0	No	0.005	Param.
pH (Std. Units)	MW-4R (bg)	7.35	6.962	8.5	No	18	0	No	0.005	Param.
pH (Std. Units)	MW-5	7.375	7.084	8.5	No	18	0	No	0.005	Param.
pH (Std. Units)	MW-6	7.202	6.907	8.5	No	18	0	No	0.005	Param.
pH (Std. Units)	MW-7	7.245	6.988	8.5	No	18	0	No	0.005	Param.
pH (Std. Units)	MW-8	7.251	6.946	8.5	No	18	0	No	0.005	Param.
Selenium [total] (ug/L)	MW-2	13.7	11.01	50	No	18	0	x^2	0.01	Param.
Selenium [total] (ug/L)	MW-3	9.064	7.709	50	No	18	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-4R (bg)	8.554	6.762	50	No	17	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-6	8.642	4.935	50	No	18	5.556	No	0.01	Param.
Selenium [total] (ug/L)	MW-7	10.43	8.196	50	No	18	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-8	12.38	10.03	50	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-1	55.93	41.69	250	No	18	0	sqrt(x)	0.01	Param.
Sulfate (mg/L)	MW-2	58.88	40.59	250	No	18	0	sqrt(x)	0.01	Param.
Sulfate (mg/L)	MW-3	62.6	40.8	250	No	18	0	No	0.01	NP (normality)
Sulfate (mg/L)	MW-4R (bg)	42.05	35.61	250	No	18	0	x^2	0.01	Param.
Sulfate (mg/L)	MW-5	42.2	36.3	250	No	18	0	No	0.01	NP (normality)
Sulfate (mg/L)	MW-6	54.46	29.16	250	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-7	51.69	38.18	250	No	18	0	No	0.01	Param.
Sulfate (mg/L)	MW-8	44.4	32.6	250	No	18	0	No	0.01	NP (normality)
Total Dissolved Solids (mg/L)	MW-1	502.6	440.2	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-2	474	423	500	No	18	0	No	0.01	NP (normality)
Total Dissolved Solids (mg/L)	MW-3	474	413.4	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-4R (bg)	432	378.3	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-5	488.2	430.9	500	No	18	0	x^2	0.01	Param.
Total Dissolved Solids (mg/L)	MW-6	511.3	344.8	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-7	532.4	438.6	500	No	18	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-8	468	381	500	No	18	0	No	0.01	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

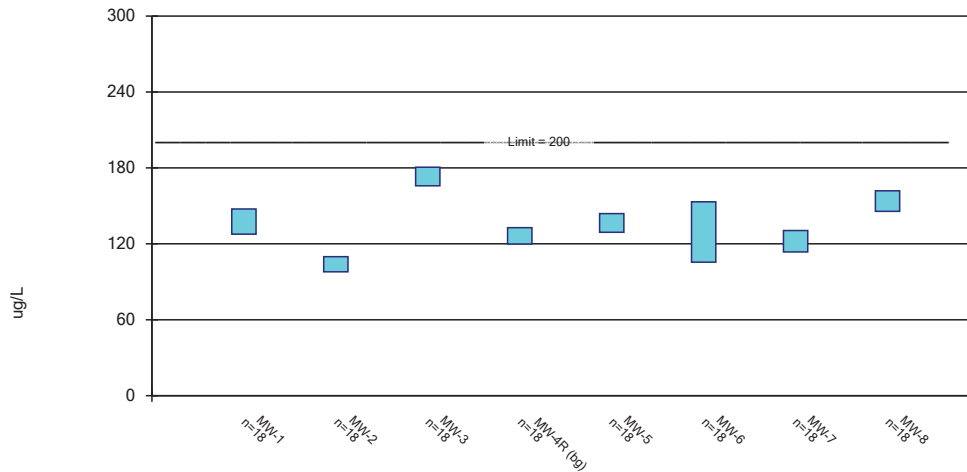
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



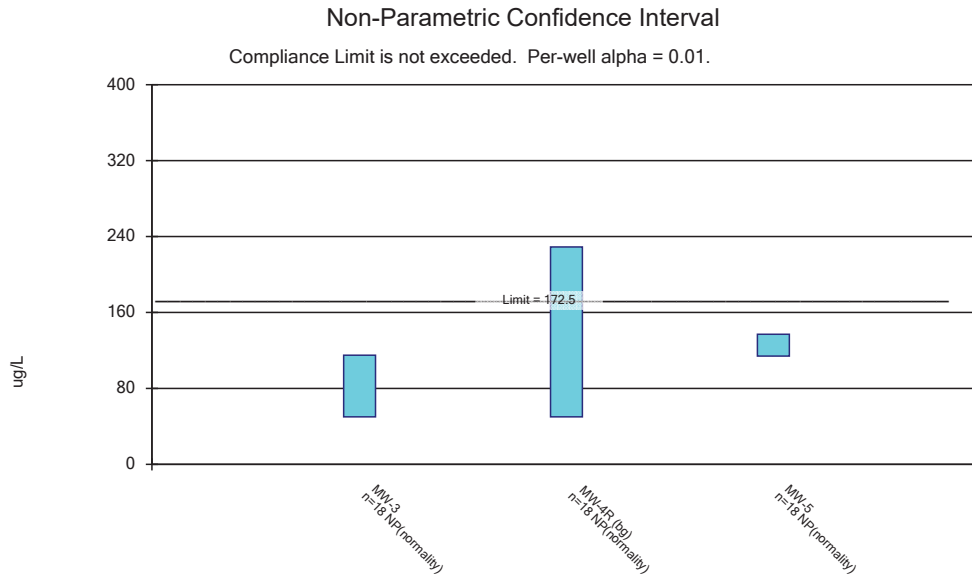
Constituent: Arsenic [total] Analysis Run 3/13/2023 9:39 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

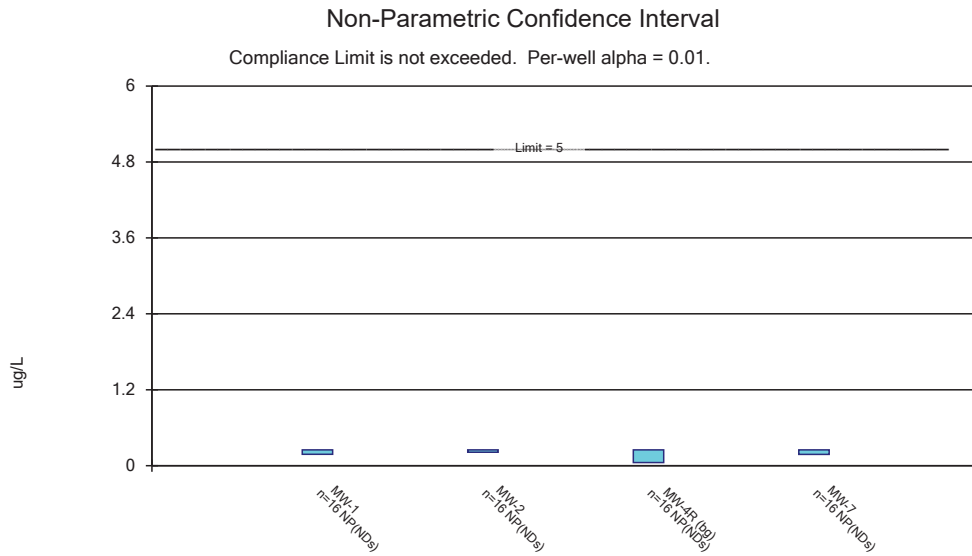
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium [total] Analysis Run 3/13/2023 9:39 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



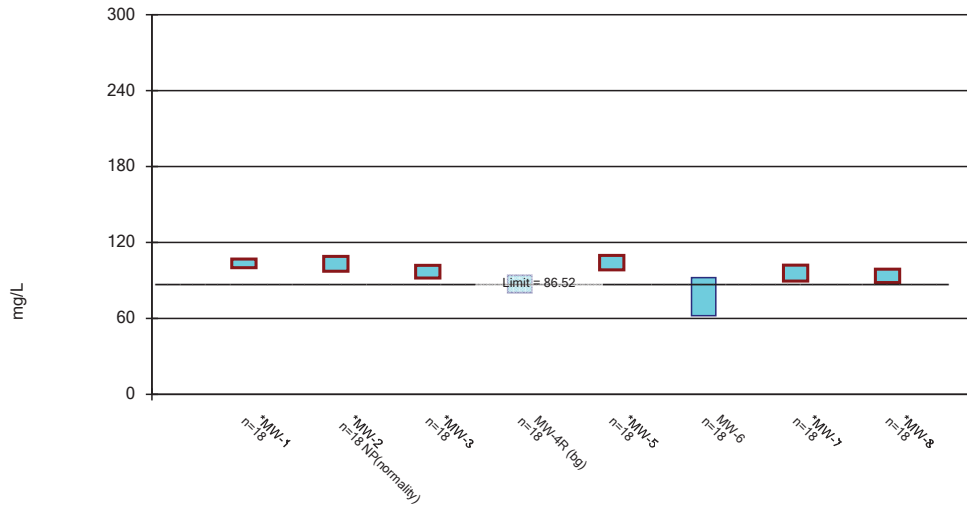
Constituent: Boron Analysis Run 3/13/2023 9:39 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Cadmium [total] Analysis Run 3/13/2023 9:39 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

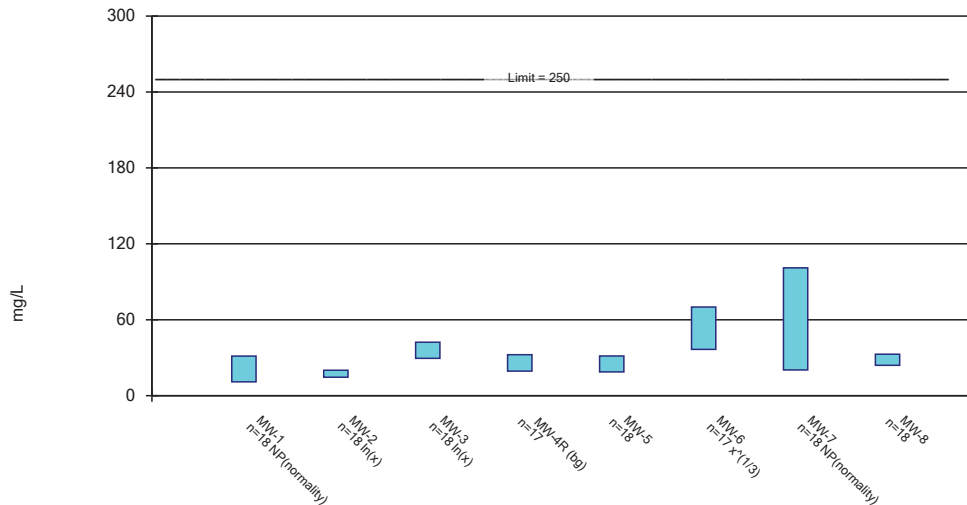
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Calcium Analysis Run 3/13/2023 9:39 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

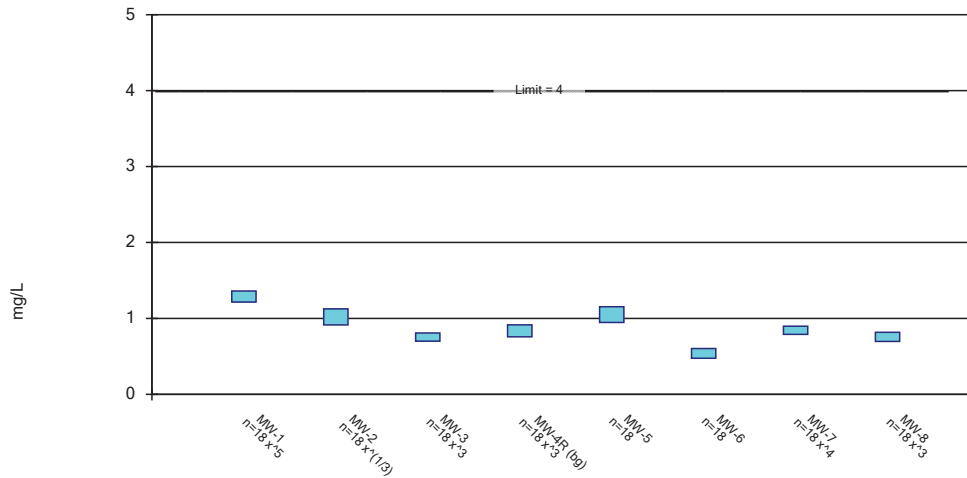
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chloride Analysis Run 3/13/2023 9:39 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

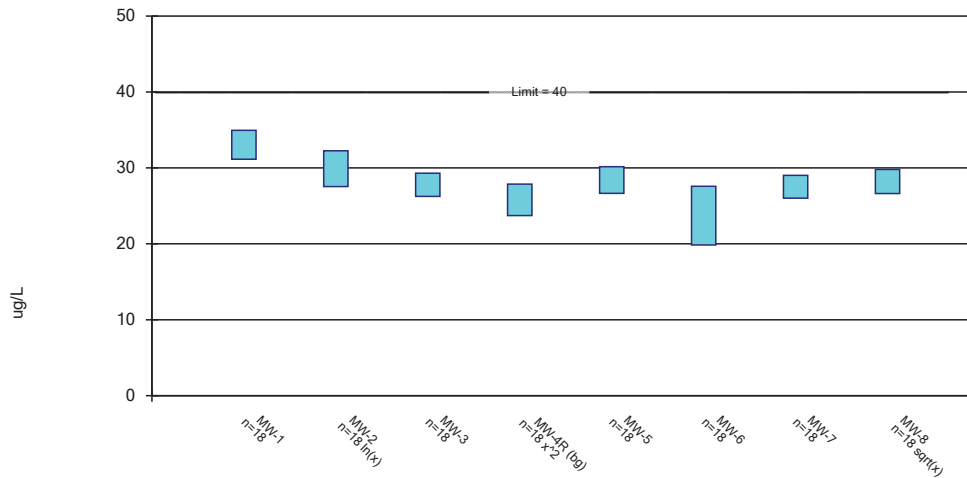
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 3/13/2023 9:39 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

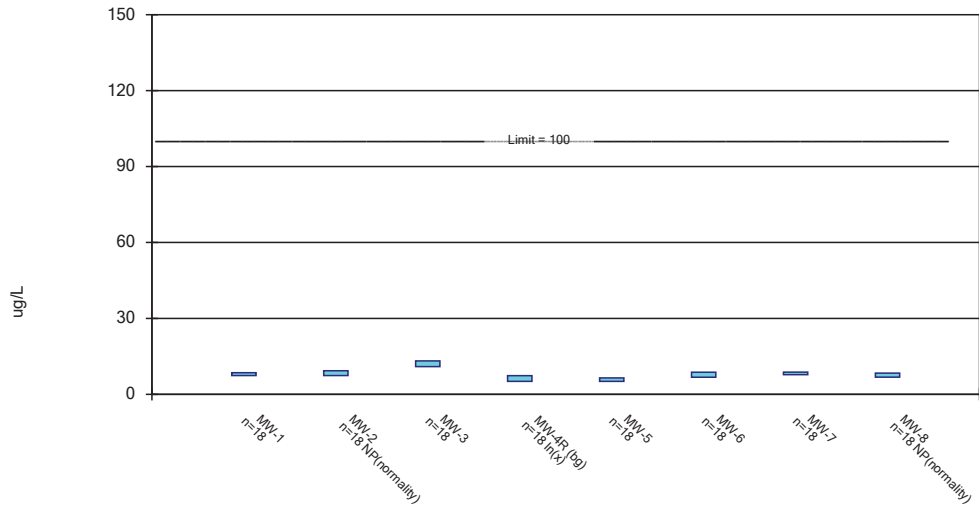
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 3/13/2023 9:39 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

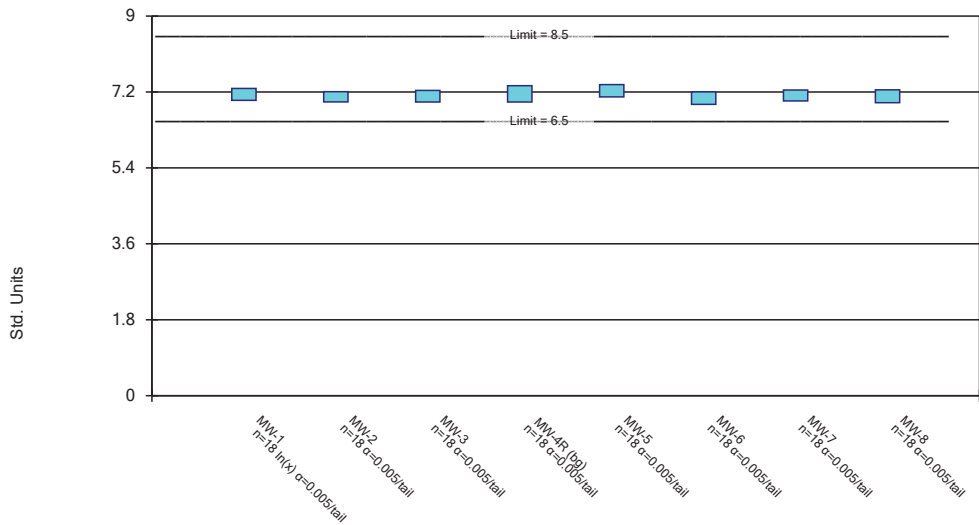
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum Analysis Run 3/13/2023 9:39 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

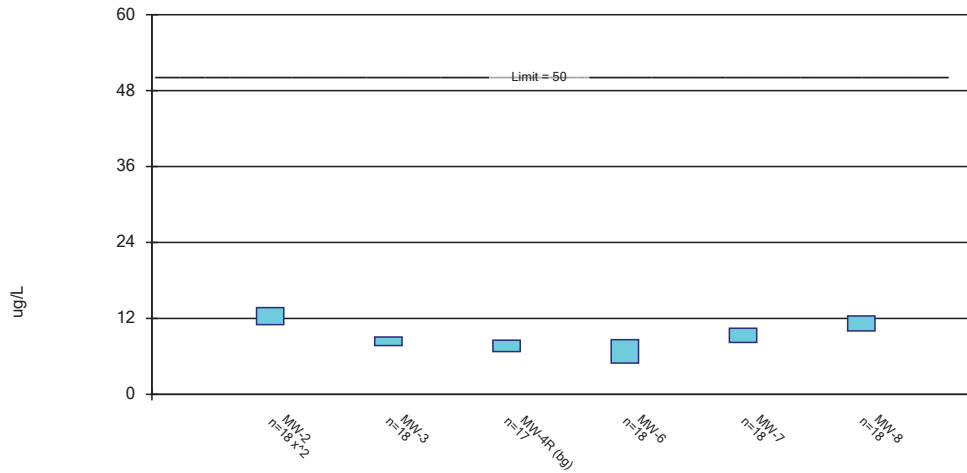
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: pH Analysis Run 3/13/2023 9:39 AM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

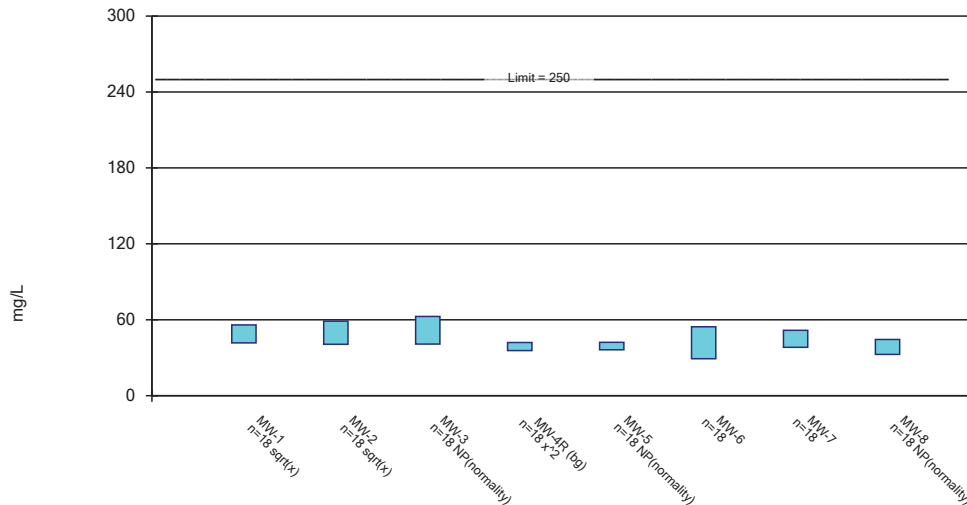


Constituent: Selenium [total] Analysis Run 3/13/2023 9:40 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

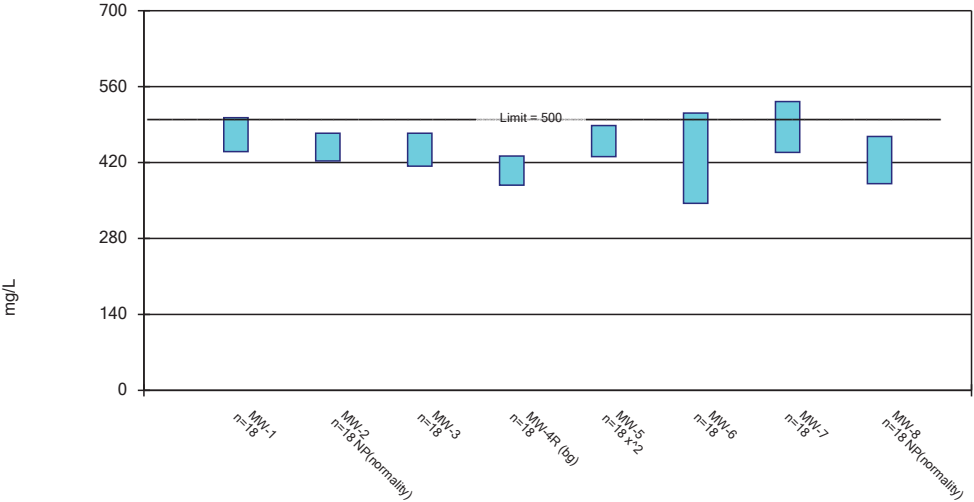


Constituent: Sulfate Analysis Run 3/13/2023 9:40 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Total Dissolved Solids Analysis Run 3/13/2023 9:40 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

B Supporting information

B.1 Field Data Sheets

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-4R
Date(s): 2/9/2023

Field Team Members

Name: E Watermeier Affiliation: SCS Engineers
 Name: C Joyce Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 36 °F (Mean) Wind Direction: North
 Precipitation: None Sky: Cloudy

Well Observations

Well Pad	Good		
Casing	Good	Protective Casing	Locks Yes Yes
Protective Casing	Good	Well	
Reference Mark/Identification	Yes		

Groundwater Level Measurements

Total Depth: 31.46 feet below TOC
 Static Water Level: 19.12 feet below TOC
 Date/Time Measured: 2/9/2023 9:17 TD - SWL: 12.34 water column (ft.)

Purging Activities

Purged By: E Watermeier Purge Date: 2/9/2023
 Purge Method: Dedicated Pump
 Well Diameter: 4 inches
 Purge Volume Calculation: $22 \text{ mL/ft} \times 12.34 \text{ ft} \times 1 = 271.48 \text{ mL}$ Min Purge Volume: 271 mL
 Initial Parameter Readings: Temp (°C) 11.72 pH 9.37 ORP 176.00
 Sp. Cond. 0.788 Turbidity 1.8 DO 6.30
 Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
9:55	525	400	11.46	8.21	186	0.781	26	3.83	19.12
9:58	1725	400	11.47	7.64	189	0.768	32	3.68	19.12
10:01	2925	400	11.46	7.46	202	0.756	36	3.55	19.12
10:04	4125	400	11.46	6.93	212	0.752	35	3.50	19.12
10:07	5325	400	11.42	6.78	221	0.751	33	3.51	19.13
10:10	6525	400	11.40	6.62	232	0.751	32	3.50	19.14
10:13	7725								
10:16									

Sampling Activities

Sampled By: C Joyce Sample Date/Time: 2/9/23 10:10
 Sample Method: Dedicated Pump
 Sample Parameters: Temp (°C) 11.4 pH 6.62 ORP 232
 Sp. Cond. 0.751 Turbidity 31.7 DO 3.5
 Water Level 19.14 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

31.46 to top of pump.

Electronic Form Completed By: E Watermeier **Date:** 2/9/23 16:10

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-3
Date(s): 2/9/2023

Field Team Members

Name: C Joyce Affiliation: SCS Engineers
Name: E Watermeier Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
Precipitation: None Sky: Cloudy

Well Observations

Well Pad	<u>Acceptable</u>	<table border="1"><tr><td>Locks</td></tr><tr><td>Yes</td></tr><tr><td>No</td></tr></table>	Locks	Yes	No
Locks					
Yes					
No					
Casing	<u>Acceptable</u>				
Protective Casing	<u>Acceptable</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 2/9/2023 10:31

Total Depth:	<u>30.51</u>	feet below TOC
Static Water Level:	<u>19.96</u>	feet below TOC
TD - SWL:	<u>10.55</u>	water column (ft.)

Purging Activities

Purged By: E Watermeier Purge Date: 2/9/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 10.55 ft x 1 = 232.1 mL Min Purge Volume: 232 mL
Initial Parameter Readings: Temp (°C) 10.5 pH 6.41 ORP 256.00
Sp. Cond. 0.785 Turbidity 12.1 DO 5.46
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (ml/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
10:50	550	400	11.56	6.28	261	0.780	11	4.56	19.95
10:53	1750	400	11.84	6.23	263	0.777	13	4.70	19.96
10:56	2950	400	12.15	6.17	267	0.775	15	5.09	19.96
10:59	4150								
11:02									
11:05									
11:08									
11:11									

Sampling Activities

Sampled By: E Watermeier Sample Date/Time: 2/9/23 10:56
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 12.15 pH 6.17 ORP 267
Sp. Cond. 0.775 Turbidity 14.8 DO 5.09
Water Level 19.96 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Total depth 30.51

Electronic Form Completed By: E Watermeier Date: 2/9/23 16:58

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-5
Date(s): 2/9/2023

Field Team Members

Name: E Watermeier Affiliation: SCS Engineers
 Name: C Joyce Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
 Precipitation: None Sky: Cloudy

Well Observations

Well Pad	<u>Acceptable</u>		
Casing	<u>Good</u>	Protective Casing	Locks Yes No
Protective Casing	<u>Good</u>	Well	
Reference Mark/Identification	<u>Yes</u>		

Groundwater Level Measurements

Total Depth: 30.59 feet below TOC
 Static Water Level: 19.14 feet below TOC
 Date/Time Measured: 2/9/2023 11:23 TD - SWL: 11.45 water column (ft.)

Purging Activities

Purged By: E Watermeier Purge Date: 2/9/2023
 Purge Method: Dedicated Pump
 Well Diameter: 4 inches
 Purge Volume Calculation: 22 mL/ft x 11.45 ft x 1 = 251.9 mL Min Purge Volume: 252 mL
 Initial Parameter Readings: Temp (°C) 400 pH 12.3 ORP 269.00
 Sp. Cond. 0.731 Turbidity 18.2 DO 6.14
 Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (ml/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
11:30	400	400	13.30	6.22	269	0.745	24	5.08	19.16
11:33	1600	400	13.84	6.22	269	0.760	29	4.74	19.16
11:36	2800	400	14.36	6.23	268	0.767	29	4.02	19.16
11:39	4000								
11:42									
11:45									
11:48									
11:51									

Sampling Activities

Sampled By: E Watermeier Sample Date/Time: 2/9/23 11:36
 Sample Method: Dedicated Pump
 Sample Parameters: Temp (°C) 14.36 pH 6.23 ORP 268
 Sp. Cond. 0.767 Turbidity 29.2 DO 4.02
 Water Level 19.16 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Total depth 30.59

Electronic Form Completed By: E Watermeier Date: 2/9/23 17:37

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-1
Date(s): 2/9/2023

Field Team Members

Name: C Joyce Affiliation: SCS Engineers
 Name: E Watermeier Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
 Precipitation: None Sky: Cloudy

Well Observations

Well Pad	Good		
Casing	Good	Protective Casing	Locks Yes No
Protective Casing	Good	Well	
Reference Mark/Identification	Yes		

Groundwater Level Measurements

Total Depth: 30.40 feet below TOC
 Static Water Level: 22.46 feet below TOC
 Date/Time Measured: 2/9/2023 11:49 TD - SWL: 7.94 water column (ft.)

Purging Activities

Purged By: C Joyce Purge Date: 2/9/2023
 Purge Method: Dedicated Pump
 Well Diameter: 4 inches
 Purge Volume Calculation: $22 \text{ mL/ft} \times 7.94 \text{ ft} \times 1 = 174.68 \text{ mL}$ Min Purge Volume: 175 mL
 Initial Parameter Readings: Temp (°C) 11.59 pH 6.39 ORP 263.00
 Sp. Cond. 0.771 Turbidity 5.2 DO 5.45
 Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (ml/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
11:54	400	400	11.60	6.36	264	0.782	4	5.37	22.43
11:57	1600	400	12.66	6.30	267	0.813	5	5.31	22.45
12:00	2800	400	13.52	6.26	269	0.821	18	5.85	22.45
12:03	4000								
12:06									
12:09									
12:12									
12:15									

Sampling Activities

Sampled By: C Joyce Sample Date/Time: 2/9/23 12:00
 Sample Method: Dedicated Pump
 Sample Parameters: Temp (°C) 13.52 pH 6.26 ORP 269
 Sp. Cond. 0.821 Turbidity 18.2 DO 5.85
 Water Level 22.45 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Measured to top of pump for TD

Electronic Form Completed By: E Watermeier **Date:** 2/9/23 18:01

Field Data Sheet

Project Name:	Fremont Department of Utilities
Project Location:	Fremont, NE
Project Number:	27222120.00

Monitoring Point: MW-1N

Date(s): 2/9/2023

Field Team Members

Name:	C Joyce	Affiliation:	SCS Engineers
Name:	E Watermeier	Affiliation:	SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
Precipitation: None Sky: Cloudy

Well Observations

Well Pad	Good	Protective Casing Well	Locks
Casing	Good		Yes
Protective Casing	Good		No
Reference Mark/Identification	Yes		

Groundwater Level Measurements

Water Level Measurements			Total Depth:		feet below TOC
			Static Water Level:	23.21	feet below TOC
Date/Time Measured:	2/9/2023	12:03	TD - SWL:	-23.21	water column (ft.)

Purging Activities

Purged By: _____ Purge Date: 2/9/2023
Purge Method: _____
Well Diameter: _____ inches
Purge Volume Calculation: 22 mL/ft x -23.21 ft x 1 = 0 mL Min Purge Volume: 0 mL
Initial Parameter Readings: Temp (°C) _____ pH _____ ORP _____
Sp. Cond. _____ Turbidity _____ DO _____
Physical appearance of purge water: _____

[illegible]

Sampling Activities

Sampled By: _____ Sample Date/Time: _____
 Sample Method: _____
 Sample Parameters: Temp (°C) _____ pH _____ ORP _____
 Sp. Cond. _____ Turbidity _____ DO _____
 Water Level _____ (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

WL only

Electronic Form Completed By: E Watermeier **Date:** 2/9/23 18:04

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-1S
Date(s): 2/9/2023

Field Team Members

Name: C Joyce Affiliation: SCS Engineers
Name: E Watermeier Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
Precipitation: None Sky: Cloudy

Well Observations

Well Pad	<u>Good</u>	<table border="1"><tr><td>Locks</td></tr><tr><td>Yes</td></tr><tr><td>No</td></tr></table>	Locks	Yes	No
Locks					
Yes					
No					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Protective Casing Well

Groundwater Level Measurements

Date/Time Measured: 2/9/2023 12:05

Total Depth:	<u> </u>	feet below TOC
Static Water Level:	<u>23.22</u>	feet below TOC
TD - SWL:	<u>-23.22</u>	water column (ft.)

Purging Activities

Purged By: Purge Date: 2/9/2023
Purge Method:
Well Diameter: inches
Purge Volume Calculation: 22 mL/ft x -23.22 ft x 1 = 0 mL Min Purge Volume: 0 mL
Initial Parameter Readings: Temp (°C) pH ORP
Sp. Cond. Turbidity DO
Physical appearance of purge water:

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conduct- ivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)

Sampling Activities

Sampled By: Sample Date/Time:
Sample Method:
Sample Parameters: Temp (°C) pH ORP
Sp. Cond. Turbidity DO
Water Level (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

WL only

Electronic Form Completed By: E Watermeier Date: 2/9/23 18:08

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-2
Date(s): 2/9/2023

Field Team Members

Name: C Joyce Affiliation: SCS Engineers
Name: E Watermeier Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
Precipitation: None Sky: Cloudy

Well Observations

Well Pad	<u>Acceptable</u>	<table><thead><tr><th>Locks</th></tr></thead><tbody><tr><td><u>Yes</u></td></tr><tr><td><u>No</u></td></tr></tbody></table>	Locks	<u>Yes</u>	<u>No</u>
Locks					
<u>Yes</u>					
<u>No</u>					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 2/9/2023 12:17
Total Depth: feet below TOC
Static Water Level: 18.77 feet below TOC
TD - SWL: -18.77 water column (ft.)

Purging Activities

Purged By: C Joyce Purge Date: 2/9/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x -18.77 ft x 1 = 0 mL Min Purge Volume: 0 mL
Initial Parameter Readings: Temp (°C) 10.86 pH 6.38 ORP 282.00
Sp. Cond. 0.782 Turbidity 0 DO 6.95
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
12:19	750	400	11.07	6.37	268	0.760	0	6.42	18.77
12:22	1950	400	11.28	6.38	268	0.748	0	6.14	18.76
12:25	3150	400	11.33	6.37	269	0.737	0	5.79	18.78
12:28	4350								
12:31									
12:34									
12:37									
12:40									

Sampling Activities

Sampled By: C Joyce Sample Date/Time: 2/9/23 12:25
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 11.33 pH 6.37 ORP 269
Sp. Cond. 0.737 Turbidity 0 DO 5.79
Water Level 18.78 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: E Watermeier Date: 2/9/23 18:25

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-8
Date(s): 2/9/2023

Field Team Members

Name: C Joyce Affiliation: SCS Engineers
 Name: E Watermeier Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 37 °F (Mean) Wind Direction: Northwest
 Precipitation: None Sky: Cloudy

Well Observations

Well Pad	Good					
Casing	Good	Protective Casing	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>Locks</td></tr> <tr><td>Yes</td></tr> <tr><td>No</td></tr> </table>	Locks	Yes	No
Locks						
Yes						
No						
Protective Casing	Good	Well				
Reference Mark/Identification	Yes					

Groundwater Level Measurements

Total Depth: 31.22 feet below TOC
 Static Water Level: 18.85 feet below TOC
 Date/Time Measured: 2/9/2023 12:38 TD - SWL: 12.37 water column (ft.)

Purging Activities

Purged By: C Joyce Purge Date: 2/9/2023
 Purge Method: Dedicated Pump
 Well Diameter: 4 inches
 Purge Volume Calculation: $22 \text{ mL/ft} \times 12.37 \text{ ft} \times 1 = 272.14 \text{ mL}$ Min Purge Volume: 272 mL
 Initial Parameter Readings: Temp (°C) 8.64 pH 6.63 ORP 256.00
 Sp. Cond. 0.72 Turbidity 3.2 DO 9.85
 Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (ml/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
12:41	450	400	10.74	6.48	263	0.738	0	6.08	18.85
12:44	1650	400	11.35	6.47	264	0.736	0	5.05	18.88
12:47	2850	400	11.58	6.45	266	0.738	2	4.77	18.90
12:50	4050								
12:53									
12:56									
12:59									
13:02									

Sampling Activities

Sampled By: C Joyce Sample Date/Time: 2/9/23 12:47
 Sample Method: Dedicated Pump
 Sample Parameters: Temp (°C) 11.58 pH 6.45 ORP 266
 Sp. Cond. 0.738 Turbidity 1.8 DO 4.77
 Water Level 18.9 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Total depth measured to top of pump

Electronic Form Completed By: E Watermeier **Date:** 2/9/23 18:48

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-7
Date(s): 2/9/2023

Field Team Members

Name: C Joyce Affiliation: SCS Engineers
 Name: E Watermeier Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 34 °F (Mean) Wind Direction: Northwest
 Precipitation: None Sky: Cloudy

Well Observations

Well Pad	Good		
Casing	Good	Protective Casing	Locks Yes No
Protective Casing	Good	Well	
Reference Mark/Identification	Yes		

Groundwater Level Measurements

Total Depth: 29.33 feet below TOC
 Static Water Level: 18.85 feet below TOC
 Date/Time Measured: 2/9/2023 12:58 TD - SWL: 10.48 water column (ft.)

Purging Activities

Purged By: C Joyce Purge Date: 2/9/2023
 Purge Method: Dedicated Pump
 Well Diameter: 4 inches
 Purge Volume Calculation: $22 \text{ mL/ft} \times 10.48 \text{ ft} \times 1 = 230.56 \text{ mL}$ Min Purge Volume: 231 mL
 Initial Parameter Readings: Temp (°C) 7.4 pH 6.31 ORP 272.00
 Sp. Cond. 0.935 Turbidity 0 DO 8.38
 Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (ml/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
13:04	500	400	10.61	6.33	272	0.863	0	5.95	18.85
13:07	1700	400	11.60	6.28	275	0.782	4	4.53	18.85
13:10	2900	400	11.79	6.23	277	0.760	8	4.56	18.85
13:13	4100								
13:16									
13:19									
13:22									
13:25									

Sampling Activities

Sampled By: C Joyce Sample Date/Time: 2/9/23 13:10
 Sample Method: Dedicated Pump
 Sample Parameters: Temp (°C) 11.79 pH 6.23 ORP 277
 Sp. Cond. 0.76 Turbidity 7.6 DO 4.56
 Water Level 18.85 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: E Watermeier **Date:** 2/9/23 19:10

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-6
Date(s): 2/9/2023

Field Team Members

Name: E Watermeier Affiliation: SCS Engineers
Name: C Joyce Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 34 °F (Mean) Wind Direction: Northwest
Precipitation: None Sky: Cloudy

Well Observations

Well Pad	<u>Good</u>	Protective Casing Well	Locks
Casing	<u>Good</u>		<u>Yes</u>
Protective Casing	<u>Good</u>		<u>No</u>
Reference Mark/Identification	<u>Yes</u>		

Groundwater Level Measurements

Date/Time Measured: 2/9/2023 13:21
Total Depth: 29.45 feet below TOC
Static Water Level: 19.28 feet below TOC
TD - SWL: 10.17 water column (ft.)

Purging Activities

Purged By: C Joyce Purge Date: 2/9/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 10.17 ft x 1 = 223.74 mL Min Purge Volume: 224 mL
Initial Parameter Readings: Temp (°C) 8.89 pH 6.39 ORP 275.00
Sp. Cond. 0.734 Turbidity 0 DO 9.60
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conduct- ivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
13:26	450	500	12.09	6.32	277	0.860	0	6.94	19.30
13:29	1950	500	12.97	6.32	276	0.882	4	5.97	19.31
13:32	3450	500	13.82	6.34	276	0.912	11	5.98	19.32
13:35	4950								
13:38									
13:41									
13:44									
13:47									

Sampling Activities

Sampled By: C Joyce Sample Date/Time: 2/9/23 13:32
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 13.82 pH 6.34 ORP 276
Sp. Cond. 0.912 Turbidity 10.8 DO 5.98
Water Level 19.32 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Duplicate taken here. Total depth measured to top of pump

Electronic Form Completed By: E Watermeier Date: 2/9/23 19:33

B.2 Chain of Custody

Eurofins TestAmerica, Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277.2425

Chain of Custody Record

TestAmerica Omaha
268
Eurofins
Environment Testing
TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		Project Manager: Morgan Sykes		Site Contact: Charles Joyce		Date: 3/2/2022		COC No:									
SCS Engineers		Email: msykes@scsengineers.com		Lab Contact: Shawn Hayes		Carrier:		1 of 1 COCs									
14755 Grover Street		Tel/Fax: (402) 938-0323						TALS Project #:									
Omaha, NE 68144		Analysis Turnaround Time						Sampler:									
(402) 884-6202 Phone		☐ CALENDAR DAYS ☐ WORKING DAYS						For Lab Use Only:									
(913) 681-0012 FAX		TAT if different from Below						Walk-in Client:									
Project Name: City of Fremont		☐ 2 weeks						Lab Sampling:									
Site: FDU		☐ 1 week															
P O # 27219425-02		☐ 2 days						Job / SDG No.:									
		☐ 1 day															
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	7470A Mercury	6020 Total Metals	9056 Chloride-Fluoride-Sulfate	2540C TDS	9040 pH	9315 Radium-226*	9320 Radium-228*	Total Radium*	Sample Specific Notes:
MW-1	2/19/23	1200	G	WT	4				x	x	x	x	x	x	x	x	
MW-2	2/19/23	1225	G	WT	4				x	x	x	x	x	x	x	x	
MW-3	2/19/23	1056	G	WT	4				x	x	x	x	x	x	x	x	
MW-4R	2/19/23	1010	G	WT	4				x	x	x	x	x	x	x	x	
MW-5	2/19/23	1130	G	WT	4				x	x	x	x	x	x	x	x	
MW-6	2/19/23	1332	G	WT	4				x	x	x	x	x	x	x	x	
MW-7	2/19/23	1310	G	WT	4				x	x	x	x	x	x	x	x	
MW-8	2/19/23	1247	G	WT	4				x	x	x	x	x	x	x	x	
DUPLICATE	2/19/23	2359	G	WT	4				x	x	x	x	x	x	x	x	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																	
Possible Hazard Identification:																	
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.																	
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown																	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																	
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months																	
Special Instructions/QC Requirements & Comments: Please email results to cjoyce@scsengineers.com as well.																	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____									
Relinquished by:		Company: Eurofins		Date/Time: 2-7-23 14:55		Received by:		Company: Eurofins									
Relinquished by:		Company: SCS Engineers		Date/Time: 2/14/23		Received by: _____		Date/Time: 2-7-23 1500									
Relinquished by: _____		Company: _____		Date/Time: _____		Received in Laboratory by: _____		Date/Time: _____									

B.3 Testing Results

ANALYTICAL REPORT

PREPARED FOR

Attn: Morgan Sykes
SCS Engineers
14755 Grover St
Omaha, Nebraska 68144

Generated 3/10/2023 9:10:51 AM

JOB DESCRIPTION

City of Fremont

JOB NUMBER

310-249580-1

Eurofins Cedar Falls

Job Notes

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

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Authorization



Generated
3/10/2023 9:10:51 AM

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Shirley Thompson, Client Service Manager
Shirley.Thompson@et.eurofinsus.com
(319)277-2401



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Case Narrative

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Job ID: 310-249580-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-249580-1

Comments

No additional comments.

Receipt

The samples were received on 2/10/2023 3:50 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 0.9° C.

HPLC/IC

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

Metals

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

General Chemistry

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

Job ID: 310-249580-2

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-249580-2

Comments

No additional comments.

Receipt

The samples were received on 2/10/2023 3:50 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 0.9° C.

RAD

Methods 903.0, 9315: Radium-226 batch 600444

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

MW-1 (310-249580-1), MW-2 (310-249580-2), MW-3 (310-249580-3), MW-4R (310-249580-4), MW-5 (310-249580-5), MW-6 (310-249580-6), MW-7 (310-249580-7), MW-8 (310-249580-8), Duplicate (310-249580-9), (LCS 160-600444/2-A), (MB 160-600444/1-A), (180-151869-A-4-A) and (180-151869-A-4-B DU)

Methods 904.0, 9320: Radium-228 batch 600446

The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: (180-151869-A-4-C) and (180-151869-A-4-D DU). Analytical results are reported with the detection limit achieved.

Methods 904.0, 9320: Radium-228 batch 600446

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

MW-1 (310-249580-1), MW-2 (310-249580-2), MW-3 (310-249580-3), MW-4R (310-249580-4), MW-5 (310-249580-5), MW-6 (310-249580-6), MW-7 (310-249580-7), MW-8 (310-249580-8), Duplicate (310-249580-9), (LCS 160-600446/2-A), (MB 160-600446/1-A), (180-151869-A-4-C) and (180-151869-A-4-D DU)

Case Narrative

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Job ID: 310-249580-2 (Continued)

Laboratory: Eurofins Cedar Falls (Continued)

Method PrecSep_0:

Method PrecSep-21:

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

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Sample Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-249580-1	MW-1	Water	02/09/23 12:00	02/10/23 15:50
310-249580-2	MW-2	Water	02/09/23 12:25	02/10/23 15:50
310-249580-3	MW-3	Water	02/09/23 10:56	02/10/23 15:50
310-249580-4	MW-4R	Water	02/09/23 10:10	02/10/23 15:50
310-249580-5	MW-5	Water	02/09/23 11:36	02/10/23 15:50
310-249580-6	MW-6	Water	02/09/23 13:32	02/10/23 15:50
310-249580-7	MW-7	Water	02/09/23 13:10	02/10/23 15:50
310-249580-8	MW-8	Water	02/09/23 12:47	02/10/23 15:50
310-249580-9	Duplicate	Water	02/09/23 23:59	02/10/23 15:50

Detection Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-1

Lab Sample ID: 310-249580-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	65.6		5.00		mg/L	5		9056A	Total/NA
Fluoride	1.22		0.500		mg/L	5		9056A	Total/NA
Sulfate	83.8		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00458		0.00200		mg/L	1		6020B	Total/NA
Barium	0.145		0.00200		mg/L	1		6020B	Total/NA
Cadmium	0.000180		0.000100		mg/L	1		6020B	Total/NA
Calcium	97.2		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0332		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00850		0.00200		mg/L	1		6020B	Total/NA
pH	7.08	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	456		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-2

Lab Sample ID: 310-249580-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	26.0		5.00		mg/L	5		9056A	Total/NA
Fluoride	1.47		0.500		mg/L	5		9056A	Total/NA
Sulfate	42.7		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00429		0.00200		mg/L	1		6020B	Total/NA
Barium	0.109		0.00200		mg/L	1		6020B	Total/NA
Cadmium	0.000105		0.000100		mg/L	1		6020B	Total/NA
Calcium	93.2		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0344		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00656		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00819		0.00500		mg/L	1		6020B	Total/NA
pH	7.15	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	366		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-3

Lab Sample ID: 310-249580-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	40.6		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.824		0.500		mg/L	5		9056A	Total/NA
Sulfate	40.6		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00368		0.00200		mg/L	1		6020B	Total/NA
Barium	0.161		0.00200		mg/L	1		6020B	Total/NA
Boron	0.103		0.100		mg/L	1		6020B	Total/NA
Calcium	102		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0310		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00986		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00788		0.00500		mg/L	1		6020B	Total/NA
pH	7.17	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	398		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-4R

Lab Sample ID: 310-249580-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	37.9		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.818		0.500		mg/L	5		9056A	Total/NA
Sulfate	42.1		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00542		0.00200		mg/L	1		6020B	Total/NA
Barium	0.125		0.00200		mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-4R (Continued)

Lab Sample ID: 310-249580-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	93.7		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0313		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00423		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00733		0.00500		mg/L	1		6020B	Total/NA
pH	7.22	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	342		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 310-249580-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	39.8		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.776		0.500		mg/L	5		9056A	Total/NA
Sulfate	45.2		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00508		0.00200		mg/L	1		6020B	Total/NA
Barium	0.140		0.00200		mg/L	1		6020B	Total/NA
Boron	0.108		0.100		mg/L	1		6020B	Total/NA
Calcium	95.1		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0327		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00416		0.00200		mg/L	1		6020B	Total/NA
pH	7.20	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	386		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-6

Lab Sample ID: 310-249580-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	61.0		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.638		0.500		mg/L	5		9056A	Total/NA
Sulfate	60.5		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00419		0.00200		mg/L	1		6020B	Total/NA
Barium	0.157		0.00200		mg/L	1		6020B	Total/NA
Calcium	120		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0309		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00821		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00616		0.00500		mg/L	1		6020B	Total/NA
pH	7.16	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	472		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 310-249580-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	43.1		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.849		0.500		mg/L	5		9056A	Total/NA
Sulfate	74.9		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00464		0.00200		mg/L	1		6020B	Total/NA
Barium	0.110		0.00200		mg/L	1		6020B	Total/NA
Cadmium	0.000111		0.000100		mg/L	1		6020B	Total/NA
Calcium	68.9		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0250		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00675		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00723		0.00500		mg/L	1		6020B	Total/NA
pH	7.01	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	390		50.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-8

Lab Sample ID: 310-249580-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	31.5		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.894		0.500		mg/L	5		9056A	Total/NA
Sulfate	31.7		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00281		0.00200		mg/L	1		6020B	Total/NA
Barium	0.161		0.00200		mg/L	1		6020B	Total/NA
Calcium	96.3		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0306		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00665		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00894		0.00500		mg/L	1		6020B	Total/NA
pH	7.14	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	368		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: Duplicate

Lab Sample ID: 310-249580-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	61.3		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.670		0.500		mg/L	5		9056A	Total/NA
Sulfate	60.9		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00429		0.00200		mg/L	1		6020B	Total/NA
Barium	0.163		0.00200		mg/L	1		6020B	Total/NA
Boron	0.142		0.100		mg/L	1		6020B	Total/NA
Calcium	122		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0312		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00829		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00647		0.00500		mg/L	1		6020B	Total/NA
pH	7.17	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	504		50.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-1

Lab Sample ID: 310-249580-1

Date Collected: 02/09/23 12:00

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	65.6		5.00		mg/L			02/20/23 13:16	5
Fluoride	1.22		0.500		mg/L			02/20/23 13:16	5
Sulfate	83.8		5.00		mg/L			02/20/23 13:16	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:21	1
Arsenic	0.00458		0.00200		mg/L		02/14/23 09:20	02/15/23 13:21	1
Barium	0.145		0.00200		mg/L		02/14/23 09:20	02/15/23 13:21	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:21	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 13:21	1
Cadmium	0.000180		0.000100		mg/L		02/14/23 09:20	02/15/23 13:21	1
Calcium	97.2		0.500		mg/L		02/14/23 09:20	02/15/23 13:21	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:21	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:21	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:21	1
Lithium	0.0332		0.0100		mg/L		02/14/23 09:20	02/15/23 13:21	1
Molybdenum	0.00850		0.00200		mg/L		02/14/23 09:20	02/15/23 13:21	1
Selenium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:21	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:21	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	456		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.08	HF	0.100		SU			02/10/23 16:19	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.512		0.124	0.133	1.00	0.0932	pCi/L	02/15/23 08:59	03/09/23 07:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		30 - 110					02/15/23 08:59	03/09/23 07:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.71		0.453	0.479	1.00	0.467	pCi/L	02/15/23 09:26	02/22/23 11:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		30 - 110					02/15/23 09:26	02/22/23 11:39	1
Y Carrier	82.2		30 - 110					02/15/23 09:26	02/22/23 11:39	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-1

Lab Sample ID: 310-249580-1

Date Collected: 02/09/23 12:00

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.23		0.470	0.497	5.00	0.467	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-2

Lab Sample ID: 310-249580-2

Date Collected: 02/09/23 12:25

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.0		5.00		mg/L			02/20/23 13:58	5
Fluoride	1.47		0.500		mg/L			02/20/23 13:58	5
Sulfate	42.7		5.00		mg/L			02/20/23 13:58	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:40	1
Arsenic	0.00429		0.00200		mg/L		02/14/23 09:20	02/15/23 13:40	1
Barium	0.109		0.00200		mg/L		02/14/23 09:20	02/15/23 13:40	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:40	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 13:40	1
Cadmium	0.000105		0.000100		mg/L		02/14/23 09:20	02/15/23 13:40	1
Calcium	93.2		0.500		mg/L		02/14/23 09:20	02/15/23 13:40	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:40	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:40	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:40	1
Lithium	0.0344		0.0100		mg/L		02/14/23 09:20	02/15/23 13:40	1
Molybdenum	0.00656		0.00200		mg/L		02/14/23 09:20	02/15/23 13:40	1
Selenium	0.00819		0.00500		mg/L		02/14/23 09:20	02/15/23 13:40	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:40	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	366		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.15	HF	0.100		SU			02/10/23 16:22	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.389		0.111	0.116	1.00	0.0917	pCi/L	02/15/23 08:59	03/09/23 07:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		30 - 110					02/15/23 08:59	03/09/23 07:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.38		0.410	0.429	1.00	0.440	pCi/L	02/15/23 09:26	02/22/23 11:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		30 - 110					02/15/23 09:26	02/22/23 11:39	1
Y Carrier	86.0		30 - 110					02/15/23 09:26	02/22/23 11:39	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-2

Lab Sample ID: 310-249580-2

Date Collected: 02/09/23 12:25

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.77		0.425	0.444	5.00	0.440	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-3

Lab Sample ID: 310-249580-3

Date Collected: 02/09/23 10:56

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.6		5.00		mg/L			02/20/23 14:12	5
Fluoride	0.824		0.500		mg/L			02/20/23 14:12	5
Sulfate	40.6		5.00		mg/L			02/20/23 14:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:43	1
Arsenic	0.00368		0.00200		mg/L		02/14/23 09:20	02/15/23 13:43	1
Barium	0.161		0.00200		mg/L		02/14/23 09:20	02/15/23 13:43	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:43	1
Boron	0.103		0.100		mg/L		02/14/23 09:20	02/15/23 13:43	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 13:43	1
Calcium	102		0.500		mg/L		02/14/23 09:20	02/15/23 13:43	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:43	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:43	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:43	1
Lithium	0.0310		0.0100		mg/L		02/14/23 09:20	02/15/23 13:43	1
Molybdenum	0.00986		0.00200		mg/L		02/14/23 09:20	02/15/23 13:43	1
Selenium	0.00788		0.00500		mg/L		02/14/23 09:20	02/15/23 13:43	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:43	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	398		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.17	HF	0.100		SU			02/10/23 16:24	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.623		0.136	0.147	1.00	0.0899	pCi/L	02/15/23 08:59	03/09/23 07:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.6		30 - 110					02/15/23 08:59	03/09/23 07:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.35		0.540	0.581	1.00	0.549	pCi/L	02/15/23 09:26	02/22/23 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.6		30 - 110					02/15/23 09:26	02/22/23 11:40	1
Y Carrier	81.9		30 - 110					02/15/23 09:26	02/22/23 11:40	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-3

Lab Sample ID: 310-249580-3

Date Collected: 02/09/23 10:56

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.97		0.557	0.599	5.00	0.549	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-4R

Lab Sample ID: 310-249580-4

Date Collected: 02/09/23 10:10

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.9		5.00		mg/L			02/20/23 14:26	5
Fluoride	0.818		0.500		mg/L			02/20/23 14:26	5
Sulfate	42.1		5.00		mg/L			02/20/23 14:26	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:46	1
Arsenic	0.00542		0.00200		mg/L		02/14/23 09:20	02/15/23 13:46	1
Barium	0.125		0.00200		mg/L		02/14/23 09:20	02/15/23 13:46	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:46	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 13:46	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 13:46	1
Calcium	93.7		0.500		mg/L		02/14/23 09:20	02/15/23 13:46	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:46	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:46	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:46	1
Lithium	0.0313		0.0100		mg/L		02/14/23 09:20	02/15/23 13:46	1
Molybdenum	0.00423		0.00200		mg/L		02/14/23 09:20	02/15/23 13:46	1
Selenium	0.00733		0.00500		mg/L		02/14/23 09:20	02/15/23 13:46	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:46	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	342		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.22	HF	0.100		SU			02/10/23 16:25	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.566		0.155	0.164	1.00	0.124	pCi/L	02/15/23 08:59	03/09/23 07:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.6		30 - 110					02/15/23 08:59	03/09/23 07:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.11		0.621	0.651	1.00	0.683	pCi/L	02/15/23 09:26	02/22/23 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.6		30 - 110					02/15/23 09:26	02/22/23 11:40	1
Y Carrier	82.2		30 - 110					02/15/23 09:26	02/22/23 11:40	1

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Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-4R

Lab Sample ID: 310-249580-4

Date Collected: 02/09/23 10:10

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.67		0.640	0.671	5.00	0.683	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-5

Lab Sample ID: 310-249580-5

Date Collected: 02/09/23 11:36

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.8		5.00		mg/L			02/20/23 14:40	5
Fluoride	0.776		0.500		mg/L			02/20/23 14:40	5
Sulfate	45.2		5.00		mg/L			02/20/23 14:40	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 14:14	1
Arsenic	0.00508		0.00200		mg/L		02/14/23 09:20	02/15/23 14:14	1
Barium	0.140		0.00200		mg/L		02/14/23 09:20	02/15/23 14:14	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:14	1
Boron	0.108		0.100		mg/L		02/14/23 09:20	02/15/23 14:14	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 14:14	1
Calcium	95.1		0.500		mg/L		02/14/23 09:20	02/15/23 14:14	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 14:14	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:14	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:14	1
Lithium	0.0327		0.0100		mg/L		02/14/23 09:20	02/15/23 14:14	1
Molybdenum	0.00416		0.00200		mg/L		02/14/23 09:20	02/15/23 14:14	1
Selenium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 14:14	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:14	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	386		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.20	HF	0.100		SU			02/10/23 16:28	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.696		0.164	0.175	1.00	0.137	pCi/L	02/15/23 08:59	03/09/23 07:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.1		30 - 110					02/15/23 08:59	03/09/23 07:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.26		0.613	0.647	1.00	0.706	pCi/L	02/15/23 09:26	02/22/23 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.1		30 - 110					02/15/23 09:26	02/22/23 11:40	1
Y Carrier	80.4		30 - 110					02/15/23 09:26	02/22/23 11:40	1

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Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-5

Lab Sample ID: 310-249580-5

Date Collected: 02/09/23 11:36

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.95		0.635	0.670	5.00	0.706	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-6

Lab Sample ID: 310-249580-6

Date Collected: 02/09/23 13:32

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61.0		5.00		mg/L			02/20/23 14:54	5
Fluoride	0.638		0.500		mg/L			02/20/23 14:54	5
Sulfate	60.5		5.00		mg/L			02/20/23 14:54	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 14:17	1
Arsenic	0.00419		0.00200		mg/L		02/14/23 09:20	02/15/23 14:17	1
Barium	0.157		0.00200		mg/L		02/14/23 09:20	02/15/23 14:17	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:17	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 14:17	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 14:17	1
Calcium	120		0.500		mg/L		02/14/23 09:20	02/15/23 14:17	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 14:17	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:17	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:17	1
Lithium	0.0309		0.0100		mg/L		02/14/23 09:20	02/15/23 14:17	1
Molybdenum	0.00821		0.00200		mg/L		02/14/23 09:20	02/15/23 14:17	1
Selenium	0.00616		0.00500		mg/L		02/14/23 09:20	02/15/23 14:17	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:17	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	472		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.16	HF	0.100		SU			02/10/23 16:30	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.398		0.121	0.126	1.00	0.109	pCi/L	02/15/23 08:59	03/09/23 07:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.1		30 - 110					02/15/23 08:59	03/09/23 07:11	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.21		0.575	0.610	1.00	0.602	pCi/L	02/15/23 09:26	02/22/23 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.1		30 - 110					02/15/23 09:26	02/22/23 11:40	1
Y Carrier	82.2		30 - 110					02/15/23 09:26	02/22/23 11:40	1

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Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-6
Date Collected: 02/09/23 13:32
Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-6
Matrix: Water

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228										
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.61		0.588	0.623	5.00	0.602	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-7

Lab Sample ID: 310-249580-7

Date Collected: 02/09/23 13:10

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43.1		5.00		mg/L			02/20/23 15:36	5
Fluoride	0.849		0.500		mg/L			02/20/23 15:36	5
Sulfate	74.9		5.00		mg/L			02/20/23 15:36	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 14:21	1
Arsenic	0.00464		0.00200		mg/L		02/14/23 09:20	02/15/23 14:21	1
Barium	0.110		0.00200		mg/L		02/14/23 09:20	02/15/23 14:21	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:21	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 14:21	1
Cadmium	0.000111		0.000100		mg/L		02/14/23 09:20	02/15/23 14:21	1
Calcium	68.9		0.500		mg/L		02/14/23 09:20	02/15/23 14:21	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 14:21	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:21	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:21	1
Lithium	0.0250		0.0100		mg/L		02/14/23 09:20	02/15/23 14:21	1
Molybdenum	0.00675		0.00200		mg/L		02/14/23 09:20	02/15/23 14:21	1
Selenium	0.00723		0.00500		mg/L		02/14/23 09:20	02/15/23 14:21	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:21	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	390		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.01	HF	0.100		SU			02/10/23 16:31	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.428		0.135	0.140	1.00	0.128	pCi/L	02/15/23 08:59	03/09/23 07:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.7		30 - 110					02/15/23 08:59	03/09/23 07:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.05		0.595	0.625	1.00	0.721	pCi/L	02/15/23 09:26	02/22/23 11:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.7		30 - 110					02/15/23 09:26	02/22/23 11:40	1
Y Carrier	87.9		30 - 110					02/15/23 09:26	02/22/23 11:40	1

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Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-7

Lab Sample ID: 310-249580-7

Date Collected: 02/09/23 13:10

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.48		0.610	0.640	5.00	0.721	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-8

Lab Sample ID: 310-249580-8

Date Collected: 02/09/23 12:47

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.5		5.00		mg/L			02/20/23 15:51	5
Fluoride	0.894		0.500		mg/L			02/20/23 15:51	5
Sulfate	31.7		5.00		mg/L			02/20/23 15:51	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 14:24	1
Arsenic	0.00281		0.00200		mg/L		02/14/23 09:20	02/15/23 14:24	1
Barium	0.161		0.00200		mg/L		02/14/23 09:20	02/15/23 14:24	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:24	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 14:24	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 14:24	1
Calcium	96.3		0.500		mg/L		02/14/23 09:20	02/15/23 14:24	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 14:24	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:24	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:24	1
Lithium	0.0306		0.0100		mg/L		02/14/23 09:20	02/15/23 14:24	1
Molybdenum	0.00665		0.00200		mg/L		02/14/23 09:20	02/15/23 14:24	1
Selenium	0.00894		0.00500		mg/L		02/14/23 09:20	02/15/23 14:24	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:24	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	368		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.14	HF	0.100		SU			02/10/23 16:32	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.633		0.144	0.155	1.00	0.0945	pCi/L	02/15/23 08:59	03/09/23 07:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.9		30 - 110					02/15/23 08:59	03/09/23 07:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.83		0.543	0.569	1.00	0.631	pCi/L	02/15/23 09:26	02/22/23 11:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.9		30 - 110					02/15/23 09:26	02/22/23 11:43	1
Y Carrier	81.5		30 - 110					02/15/23 09:26	02/22/23 11:43	1

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Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-8
Date Collected: 02/09/23 12:47
Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-8
Matrix: Water

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.46		0.562	0.590	5.00	0.631	pCi/L		03/09/23 21:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: Duplicate

Lab Sample ID: 310-249580-9

Date Collected: 02/09/23 23:59

Matrix: Water

Date Received: 02/10/23 15:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61.3		5.00		mg/L			02/20/23 16:05	5
Fluoride	0.670		0.500		mg/L			02/20/23 16:05	5
Sulfate	60.9		5.00		mg/L			02/20/23 16:05	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 14:27	1
Arsenic	0.00429		0.00200		mg/L		02/14/23 09:20	02/15/23 14:27	1
Barium	0.163		0.00200		mg/L		02/14/23 09:20	02/15/23 14:27	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:27	1
Boron	0.142		0.100		mg/L		02/14/23 09:20	02/15/23 14:27	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 14:27	1
Calcium	122		0.500		mg/L		02/14/23 09:20	02/15/23 14:27	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 14:27	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:27	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 14:27	1
Lithium	0.0312		0.0100		mg/L		02/14/23 09:20	02/15/23 14:27	1
Molybdenum	0.00829		0.00200		mg/L		02/14/23 09:20	02/15/23 14:27	1
Selenium	0.00647		0.00500		mg/L		02/14/23 09:20	02/15/23 14:27	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 14:27	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:21	02/17/23 13:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	504		50.0		mg/L			02/13/23 14:42	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.17	HF	0.100		SU			02/10/23 16:34	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.431		0.127	0.133	1.00	0.117	pCi/L	02/15/23 08:59	03/09/23 07:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		30 - 110					02/15/23 08:59	03/09/23 07:12	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.939		0.449	0.457	1.00	0.622	pCi/L	02/15/23 09:26	02/22/23 11:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		30 - 110					02/15/23 09:26	02/22/23 11:43	1
Y Carrier	85.2		30 - 110					02/15/23 09:26	02/22/23 11:43	1

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Client Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: Duplicate

Lab Sample ID: 310-249580-9

Date Collected: 02/09/23 23:59

Matrix: Water

Date Received: 02/10/23 15:50

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.37		0.467	0.476	5.00	0.622	pCi/L		03/09/23 21:59	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

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.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

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

Glossary

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

QC Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-379692/3

Matrix: Water

Analysis Batch: 379692

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			02/20/23 12:47	1
Fluoride	<0.100		0.100		mg/L			02/20/23 12:47	1
Sulfate	<1.00		1.00		mg/L			02/20/23 12:47	1

Lab Sample ID: LCS 310-379692/4

Matrix: Water

Analysis Batch: 379692

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.745		mg/L		97	90 - 110
Fluoride	2.00	2.100		mg/L		105	90 - 110
Sulfate	10.0	10.25		mg/L		103	90 - 110

Lab Sample ID: 310-249580-1 MS

Matrix: Water

Analysis Batch: 379692

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	65.6		25.0	88.41		mg/L		91	80 - 120
Fluoride	1.22		5.00	6.101		mg/L		98	80 - 120
Sulfate	83.8		25.0	106.5		mg/L		91	80 - 120

Lab Sample ID: 310-249580-1 MSD

Matrix: Water

Analysis Batch: 379692

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	65.6		25.0	88.19		mg/L		90	80 - 120	0	15
Fluoride	1.22		5.00	6.025		mg/L		96	80 - 120	1	15
Sulfate	83.8		25.0	106.3		mg/L		90	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-379083/1-A

Matrix: Water

Analysis Batch: 379307

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 379083

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:14	1
Arsenic	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:14	1
Barium	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:14	1
Beryllium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:14	1
Boron	<0.100		0.100		mg/L		02/14/23 09:20	02/15/23 13:14	1
Cadmium	<0.000100		0.000100		mg/L		02/14/23 09:20	02/15/23 13:14	1
Calcium	<0.500		0.500		mg/L		02/14/23 09:20	02/15/23 13:14	1
Chromium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:14	1
Cobalt	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:14	1
Lead	<0.000500		0.000500		mg/L		02/14/23 09:20	02/15/23 13:14	1
Lithium	<0.0100		0.0100		mg/L		02/14/23 09:20	02/15/23 13:14	1
Molybdenum	<0.00200		0.00200		mg/L		02/14/23 09:20	02/15/23 13:14	1

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QC Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

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

Lab Sample ID: MB 310-379083/1-A
Matrix: Water
Analysis Batch: 379307

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 379083

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.00500		0.00500		mg/L		02/14/23 09:20	02/15/23 13:14	1
Thallium	<0.00100		0.00100		mg/L		02/14/23 09:20	02/15/23 13:14	1

Lab Sample ID: LCS 310-379083/2-A
Matrix: Water
Analysis Batch: 379307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 379083

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.1921		mg/L		96	80 - 120
Arsenic	0.200	0.1907		mg/L		95	80 - 120
Barium	0.100	0.09407		mg/L		94	80 - 120
Beryllium	0.100	0.09597		mg/L		96	80 - 120
Boron	0.200	0.1648		mg/L		82	80 - 120
Cadmium	0.100	0.09357		mg/L		94	80 - 120
Calcium	2.00	2.079		mg/L		104	80 - 120
Chromium	0.100	0.09669		mg/L		97	80 - 120
Cobalt	0.100	0.09844		mg/L		98	80 - 120
Lead	0.200	0.1959		mg/L		98	80 - 120
Lithium	0.200	0.1990		mg/L		100	80 - 120
Molybdenum	0.200	0.1960		mg/L		98	80 - 120
Selenium	0.400	0.3688		mg/L		92	80 - 120
Thallium	0.200	0.2025		mg/L		101	80 - 120

Lab Sample ID: 310-249580-1 MS
Matrix: Water
Analysis Batch: 379307

Client Sample ID: MW-1
Prep Type: Total/NA
Prep Batch: 379083

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2087		mg/L		104	75 - 125
Arsenic	0.00458		0.200	0.2081		mg/L		102	75 - 125
Barium	0.145		0.100	0.2443		mg/L		100	75 - 125
Beryllium	<0.00100		0.100	0.1085		mg/L		108	75 - 125
Boron	<0.100		0.200	0.2876		mg/L		108	75 - 125
Cadmium	0.000180		0.100	0.09647		mg/L		96	75 - 125
Calcium	97.2		2.00	98.85	4	mg/L		84	75 - 125
Chromium	<0.00500		0.100	0.1001		mg/L		100	75 - 125
Cobalt	<0.000500		0.100	0.09833		mg/L		98	75 - 125
Lead	<0.000500		0.200	0.1968		mg/L		98	75 - 125
Lithium	0.0332		0.200	0.2532		mg/L		110	75 - 125
Molybdenum	0.00850		0.200	0.2084		mg/L		100	75 - 125
Selenium	<0.00500		0.400	0.3974		mg/L		98	75 - 125
Thallium	<0.00100		0.200	0.2099		mg/L		105	75 - 125

Lab Sample ID: 310-249580-1 MSD
Matrix: Water
Analysis Batch: 379307

Client Sample ID: MW-1
Prep Type: Total/NA
Prep Batch: 379083

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2194		mg/L		109	75 - 125	5	20

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QC Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

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

Lab Sample ID: 310-249580-1 MSD

Matrix: Water

Analysis Batch: 379307

Client Sample ID: MW-1

Prep Type: Total/NA

Prep Batch: 379083

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.00458		0.200	0.2172		mg/L		106	75 - 125	4	20
Barium	0.145		0.100	0.2502		mg/L		106	75 - 125	2	20
Beryllium	<0.00100		0.100	0.1151		mg/L		115	75 - 125	6	20
Boron	<0.100		0.200	0.3026		mg/L		115	75 - 125	5	20
Cadmium	0.000180		0.100	0.1007		mg/L		101	75 - 125	4	20
Calcium	97.2		2.00	98.68	4	mg/L		75	75 - 125	0	20
Chromium	<0.00500		0.100	0.1058		mg/L		106	75 - 125	6	20
Cobalt	<0.000500		0.100	0.1040		mg/L		104	75 - 125	6	20
Lead	<0.000500		0.200	0.2093		mg/L		104	75 - 125	6	20
Lithium	0.0332		0.200	0.2655		mg/L		116	75 - 125	5	20
Molybdenum	0.00850		0.200	0.2189		mg/L		105	75 - 125	5	20
Selenium	<0.00500		0.400	0.4154		mg/L		103	75 - 125	4	20
Thallium	<0.00100		0.200	0.2223		mg/L		111	75 - 125	6	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-379377/1-A

Matrix: Water

Analysis Batch: 379467

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 379377

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/16/23 15:20	02/17/23 12:53	1

Lab Sample ID: LCS 310-379377/2-A

Matrix: Water

Analysis Batch: 379467

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 379377

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001713		mg/L		103	80 - 120

Method: 9040C - pH

Lab Sample ID: LCS 310-378969/2

Matrix: Water

Analysis Batch: 378969

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.040		SU		101	98 - 102

Lab Sample ID: 310-249580-1 DU

Matrix: Water

Analysis Batch: 378969

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.08	HF	7.040		SU		0.6	20

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

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

Lab Sample ID: MB 310-379072/1
Matrix: Water
Analysis Batch: 379072

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	<50.0		50.0		mg/L			02/13/23 14:42	1

Lab Sample ID: LCS 310-379072/2
Matrix: Water
Analysis Batch: 379072

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	1000	938.0		mg/L		94	90 - 110

Lab Sample ID: 310-249580-7 DU
Matrix: Water
Analysis Batch: 379072

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	390		390.0		mg/L		0	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-600444/1-A
Matrix: Water
Analysis Batch: 602892

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600444

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04335	U	0.0451	0.0453	1.00	0.0688	pCi/L	02/15/23 08:59	03/09/23 07:06	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		30 - 110	02/15/23 08:59	03/09/23 07:06	1

Lab Sample ID: LCS 160-600444/2-A
Matrix: Water
Analysis Batch: 602892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600444

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	11.83		1.21	1.00	0.0772	pCi/L	104	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	85.1		30 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-600446/1-A
Matrix: Water
Analysis Batch: 601101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600446

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3976	U	0.335	0.337	1.00	0.526	pCi/L	02/15/23 09:26	02/22/23 11:36	1

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

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

Lab Sample ID: MB 160-600446/1-A
Matrix: Water
Analysis Batch: 601101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600446

	MB	MB	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	91.4		30 - 110
Y Carrier	86.4		30 - 110

Prepared	Analyzed	Dil Fac
02/15/23 09:26	02/22/23 11:36	1
02/15/23 09:26	02/22/23 11:36	1

Lab Sample ID: LCS 160-600446/2-A
Matrix: Water
Analysis Batch: 601101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600446

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.17	9.667		1.33	1.00	0.606	pCi/L	118	75 - 125

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	85.1		30 - 110
Y Carrier	81.5		30 - 110

QC Association Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

HPLC/IC

Analysis Batch: 379692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	9056A	
310-249580-2	MW-2	Total/NA	Water	9056A	
310-249580-3	MW-3	Total/NA	Water	9056A	
310-249580-4	MW-4R	Total/NA	Water	9056A	
310-249580-5	MW-5	Total/NA	Water	9056A	
310-249580-6	MW-6	Total/NA	Water	9056A	
310-249580-7	MW-7	Total/NA	Water	9056A	
310-249580-8	MW-8	Total/NA	Water	9056A	
310-249580-9	Duplicate	Total/NA	Water	9056A	
MB 310-379692/3	Method Blank	Total/NA	Water	9056A	
LCS 310-379692/4	Lab Control Sample	Total/NA	Water	9056A	
310-249580-1 MS	MW-1	Total/NA	Water	9056A	
310-249580-1 MSD	MW-1	Total/NA	Water	9056A	

Metals

Prep Batch: 379083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	3005A	
310-249580-2	MW-2	Total/NA	Water	3005A	
310-249580-3	MW-3	Total/NA	Water	3005A	
310-249580-4	MW-4R	Total/NA	Water	3005A	
310-249580-5	MW-5	Total/NA	Water	3005A	
310-249580-6	MW-6	Total/NA	Water	3005A	
310-249580-7	MW-7	Total/NA	Water	3005A	
310-249580-8	MW-8	Total/NA	Water	3005A	
310-249580-9	Duplicate	Total/NA	Water	3005A	
MB 310-379083/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-379083/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-249580-1 MS	MW-1	Total/NA	Water	3005A	
310-249580-1 MSD	MW-1	Total/NA	Water	3005A	

Analysis Batch: 379307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	6020B	379083
310-249580-2	MW-2	Total/NA	Water	6020B	379083
310-249580-3	MW-3	Total/NA	Water	6020B	379083
310-249580-4	MW-4R	Total/NA	Water	6020B	379083
310-249580-5	MW-5	Total/NA	Water	6020B	379083
310-249580-6	MW-6	Total/NA	Water	6020B	379083
310-249580-7	MW-7	Total/NA	Water	6020B	379083
310-249580-8	MW-8	Total/NA	Water	6020B	379083
310-249580-9	Duplicate	Total/NA	Water	6020B	379083
MB 310-379083/1-A	Method Blank	Total/NA	Water	6020B	379083
LCS 310-379083/2-A	Lab Control Sample	Total/NA	Water	6020B	379083
310-249580-1 MS	MW-1	Total/NA	Water	6020B	379083
310-249580-1 MSD	MW-1	Total/NA	Water	6020B	379083

Prep Batch: 379377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	7470A	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Metals (Continued)

Prep Batch: 379377 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-2	MW-2	Total/NA	Water	7470A	
310-249580-3	MW-3	Total/NA	Water	7470A	
310-249580-4	MW-4R	Total/NA	Water	7470A	
310-249580-5	MW-5	Total/NA	Water	7470A	
310-249580-6	MW-6	Total/NA	Water	7470A	
310-249580-7	MW-7	Total/NA	Water	7470A	
310-249580-8	MW-8	Total/NA	Water	7470A	
310-249580-9	Duplicate	Total/NA	Water	7470A	
MB 310-379377/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-379377/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 379467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	7470A	379377
310-249580-2	MW-2	Total/NA	Water	7470A	379377
310-249580-3	MW-3	Total/NA	Water	7470A	379377
310-249580-4	MW-4R	Total/NA	Water	7470A	379377
310-249580-5	MW-5	Total/NA	Water	7470A	379377
310-249580-6	MW-6	Total/NA	Water	7470A	379377
310-249580-7	MW-7	Total/NA	Water	7470A	379377
310-249580-8	MW-8	Total/NA	Water	7470A	379377
310-249580-9	Duplicate	Total/NA	Water	7470A	379377
MB 310-379377/1-A	Method Blank	Total/NA	Water	7470A	379377
LCS 310-379377/2-A	Lab Control Sample	Total/NA	Water	7470A	379377

General Chemistry

Analysis Batch: 378969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	9040C	
310-249580-2	MW-2	Total/NA	Water	9040C	
310-249580-3	MW-3	Total/NA	Water	9040C	
310-249580-4	MW-4R	Total/NA	Water	9040C	
310-249580-5	MW-5	Total/NA	Water	9040C	
310-249580-6	MW-6	Total/NA	Water	9040C	
310-249580-7	MW-7	Total/NA	Water	9040C	
310-249580-8	MW-8	Total/NA	Water	9040C	
310-249580-9	Duplicate	Total/NA	Water	9040C	
LCS 310-378969/2	Lab Control Sample	Total/NA	Water	9040C	
310-249580-1 DU	MW-1	Total/NA	Water	9040C	

Analysis Batch: 379072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	SM 2540C	
310-249580-2	MW-2	Total/NA	Water	SM 2540C	
310-249580-3	MW-3	Total/NA	Water	SM 2540C	
310-249580-4	MW-4R	Total/NA	Water	SM 2540C	
310-249580-5	MW-5	Total/NA	Water	SM 2540C	
310-249580-6	MW-6	Total/NA	Water	SM 2540C	
310-249580-7	MW-7	Total/NA	Water	SM 2540C	
310-249580-8	MW-8	Total/NA	Water	SM 2540C	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

General Chemistry (Continued)

Analysis Batch: 379072 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-9	Duplicate	Total/NA	Water	SM 2540C	
MB 310-379072/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-379072/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-249580-7 DU	MW-7	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 600444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	PrecSep-21	
310-249580-2	MW-2	Total/NA	Water	PrecSep-21	
310-249580-3	MW-3	Total/NA	Water	PrecSep-21	
310-249580-4	MW-4R	Total/NA	Water	PrecSep-21	
310-249580-5	MW-5	Total/NA	Water	PrecSep-21	
310-249580-6	MW-6	Total/NA	Water	PrecSep-21	
310-249580-7	MW-7	Total/NA	Water	PrecSep-21	
310-249580-8	MW-8	Total/NA	Water	PrecSep-21	
310-249580-9	Duplicate	Total/NA	Water	PrecSep-21	
MB 160-600444/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-600444/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 600446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249580-1	MW-1	Total/NA	Water	PrecSep_0	
310-249580-2	MW-2	Total/NA	Water	PrecSep_0	
310-249580-3	MW-3	Total/NA	Water	PrecSep_0	
310-249580-4	MW-4R	Total/NA	Water	PrecSep_0	
310-249580-5	MW-5	Total/NA	Water	PrecSep_0	
310-249580-6	MW-6	Total/NA	Water	PrecSep_0	
310-249580-7	MW-7	Total/NA	Water	PrecSep_0	
310-249580-8	MW-8	Total/NA	Water	PrecSep_0	
310-249580-9	Duplicate	Total/NA	Water	PrecSep_0	
MB 160-600446/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-600446/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-1

Date Collected: 02/09/23 12:00

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 13:16
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 13:21
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:34
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:19
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:11
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:39
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: MW-2

Date Collected: 02/09/23 12:25

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 13:58
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 13:40
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:36
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:22
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:11
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:39
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: MW-3

Date Collected: 02/09/23 10:56

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 14:12
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 13:43
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:38
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:24
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-3

Date Collected: 02/09/23 10:56

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:11
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:40
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: MW-4R

Date Collected: 02/09/23 10:10

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 14:26
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 13:46
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:40
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:25
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:11
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:40
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: MW-5

Date Collected: 02/09/23 11:36

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 14:40
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 14:14
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:42
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:28
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:11
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:40
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-6

Date Collected: 02/09/23 13:32

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 14:54
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 14:17
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:45
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:30
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:11
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:40
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: MW-7

Date Collected: 02/09/23 13:10

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 15:36
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 14:21
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:47
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:31
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:12
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601101	FLC	EET SL	02/22/23 11:40
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: MW-8

Date Collected: 02/09/23 12:47

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 15:51
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 14:24
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:49
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:32
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Client Sample ID: MW-8

Date Collected: 02/09/23 12:47

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:12
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601183	FLC	EET SL	02/22/23 11:43
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Client Sample ID: Duplicate

Date Collected: 02/09/23 23:59

Date Received: 02/10/23 15:50

Lab Sample ID: 310-249580-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	379692	DHM5	EET CF	02/20/23 16:05
Total/NA	Prep	3005A			379083	QTZ5	EET CF	02/14/23 09:20
Total/NA	Analysis	6020B		1	379307	A6US	EET CF	02/15/23 14:27
Total/NA	Prep	7470A			379377	XXW3	EET CF	02/16/23 15:21
Total/NA	Analysis	7470A		1	379467	DHM5	EET CF	02/17/23 13:51
Total/NA	Analysis	9040C		1	378969	A3GU	EET CF	02/10/23 16:34
Total/NA	Analysis	SM 2540C		1	379072	ENB7	EET CF	02/13/23 14:42
Total/NA	Prep	PrecSep-21			600444	DJP	EET SL	02/15/23 08:59
Total/NA	Analysis	9315		1	603031	FLC	EET SL	03/09/23 07:12
Total/NA	Prep	PrecSep_0			600446	DJP	EET SL	02/15/23 09:26
Total/NA	Analysis	9320		1	601183	FLC	EET SL	02/22/23 11:43
Total/NA	Analysis	Ra226_Ra228		1	603066	SCB	EET SL	03/09/23 21:59

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Laboratory: Eurofins St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9040C	pH	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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.

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

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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



Environment Testing
America



310-249580 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE <u>2/10/23</u>	TIME <u>1550</u>	Received By: <u>LR</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes: Cooler ID: _____
Multiple Coolers?		☒ Yes ☐ No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?		☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>U</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.1</u>		Corrected Temp (°C): <u>-0.1</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1 <u>250ml PI Nitric</u>	CONTAINER 2 <u>1L PI Nitric</u>	
Uncorrected Temp (°C):	<u>1.4</u>	<u>0.8</u>	
Corrected Temp (°C):	<u>1.4</u>	<u>0.8</u>	
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCC</u>			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE <u>2/10/23</u>	TIME <u>1550</u>	Received By: <u>LR</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes: Cooler ID: _____
Multiple Coolers?		☒ Yes ☐ No	If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?		☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>✓</u>		Correction Factor (°C): <u>0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.4</u>		Corrected Temp (°C): <u>-0.4</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1 <u>1L Al Nitric</u>	CONTAINER 2 <u>250ml PI Nitric</u>	
Uncorrected Temp (°C):	<u>1.1</u>	<u>0.9</u>	
Corrected Temp (°C):	<u>1.1</u>	<u>0.9</u>	
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277.2425

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

☐ RCRA ☐ Other:Regulatory Program: ☐ BW ☐ NPDES

COC No.

Client Contact		SCS Engineers		14755 Grover Street		Omaha, NE 68144		(402) 884-6202		Phone		(913) 681-0012		FAX		Project Name		City of Fremont		Site FDU		PO # 23249425002		2/22/23		20													
Email		msykes@scsengineers.com		Tel/Fax: (402) 938-0323		Analysis Turnaround Time		☐ CALENDAR DAYS ☐ WORKING DAYS TAT if different from Below _____ ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Filtered Sample (Y/N)		Perform MS / MSD (Y/N)		7470A Mercury		6020 Total Metals		9056 Chloride-Fluoride-Sulfate		2540C TDS		9040 pH		9315 Radium-226		9320 Radium-228		Total Radium	
Date: 3/2/2022		Site Contact: Charles Joyce		Lab Contact: Shawn Hayes		Carrier:																																	
TALS Project #		1		of		1		COCs																															
Sampler		For Lab Use Only:		Walk-in Client:		Lab Sampling																																	
Job / SDG No																																							
Sample Specific Notes																																							

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Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Possible Hazard Identification:

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Unknown ☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Custody Seals Intact:		☐ Yes ☐ No		Custody Seal No		Cooler Temp (°C)		Therm ID No	
Relinquished by:				Company: Eurochem		Received by:		Company: Eurochem	
Date:		2-7-23		Date/Time: 2-7-23 14:53		Date/Time: 2-7-23 14:53		Date/Time: 2-7-23 15:00	
Relinquished by:				Company: Eurochem		Received by:		Company: Eurochem	
Date:		2-10-23		Date/Time: 2-10-23 14:53		Date/Time: 2-10-23 14:53		Date/Time: 2-10-23 15:00	
Relinquished by:				Company: Eurochem		Received in Laboratory by:		Company: Eurochem	
Date:		2-10-23		Date/Time: 2-10-23 14:53		Date/Time: 2-10-23 14:53		Date/Time: 2-10-23 15:00	

Eurofins Cedar Falls

3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record



eurofins

Environment Testing

Client Information (Sub Contract Lab)		Sampler: Lab PM Thompson, Shirley J		Carrier Tracking No(s):		COC No 310-58476.1	
Client Contact Shipping/Receiving		Phone		State of Origin Iowa		Page Page 1 of 1	
Company TestAmerica Laboratories, Inc.		E-Mail Shirley.Thompson@et.eurofins.com		Accreditations Required (See note) State - Iowa; State Program - Iowa		Job # 310-249580-2	
Address: 13715 Rider Trail North, City: Earth City State, Zip MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: City of Freemont Site:		Due Date Requested: 2/23/2023 TAT Requested (days): PO #: WO #: Project #: 31014495 SSOW#:		Analysis Requested			
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Matrix (W=water, S=solid, O=soil, BT= tissue, AA=)		Preservation Code:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
MW-1 (310-249580-1)		2/9/23		12:00 Central		Water	
MW-2 (310-249580-2)		2/9/23		12:25 Central		Water	
MW-3 (310-249580-3)		2/9/23		10:56 Central		Water	
MW-4R (310-249580-4)		2/9/23		10:10 Central		Water	
MW-5 (310-249580-5)		2/9/23		11:36 Central		Water	
MW-6 (310-249580-6)		2/9/23		13:32 Central		Water	
MW-7 (310-249580-7)		2/9/23		13:10 Central		Water	
MW-8 (310-249580-8)		2/9/23		12:47 Central		Water	
Duplicate (310-249580-9)		2/9/23		23:59 Central		Water	
Sample Instructions/Note:		Total Number of containers		Special Instructions/Note:		Preservation Codes:	
		2				A - HCL M - Hexane B - NaOH N - None O - AsNaO2 C - Zn Acetate P - Na2Q4S D - Nitric Acid Q - Na2SO3 E - NaHSO4 R - Na2S2O3 F - MeOH S - H2SO4 G - Amchlor T - TSP Dodecahydrate H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA W - pH 4-5 Y - Trizma Z - other (specify) Other:	
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.							
Possible Hazard Identification							
Unconfirmed							
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: <i>TJH</i>		Date/Time: 2/23/23		Date/Time: 1/4/2023		Company: <i>Worthington</i>	
Relinquished by: FED EX		Date/Time:		Date/Time: FEB 14 2023 1030		Company: <i>EM35N</i>	
Relinquished by:		Date/Time:		Date/Time:		Company:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-249580-2

Login Number: 249580

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-249580-2

Login Number: 249580

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 02/14/23 02:20 PM

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

Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: City of Fremont

Job ID: 310-249580-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
310-249580-1	MW-1	91.7	
310-249580-2	MW-2	92.0	
310-249580-3	MW-3	90.6	
310-249580-4	MW-4R	88.6	
310-249580-5	MW-5	81.1	
310-249580-6	MW-6	75.1	
310-249580-7	MW-7	75.7	
310-249580-8	MW-8	78.9	
310-249580-9	Duplicate	78.3	
LCS 160-600444/2-A	Lab Control Sample	85.1	
MB 160-600444/1-A	Method Blank	91.4	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-249580-1	MW-1	91.7	82.2
310-249580-2	MW-2	92.0	86.0
310-249580-3	MW-3	90.6	81.9
310-249580-4	MW-4R	88.6	82.2
310-249580-5	MW-5	81.1	80.4
310-249580-6	MW-6	75.1	82.2
310-249580-7	MW-7	75.7	87.9
310-249580-8	MW-8	78.9	81.5
310-249580-9	Duplicate	78.3	85.2
LCS 160-600446/2-A	Lab Control Sample	85.1	81.5
MB 160-600446/1-A	Method Blank	91.4	86.4
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

A2 3rd Quarter Groundwater Monitoring Program Report



Lon D. Wright Power Plant Statistical Summary of July 2023 Data

City of Fremont Department of Utilities
401 E Military Road
Fremont, Nebraska 68025

SCS ENGINEERS

27222120.00 | September 25, 2023

SCS Engineers
14755 Grover Street
Omaha, NE 68144
402 938-0327

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Attachments

A	Compliance Statistical Analysis
A.1	Time Series Plots
A.2	Intrawell Prediction Limits
A.3	Interwell Prediction Limits
A.4	Sen's Slope/Mann-Kendall Analysis
A.5	Confidence Interval Analysis
B	Supporting information
B.1	Field Data Sheets
B.2	Chain of Custody
B.3	Testing Results

1 EVALUATION OF ANALYTICAL RESULTS

1.1 SITE-SPECIFIC STATISTICAL PROGRAM

Statistical analysis consisted of methods outlined in the Groundwater Monitoring Plan (GMP) (revised April 2021), 40 CFR Part 257, Subpart D (CCR rule) and EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance (Unified Guidance) dated March 2009 using Sanitas™ Statistical Software version 9.6.37. An intrawell statistical approach is the primary statistical method and interwell comparisons are supplementary statistical analyses used to give context to intrawell statistical results. If no intrawell statistical exceedance is noted, the additional statistical analysis is not used to make assessment monitoring determinations. Constituent/well pairs exceeding inter-and intrawell prediction limits but not displaying significant increasing trends are not entered into the assessment monitoring program. Additionally, in an assessment monitoring program, if one or more constituent/well pair statistically exceeds the intrawell prediction limit but does not exceed the Confidence Interval (ie GWPS) then assessment monitoring procedures for the site will continue and no changes to the sampling schedule are implemented. Based on current understanding of the Federal CCR rule, when assessment monitoring is required at one well then all wells must be in assessment monitoring. This understanding does not conflict with GMP requirements.

Because the site remains in assessment monitoring, each well at the site was sampled and analyzed following assessment monitoring procedures. During the July 2023 sampling event, samples from each well were analyzed for Appendix III and IV constituents. Detected Appendix III and Appendix IV constituent results were analyzed using time series plots, intrawell prediction limit analysis, interwell prediction limit analysis, Sen's slope trend analyses, and confidence interval analysis. The statistical results have been summarized in **Table 2** at the end of this Section.

Statistical output charts and tables are included in **Attachment A**.

1.2 COMPLIANCE STATISTICAL ANALYSIS

Compliance statistical analysis was performed on data collected from the July 2023 sampling event. Pertinent statistical results are summarized in **Table 2** at the end of this Section.

1.2.1 Time Series Plots

Time series plots were prepared for Appendix III and Appendix IV constituents to show the concentration variations over time. Time series graphs are included in **Attachment A.1**.

1.2.2 Intrawell Prediction Limits

An intrawell prediction limit analysis compares the historical data of a well to its own compliance data. The historical data is used to calculate the prediction limit that is compared to the compliance data point. If a compliance data point exceeds the calculated prediction limit, then an initial exceedance is noted; however, this may not indicate a statistically significant increase (SSI). The distribution of the data was calculated by applying the Shapiro-Wilk test for normality or the Ladder of Powers (Helsel & Hirsh, 1992) for transformed data. A parametric prediction limit was constructed for data determined to have a normal or transformed normal distribution. A non-parametric prediction limit was calculated for data not transformed normal or containing 51 percent to 90 percent non-detect results.

Intrawell prediction limits were used to statistically evaluate the detected constituents in each monitoring well using an established background dataset from October 2016 through June 2018 except for Boron where the background dataset is from October 2016 to February 2018. Outliers, if any, are removed from the background dataset.

Intrawell prediction limit analysis results are included in **Attachment A.2** and summarized in **Table 2**.

1.2.3 Interwell Prediction Limits

An interwell prediction limit analysis compares data collected from compliance (downgradient) monitoring wells with data collected from the background (upgradient) monitoring wells. Available upgradient monitoring well data (MW-4R) was used to calculate the interwell prediction limit and was used to determine if a single data point is statistically representative of a group of data points. The distribution of the data was calculated by applying the Shapiro-Wilk test for normality, or the Ladder of Powers (Helsel & Hirsh, 1992) for transformed data. A parametric prediction limit was constructed for data determined to have a normal or transformed normal distribution. A non-parametric prediction limit was calculated for data not transformed normal or containing 51 percent to 90 percent of observations less than the laboratory reporting limit (non-detects) results. A Poisson based prediction limit was calculated for data with greater than 90 percent non-detect results.

Interwell prediction limits were used as a supplementary statistical analysis to provide additional context and evaluation to the statistical evaluation of the detected constituents from the July 2023 sampling event data. Interwell prediction limits analysis results are included in **Attachment A.3** and summarized in **Table 2**.

1.2.4 Sen's Slope/Mann-Kendall Trend Analysis

A Sen's Slope/Mann-Kendall statistical analysis was performed on the detected constituent/well pairs using the background dataset and the July 2023 sampling event to determine trends in the concentration of these constituents. A trend is the general increase or decrease in observed values over time. A trend analysis can be used to determine the significance of an apparent trend and to estimate the magnitude of that trend. The Mann-Kendall test is nonparametric, meaning that it does not depend on an assumption of a particular underlying distribution. The test uses only the relative magnitude of data rather than actual values. Therefore, missing values are allowed, and values that are recorded as non-detects by the laboratory can still be used in the statistical analysis by assigning values equal to half their reporting limits. Sen's Slope is a simple nonparametric procedure developed to estimate the true slope. The advantage of this method over linear regression is that it is not greatly affected by gross data errors or outliers, and can be computed when data is missing or non-detect. Significant trends should be identified as either increasing or decreasing and whether these trends are occurring in more than one well. Trends can result from naturally occurring changes to the groundwater, seasonal fluctuations, and disturbances from new well installations or facility activities. Sen's Slope/Mann-Kendall analysis results are included in **Attachment A.4** and summarized in **Table 3**.

1.2.5 Confidence Interval Analysis

Confidence Interval analysis was performed on the detected constituent/well pairs from the July 2023 sampling event. Confidence interval analysis is an intrawell test used to compare the compliance data to a fixed numerical limit (compliance limit). Since the wells are in assessment monitoring, the compliance limit is represented by the groundwater protection standard (GWPS). Based on the Unified Guidance, the confidence interval is bound by an upper and lower limit which

defines the most probable range where either the average or median concentration is expected. A potential statistical exceedance is indicated by confidence interval analysis when the lower limit of the confidence interval is above the compliance limit.

The GWPS for lithium and molybdenum were identified in the July 17, 2018 *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* (July 2018 EPA CCR Amendment) and were utilized as the compliance limits. The average upgradient concentrations, derived from MW-4R, were used as the compliance limit for boron and calcium because no GWPS exists for either constituent. The confidence interval analysis results are included in **Attachment A.5** and summarized in **Table 2**.

1.2.6 Statistical Summary

The following table lists a summary of those detected constituents for both the previous monitoring period, February 2023, and the current monitoring period, July 2023.

Table 1. Previously Identified to Current Identified Exceedances

Well	Previously identified exceedances February 2023		Currently identified exceedances July 2023	
	Intrawell	Interwell	Intrawell	Interwell
MW-1		Cadmium		
	Chloride	Chloride	Chloride	Chloride
		Fluoride	Fluoride	
	Sulfate	Sulfate	Sulfate	Sulfate
MW-2		Cadmium		
	Chloride		Chloride	
	Fluoride	Fluoride	Fluoride	
	Lithium			
MW-3			Sulfate	Sulfate
	Arsenic		Arsenic	
		Barium		
	Chloride		Chloride	
MW-4R (upgradient)	Arsenic		Arsenic	
	Chloride		Chloride	
MW-5	Chloride		Chloride	
			Sulfate	Sulfate
MW-6		Barium		
		Calcium		
		Chloride		Chloride
		Sulfate		Sulfate
MW-7		Cadmium		
			Chloride	Chloride
	Sulfate	Sulfate	Sulfate	Sulfate
MW-8		Barium		
			Chloride	

Intrawell exceedances were noted for arsenic (MW-4), chloride (MW-2, MW-3, MW-4R, MW-5, and MW-8), and fluoride (MW-1 and MW-2) without corresponding interwell exceedances. Intrawell exceedances with corresponding interwell exceedances were noted for chloride (MW-1, and MW-7) and sulfate (MW-1, MW-2, MW-5, and MW-7). No constituent/well pairs statistically exceeded the GWPS. Chloride at upgradient well MW-4R was identified as an intrawell exceedance and may indicate a natural change in the groundwater quality. This change in the groundwater quality may be the reason for similar exceedances identified in the downgradient wells.

Statistical exceedances above background are still present at some wells. One Appendix III constituent (Sulfate at MW-1) exceeded the GWPS; however, no Appendix IV detects statistically exceeded the GWPS. Based on current understanding of the Federal CCR rule, when assessment monitoring is required at one well then all wells must be in assessment monitoring. Therefore, the site will remain in assessment monitoring during the next scheduled sampling event. The statistical analysis results from the July 2023 sampling event are summarized in **Table 2** below.

Table 2. Summary of Statistical Analysis

Well	Detected Constituents	Analytical Result	Intrawell Exceedance?	Interwell Exceedance?	Significant Increasing Trend?	Confidence Interval Exceedance?	GWPS Exceedance ¹
MW-1	Arsenic (ug/L)	3.69	No	No	Yes	No	No
	Calcium (mg/L)	89.2	No	No	No	Yes	N/A
	Chloride (mg/L)	68.1	Yes	Yes	Yes	No	No
	Fluoride (mg/L)	3.23	Yes	No	No	No	No
	Sulfate (mg/L)	893	Yes	Yes	No	No	Yes
MW-2	Calcium (mg/L)	86.4	No	No	No	Yes	N/A
	Chloride (mg/L)	30.0	Yes	No	No	No	No
	Fluoride (mg/L)	1.79	Yes	No	Yes	No	No
	Lithium (ug/L)	0.0312	No	No	Yes	No	No
	Sulfate (mg/L)	127	Yes	Yes	No	No	No
MW-3	Arsenic (ug/L)	2.52	Yes	No	No	No	No
	Calcium (mg/L)	76.2	No	No	Yes	Yes	N/A
	Chloride (mg/L)	47.2	Yes	No	Yes	No	No
MW-4R (upgradient)	Arsenic (ug/L)	5.24	Yes	Note 3	No	No	No
	Chloride (mg/L)	58.7	Yes		Yes	No	No
MW-5	Calcium (mg/L)	84.5	No	No	No	Yes	N/A
	Chloride (mg/L)	50.7	Yes	No	Yes	No	No
	Sulfate (mg/L)	63.6	Yes	Yes	No	No	No
MW-6	Arsenic (ug/L)	3.23	No	No	Yes	No	No
	Chloride (mg/L)	62.4	No	Yes	No	No	No
	Sulfate (mg/L)	86.4	No	Yes	No	No	No
MW-7	Arsenic (ug/L)	3.41	No	No	Yes	No	No
	Barium (ug/L)	122	No	No	Yes	No	No
	Boron (ug/L)	107	No	No	No	No	N/A

	Calcium (mg/L)	88.6	No	No	No	Yes	N/A
	Chloride (mg/L)	92.8	Yes	Yes	Yes	No	No
	Sulfate (mg/L)	65.9	Yes	Yes	No	No	No
MW-8	Calcium (mg/L)	89.7	No	No	Yes	Yes	N/A
	Chloride (mg/L)	35.8	Yes	No	Yes	No	No

¹GWPS were established by the NDEE Title 118 Groundwater Quality Standards or the July 2018 EPA CCR Amendment.

²ND: Non-detect

³No interwell statistical comparison was performed on the upgradient well MW-4R.

n/a - No GWPS has been established.

2 GENERAL COMMENTS

SCS Engineers does not warrant the work of third parties supplying information used in the assimilation of this document. This document has been prepared using the level of care and skill ordinarily exercised, under similar circumstances, by environmental professionals currently practicing in this locality. No other representation, express or implied, and no warranty or guarantee is included or intended.

3 REFERENCES

HDR, Appendix D Groundwater Monitoring Plan for Fremont Department of Utilities Fossil Fuel Combustion Ash Disposal Site, March 2016; Revised December 2018.

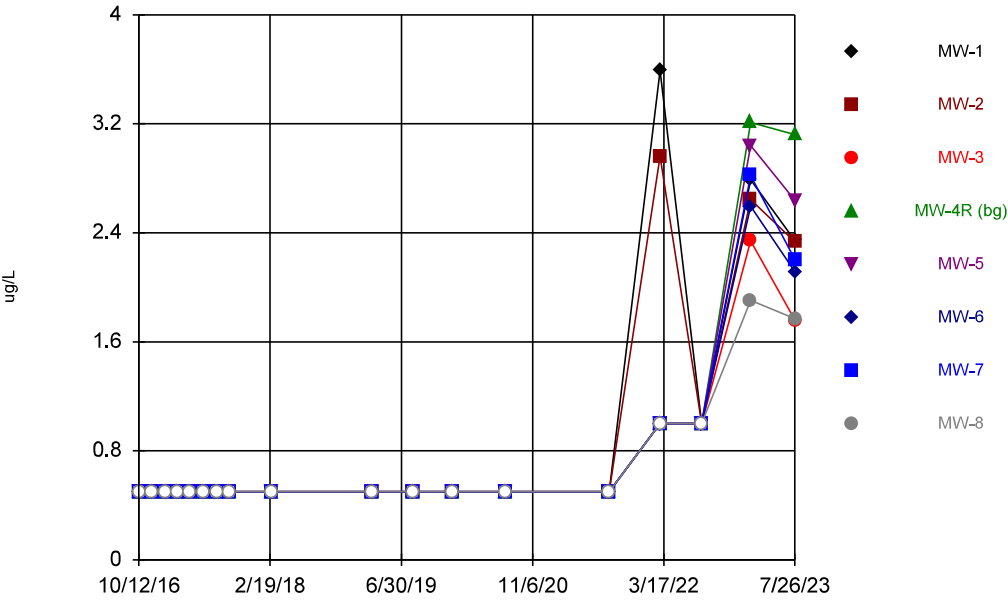
Layne GeoSciences, Inc. 1995. Hydrogeology of Proposed Fossil Fuel Combustion Ash Disposal Site. Prepared for Fremont Department of Utilities and HDR Engineering, Inc.

Sanitas Technologies, Sanitas Statistical Software v 9.6.37 and User Guide

Attachment A. Compliance Statistical Analysis

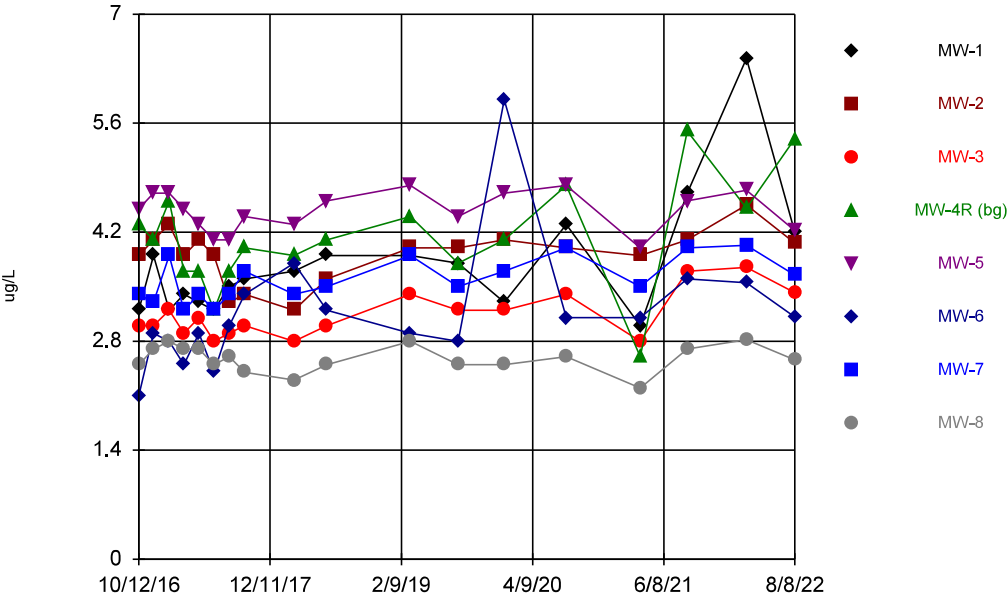
A.1 Time Series Plots

Time Series



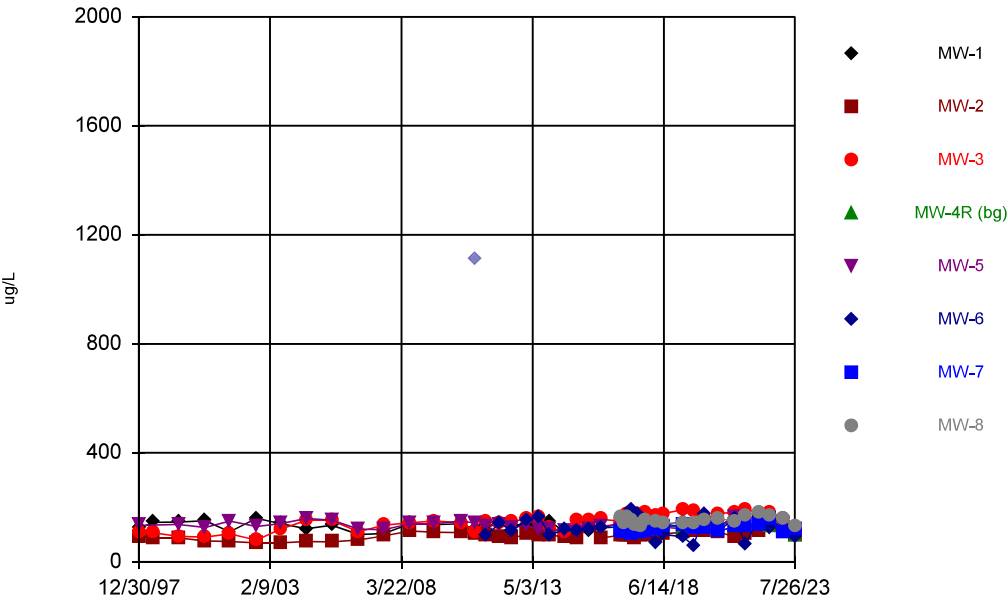
Constituent: Antimony [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



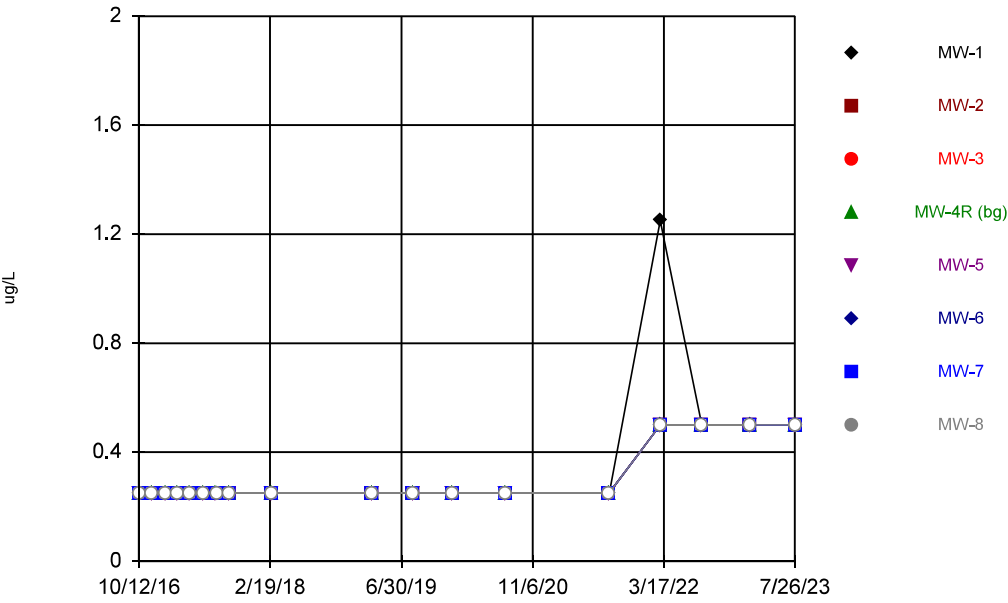
Constituent: Arsenic [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



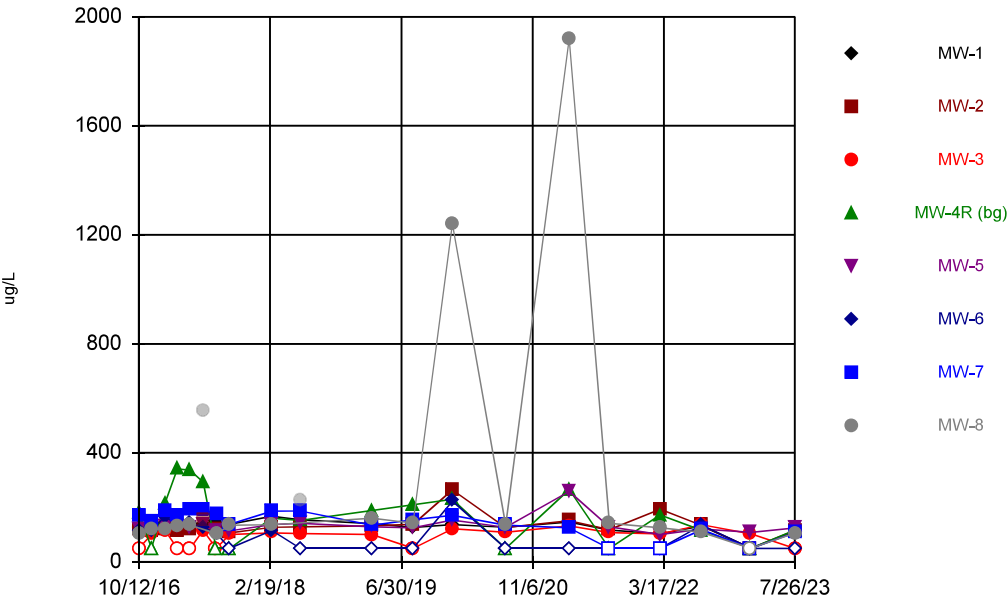
Constituent: Barium [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



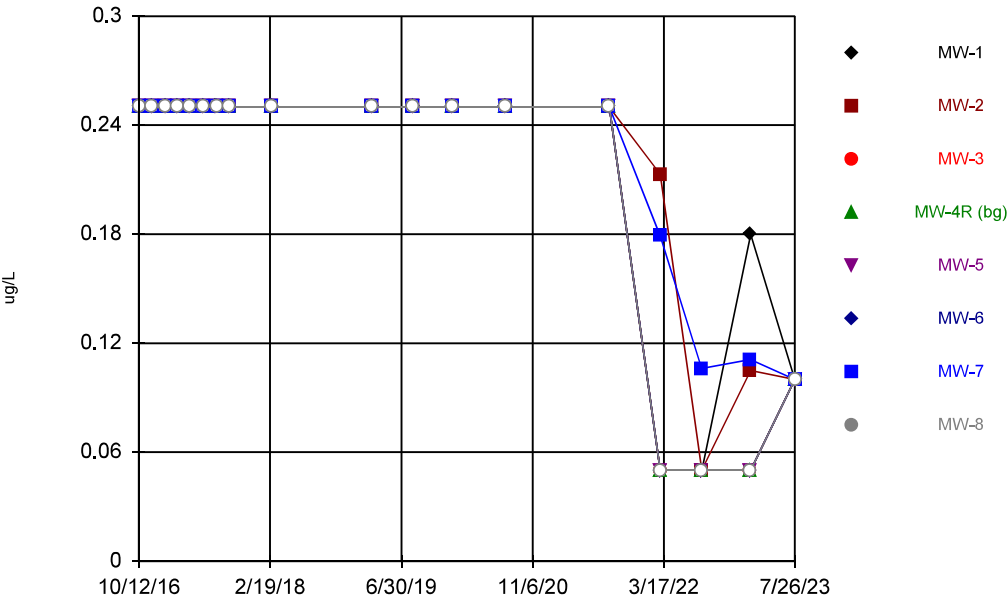
Constituent: BERYLIUM Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



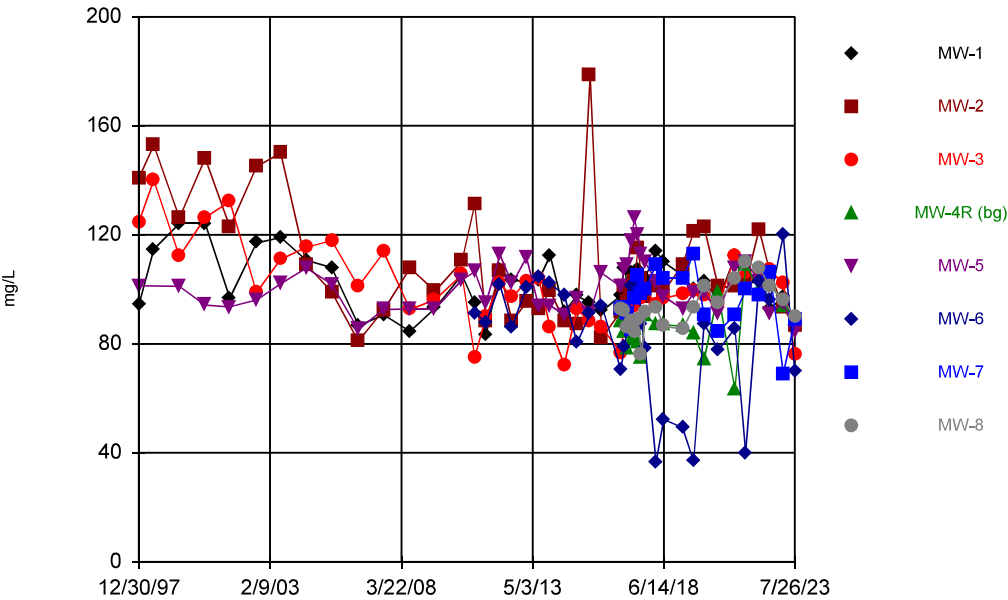
Constituent: Boron Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



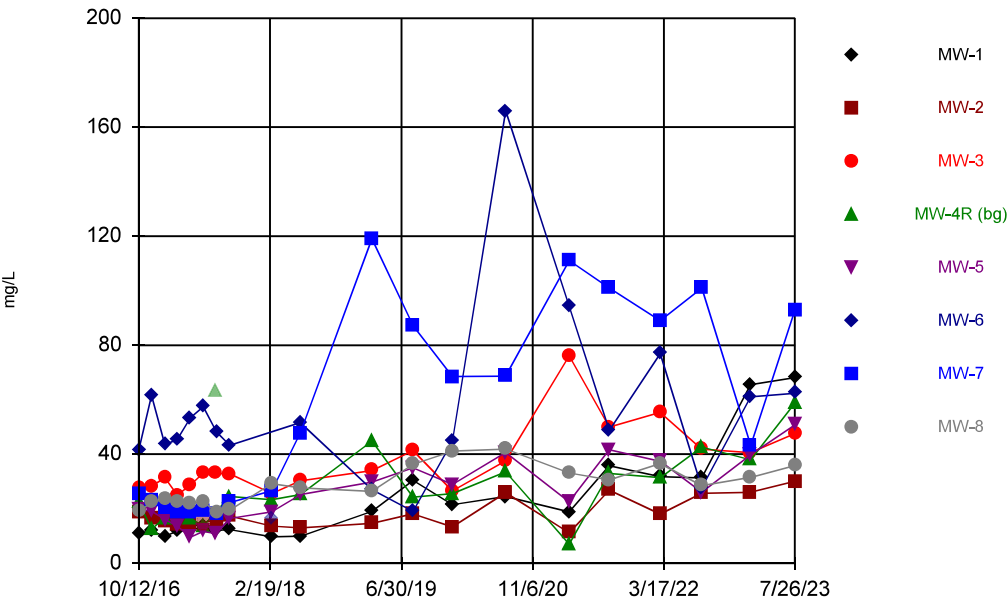
Constituent: Cadmium [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



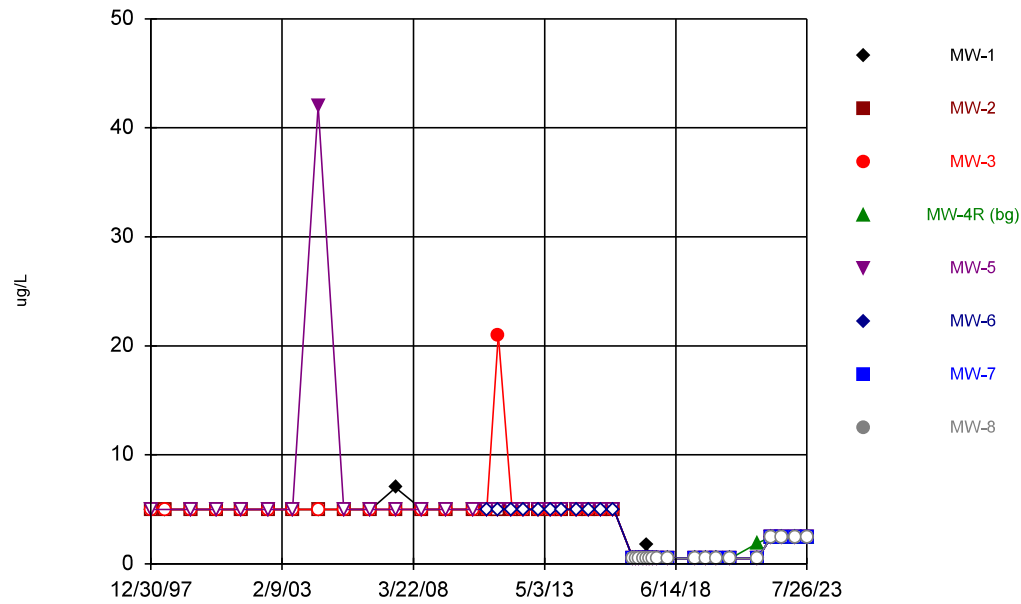
Constituent: Calcium Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



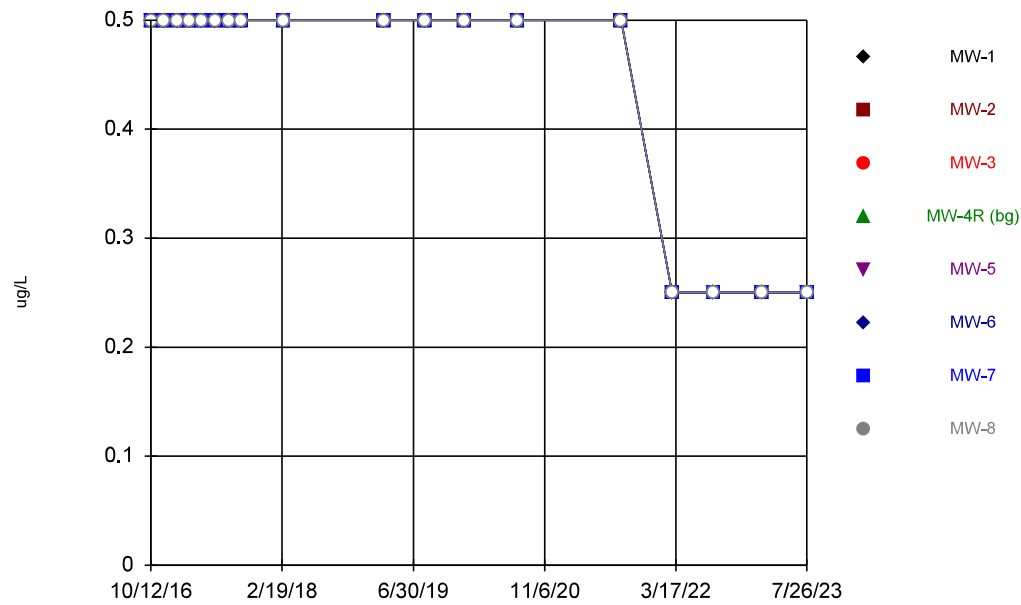
Constituent: Chloride Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



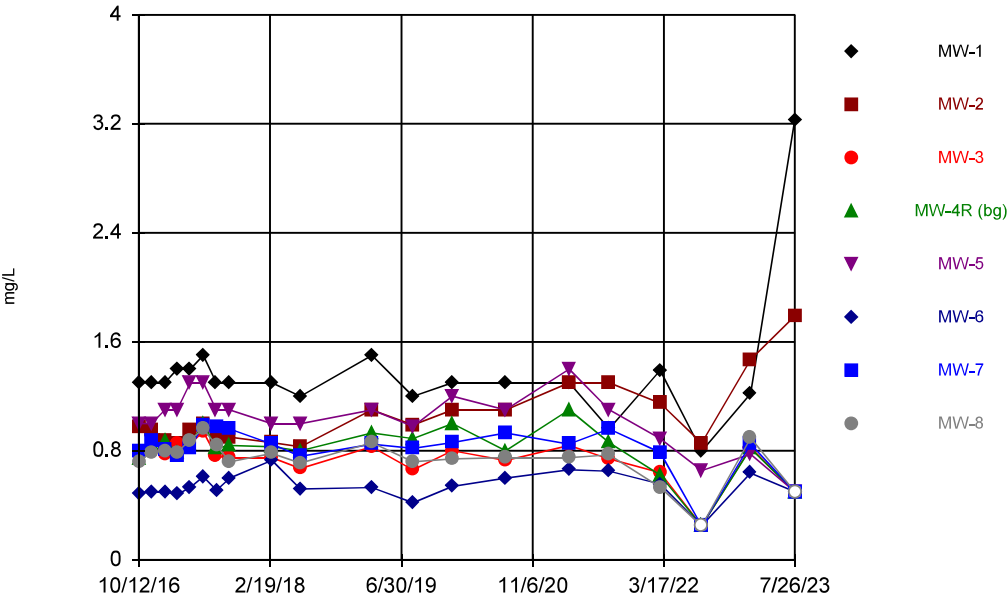
Constituent: Chromium [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



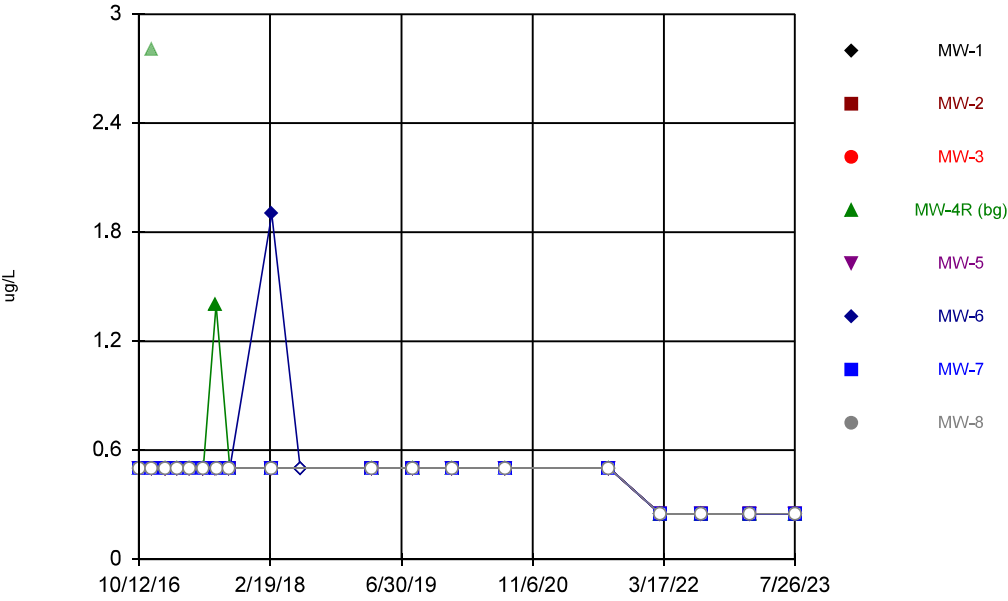
Constituent: Cobalt [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



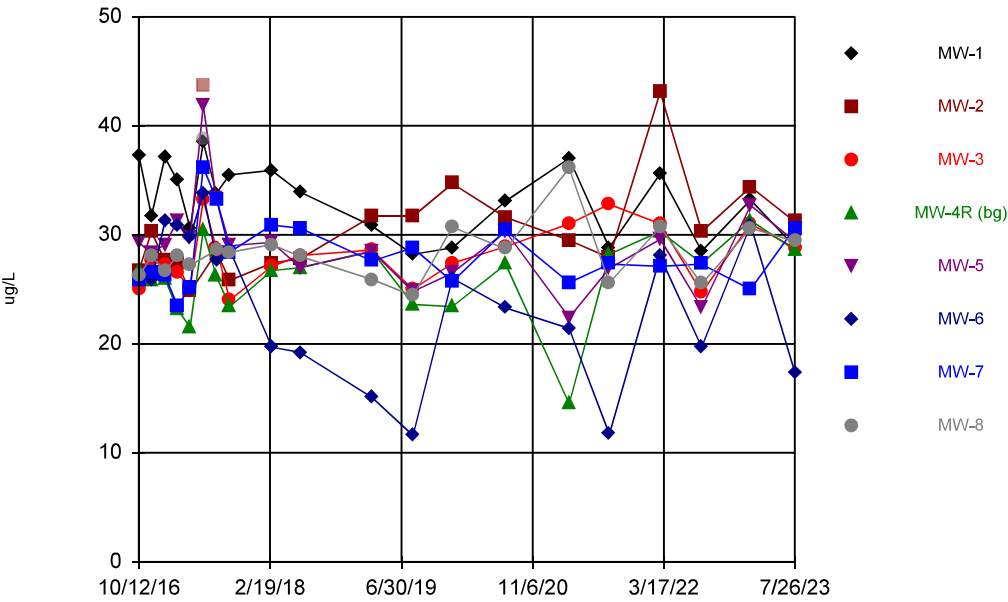
Constituent: Fluoride Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



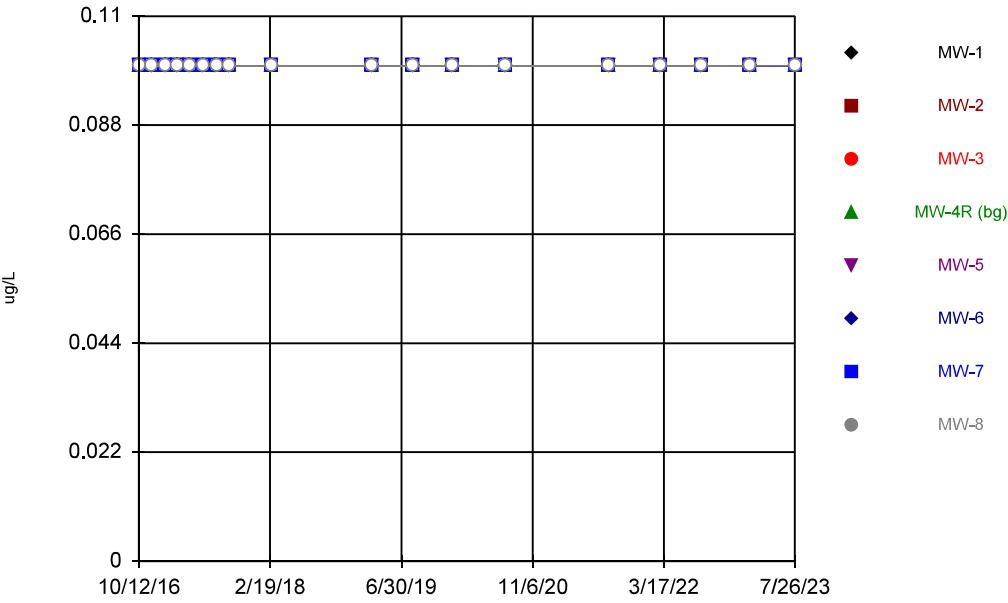
Constituent: Lead [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



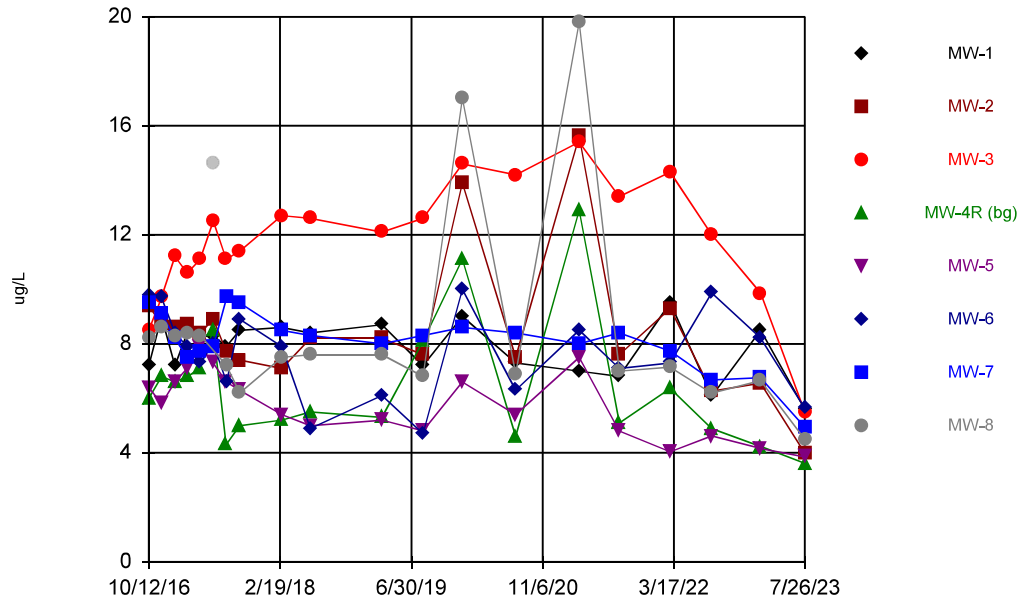
Constituent: Lithium Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



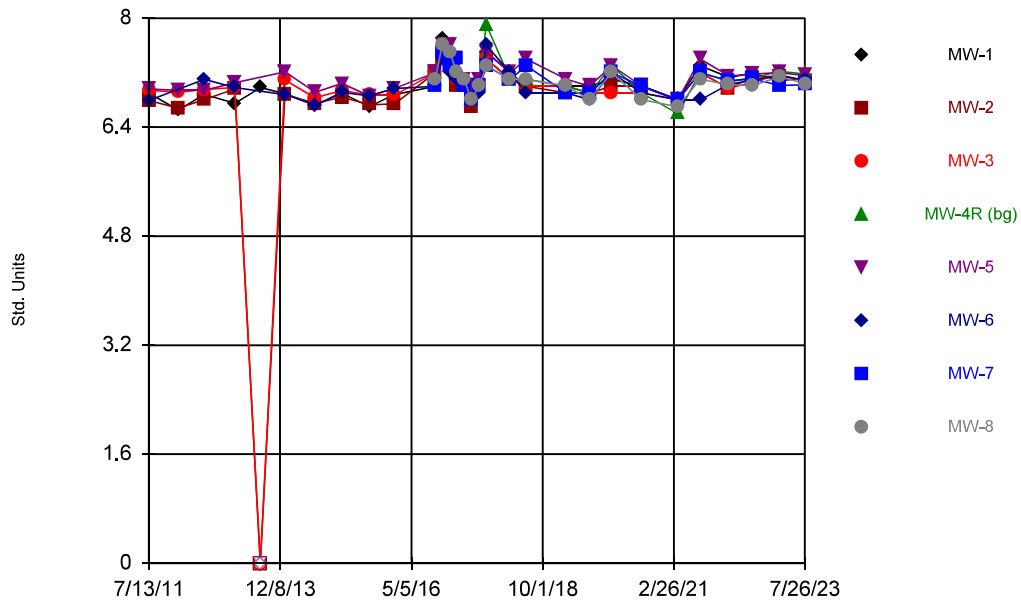
Constituent: Mercury Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



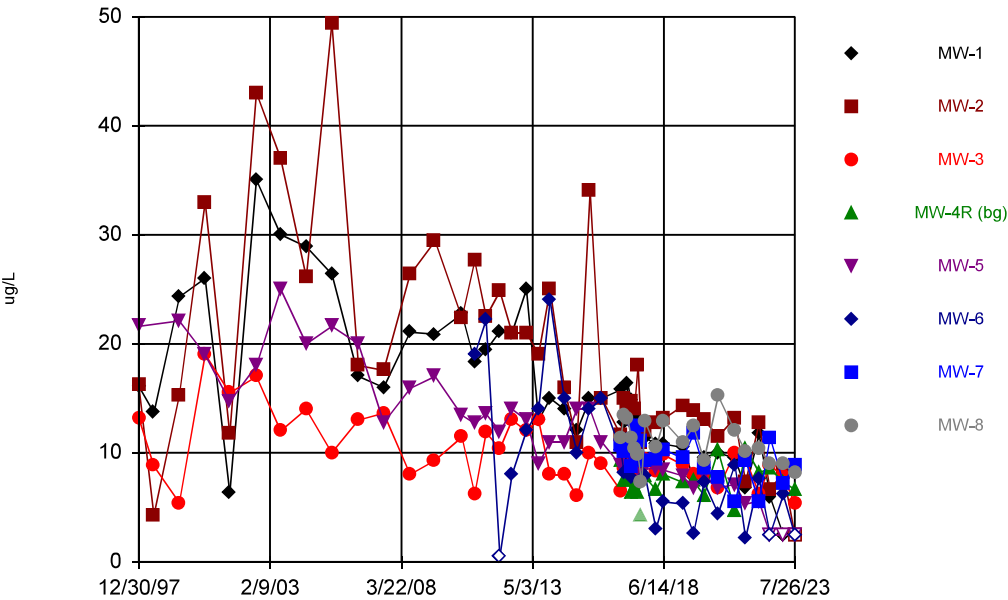
Constituent: Molybdenum Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



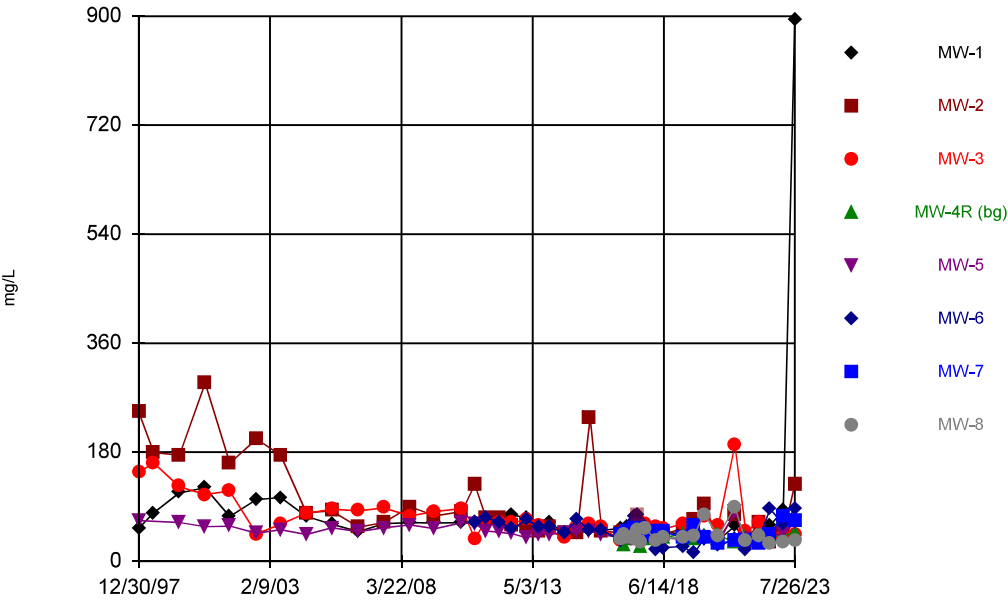
Constituent: pH Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



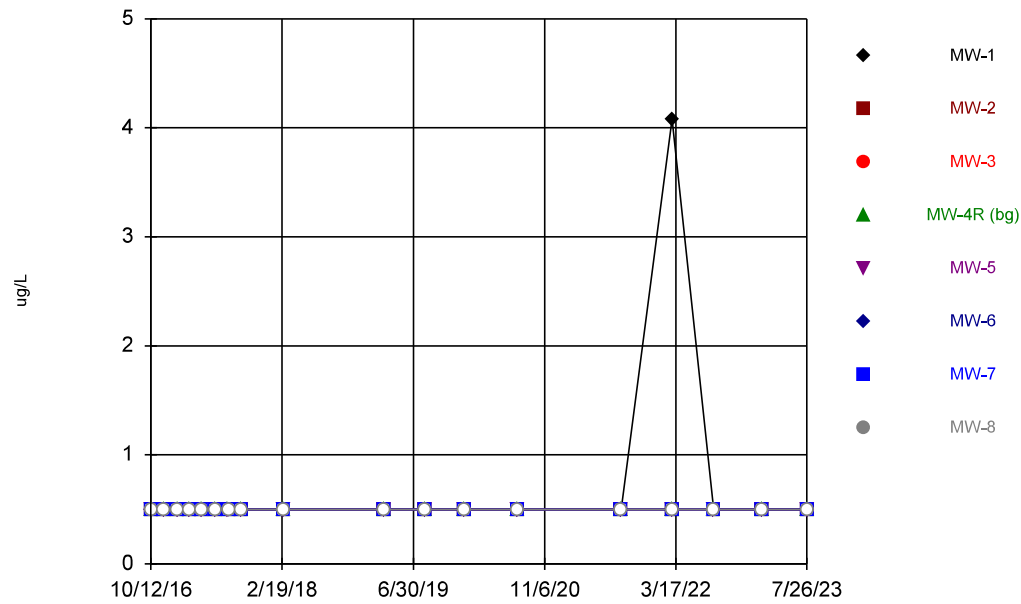
Constituent: Selenium [total] Analysis Run 8/25/2023 10:22 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



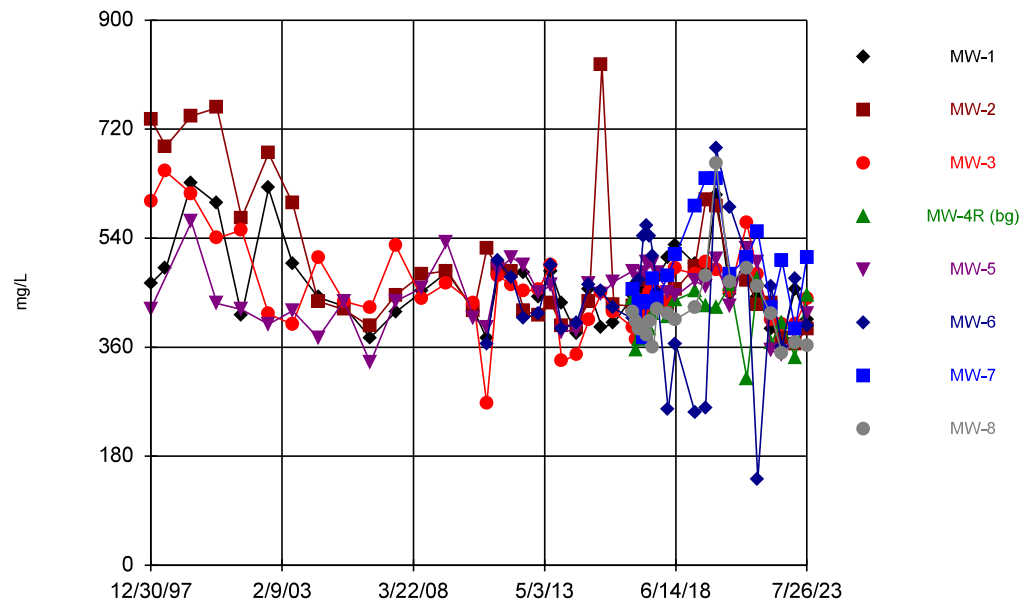
Constituent: Sulfate Analysis Run 8/25/2023 10:23 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



Constituent: Thallium [total] Analysis Run 8/25/2023 10:23 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Time Series



Constituent: Total Dissolved Solids Analysis Run 8/25/2023 10:23 AM View: 3Q2023 Detections
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

A.2 Intrawell Prediction Limits

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 8/18/2023, 12:00 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Sulfate (mg/L)	MW-2	58.28	n/a	7/26/2023	127	Yes	9	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-4R	34.63	n/a	7/26/2023	58.7	Yes	9	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-6	71.9	n/a	7/26/2023	62.4	No	9	0	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-8	168.8	n/a	7/26/2023	105	No	8	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-1	4.325	n/a	8/8/2022	4.2	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-2	4.899	n/a	8/8/2022	4.06	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-3	3.348	n/a	8/8/2022	3.42	Yes	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-4R	5.095	n/a	8/8/2022	5.4	Yes	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-5	5.084	n/a	8/8/2022	4.22	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-6	4.399	n/a	8/8/2022	3.11	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-7	4.095	n/a	8/8/2022	3.65	No	10	0	No	0.000...	Param Intra 1 of 2
Arsenic [total] (ug/L)	MW-8	3.043	n/a	8/8/2022	2.56	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-1	174.2	n/a	7/26/2023	124.7	No	10	0	No	0.000...	Param Intra 1 of 2 De...
Barium [total] (ug/L)	MW-2	112.9	n/a	7/26/2023	94.8	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-3	197.7	n/a	7/26/2023	106	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-4R	144.3	n/a	7/26/2023	95.1	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-5	171.6	n/a	7/26/2023	110	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-6	249.2	n/a	7/26/2023	91.7	No	10	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-7	136	n/a	7/26/2023	122	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-4R	10.4	n/a	7/26/2023	6.64	No	9	0	No	0.000...	Param Intra 1 of 2
Barium [total] (ug/L)	MW-8	183.3	n/a	7/26/2023	130	No	10	0	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-1	177.7	n/a	7/26/2023	109	No	10	0	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-2	140.5	n/a	7/26/2023	115	No	9	0	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-4R	570.9	n/a	7/26/2023	116	No	10	30	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-5	157.3	n/a	7/26/2023	124	No	10	0	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-6	274.3	n/a	7/26/2023	50ND	No	10	20	No	0.000...	Param Intra 1 of 2
Boron (ug/L)	MW-7	230	n/a	7/26/2023	107	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-1	119.5	n/a	7/26/2023	89.2	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-2	119.4	n/a	7/26/2023	86.4	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-3	114.8	n/a	7/26/2023	76.2	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-4R	98.37	n/a	7/26/2023	88.8	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-5	137.5	n/a	7/26/2023	84.5	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-6	146	n/a	7/26/2023	69.8	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-7	119.5	n/a	7/26/2023	88.6	No	10	0	No	0.000...	Param Intra 1 of 2
Calcium (mg/L)	MW-8	103.8	n/a	7/26/2023	89.7	No	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-1	15.09	n/a	7/26/2023	68.1	Yes	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-2	21.66	n/a	7/26/2023	30	Yes	9	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-3	38.52	n/a	7/26/2023	47.6	Yes	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-5	30.73	n/a	7/26/2023	50.7	Yes	10	0	No	0.000...	Param Intra 1 of 2
Chloride (mg/L)	MW-7	47.9	n/a	7/26/2023	92.8	Yes	10	0	n/a	0.01476	NP Intra (normality) ...
Chloride (mg/L)	MW-8	33.09	n/a	7/26/2023	35.8	Yes	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-1	1.578	n/a	7/26/2023	3.23	Yes	10	0	No	0.000...	Param Intra 1 of 2
Fluoride (mg/L)	MW-2	1.08	n/a	7/26/2023	1.79	Yes	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-1	42.45	n/a	7/26/2023	28.9	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-2	32.37	n/a	7/26/2023	31.2	No	9	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-3	35	n/a	7/26/2023	28.8	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-4R	33.19	n/a	7/26/2023	28.6	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-5	41.9	n/a	7/26/2023	29.4	No	10	0	n/a	0.01476	NP Intra (normality) ...
Lithium (ug/L)	MW-6	41.7	n/a	7/26/2023	17.4	No	10	0	No	0.000...	Param Intra 1 of 2
Lithium (ug/L)	MW-7	37.45	n/a	7/26/2023	26.76	No	10	0	No	0.000...	Param Intra 1 of 2 De...

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

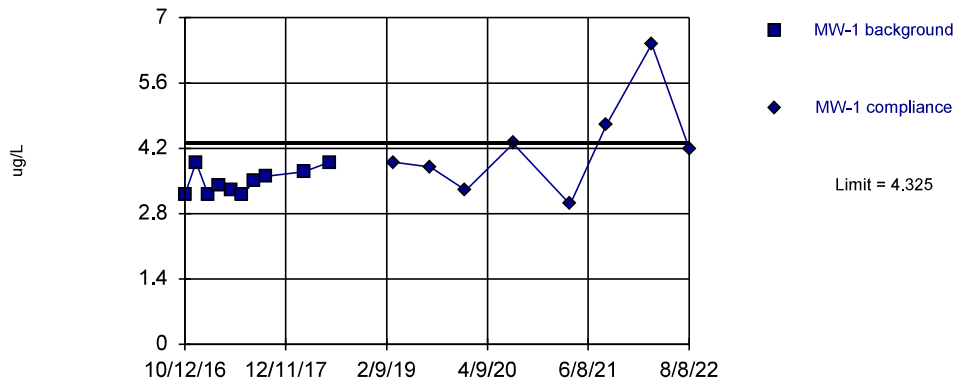
Printed 8/18/2023, 12:00 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Lithium (ug/L)	MW-8	30.8	n/a	7/26/2023	29.4	No	9	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-1	9.944	n/a	7/26/2023	5.6	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-2	10.47	n/a	7/26/2023	3.99	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-3	15.14	n/a	7/26/2023	5.5	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-4R	9.883	n/a	7/26/2023	3.62	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-5	9.091	n/a	7/26/2023	3.85	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-6	12.34	n/a	7/26/2023	5.63	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-7	11.02	n/a	7/26/2023	4.94	No	10	0	No	0.000...	Param Intra 1 of 2
Molybdenum (ug/L)	MW-8	12.59	n/a	7/26/2023	6.574	No	9	0	No	0.000...	Param Intra 1 of 2 De...
pH (Std. Units)	MW-1	7.982	6.378	7/26/2023	7.12	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-2	7.814	6.426	7/26/2023	7.08	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-3	7.829	6.531	7/26/2023	7.07	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-4R	7.9	6.546	7/26/2023	7.324	No	10	0	No	0.000...	Param Intra 1 of 2 De...
pH (Std. Units)	MW-5	7.952	6.648	7/26/2023	7.16	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-6	7.855	6.365	7/26/2023	7.09	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-7	7.838	6.502	7/26/2023	7.02	No	10	0	No	0.000...	Param Intra 1 of 2
pH (Std. Units)	MW-8	7.888	6.472	7/26/2023	7.04	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-3	11.57	n/a	7/26/2023	5.35	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-7	13.6	n/a	7/26/2023	8.8	No	10	0	No	0.000...	Param Intra 1 of 2
Selenium [total] (ug/L)	MW-8	17.04	n/a	7/26/2023	8.13	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-1	60.68	n/a	7/26/2023	893	Yes	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-3	84.08	n/a	7/26/2023	43.9	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-4R	58.37	n/a	7/26/2023	47.4	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-5	47.75	n/a	7/26/2023	63.6	Yes	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-6	111.3	n/a	7/26/2023	86.4	No	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-7	65.39	n/a	7/26/2023	65.9	Yes	10	0	No	0.000...	Param Intra 1 of 2
Sulfate (mg/L)	MW-8	63.23	n/a	7/26/2023	33.1	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-1	549.1	n/a	7/26/2023	404	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-2	484	n/a	7/26/2023	390	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-3	537.5	n/a	7/26/2023	440	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-4R	492.5	n/a	7/26/2023	446	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-5	539.3	n/a	7/26/2023	414	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-6	739.1	n/a	7/26/2023	394	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-7	557.1	n/a	7/26/2023	508	No	10	0	No	0.000...	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	MW-8	455.5	n/a	7/26/2023	362	No	10	0	No	0.000...	Param Intra 1 of 2

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=3.49, Std. Dev.=0.2767, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8827, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

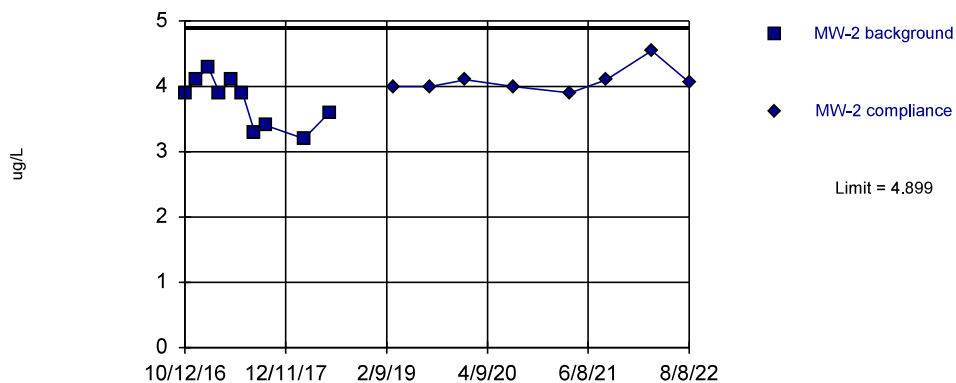
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=3.77, Std. Dev.=0.3743, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.927, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

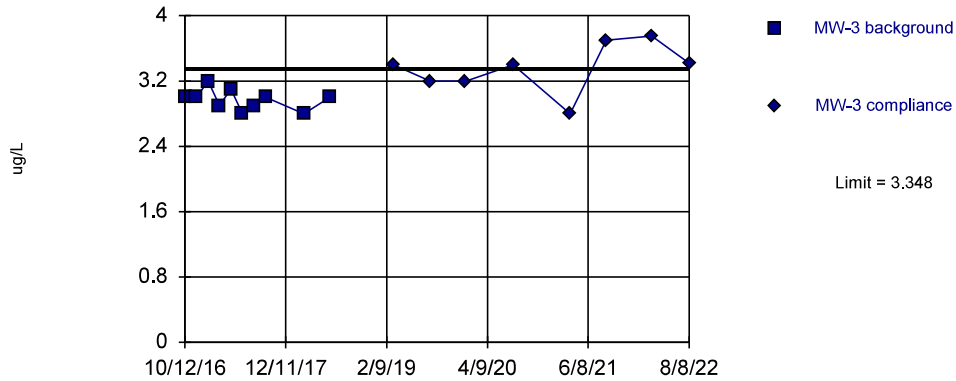
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.97, Std. Dev.=0.1252, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9291, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

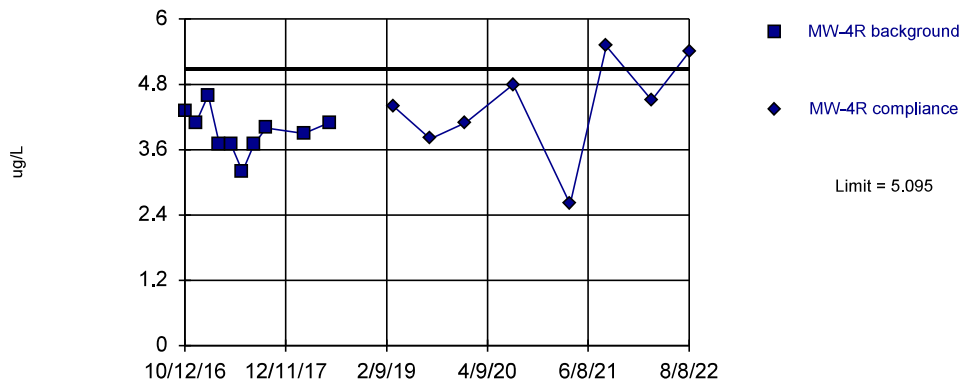
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=3.93, Std. Dev.=0.386, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9683, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

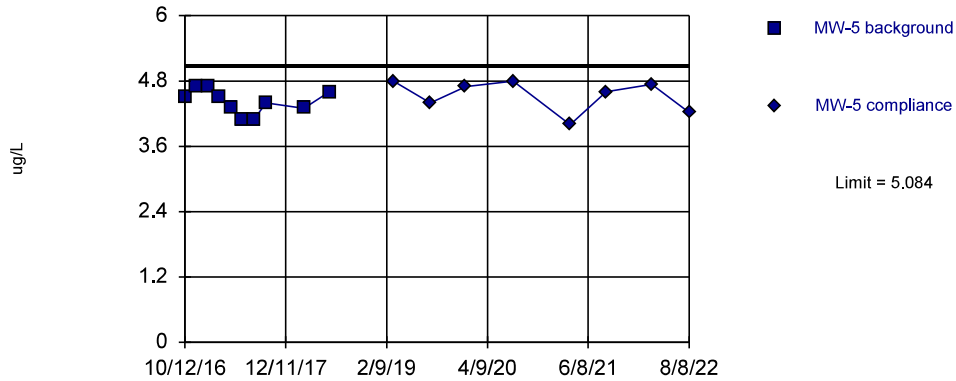
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=4.42, Std. Dev.=0.2201, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9234, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

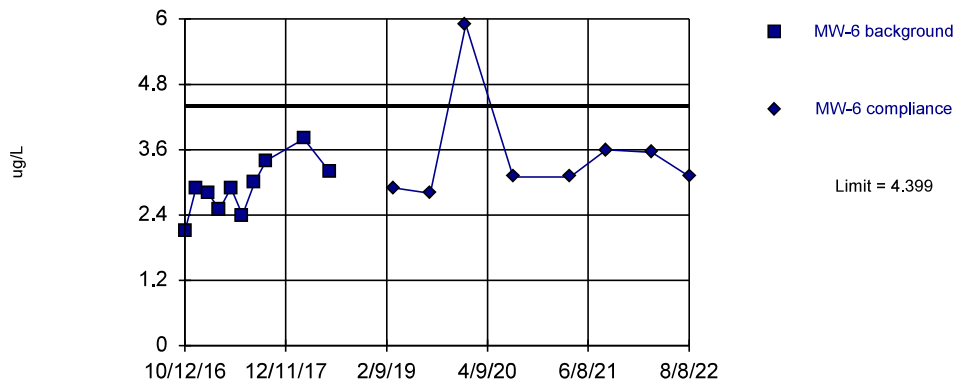
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.9, Std. Dev.=0.4967, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9854, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

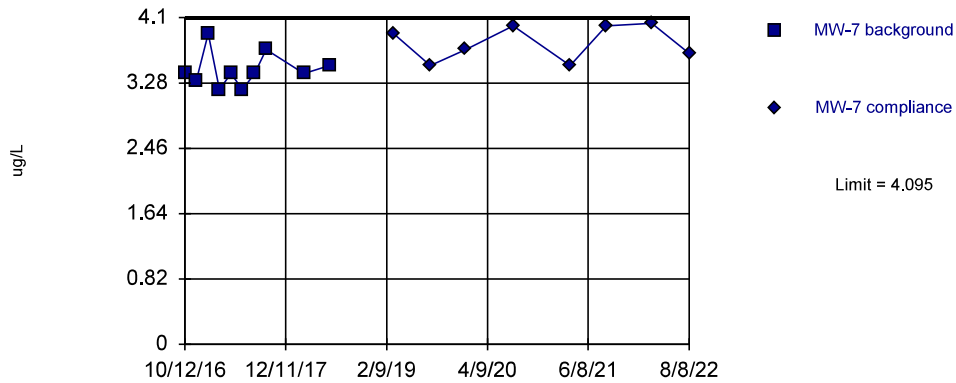
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=3.44, Std. Dev.=0.2171, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.875, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

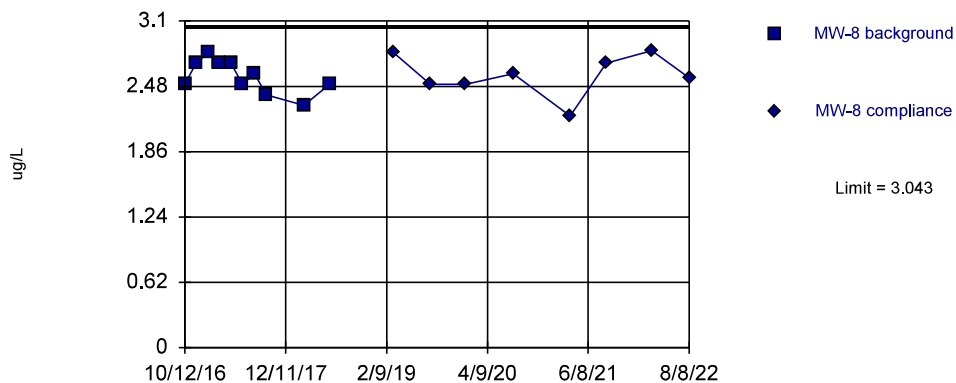
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.57, Std. Dev.=0.1567, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9449, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

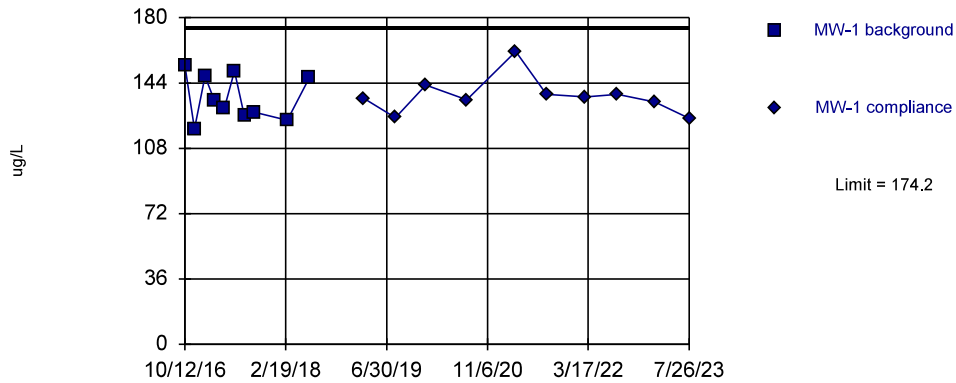
Constituent: Arsenic [total] Analysis Run 8/18/2023 11:54 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

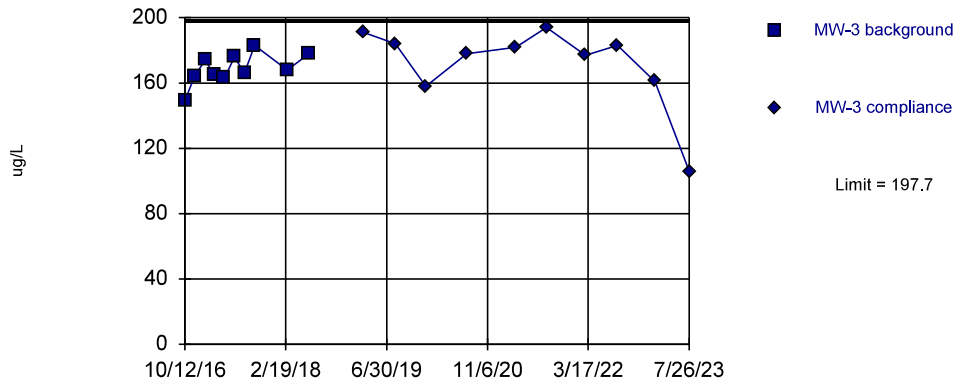
Intrawell Parametric



Within Limit

Prediction Limit

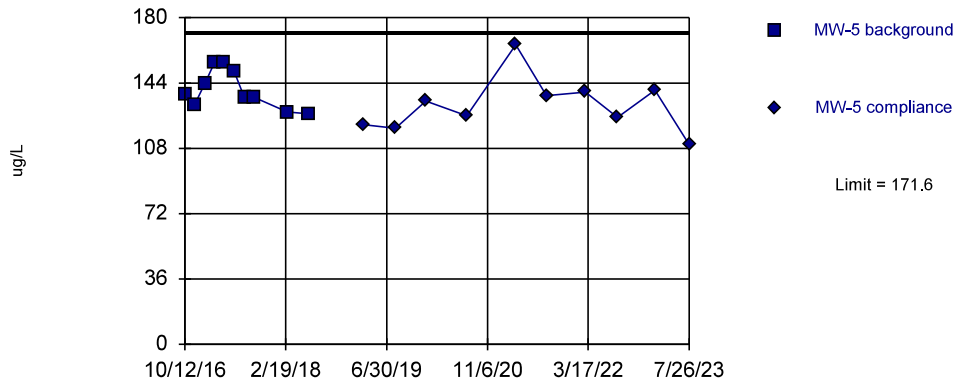
Intrawell Parametric



Within Limit

Prediction Limit

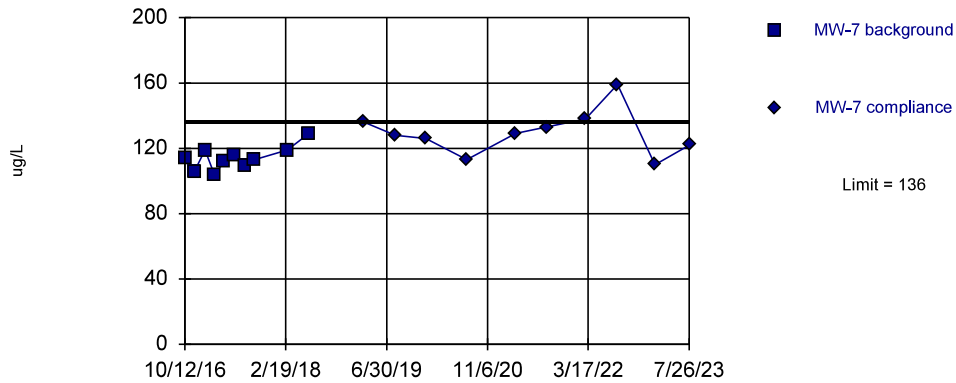
Intrawell Parametric



Within Limit

Prediction Limit

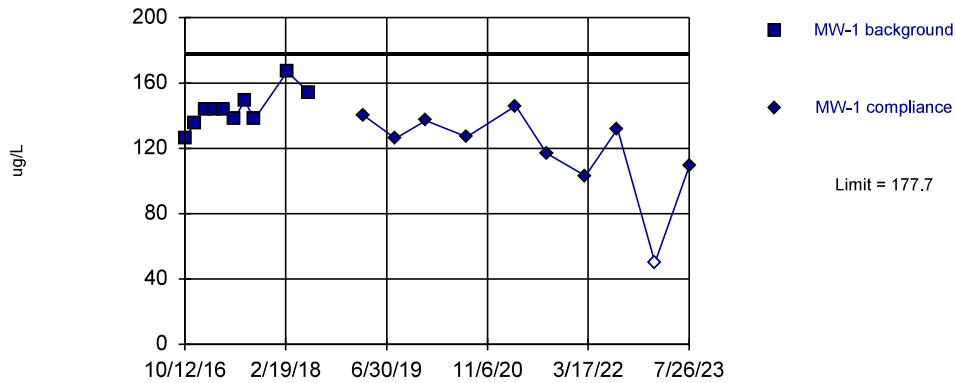
Intrawell Parametric



Within Limit

Prediction Limit

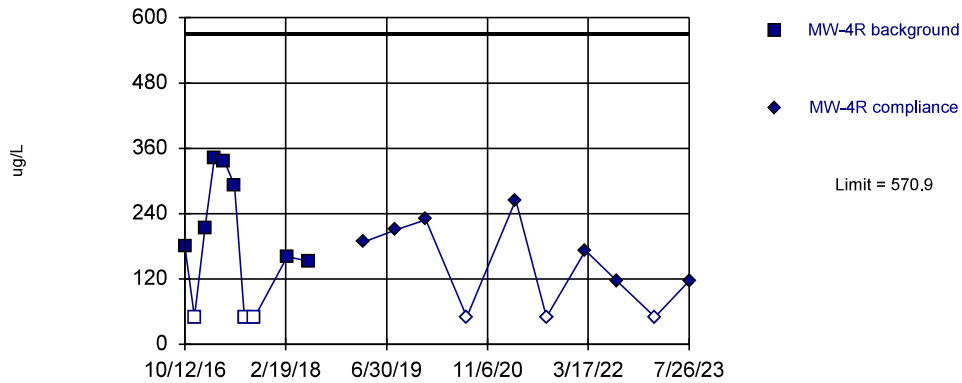
Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



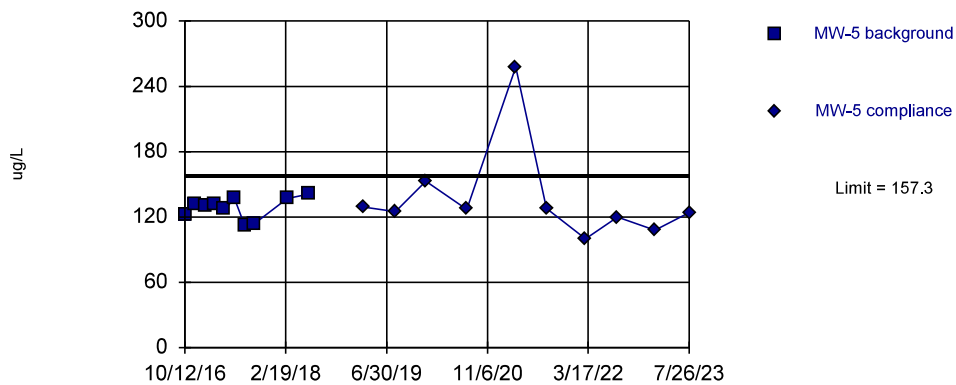
Background Data Summary (after Aitchison's Adjustment): Mean=167.6, Std. Dev.=133.7, n=10, 30% NDs, Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8919, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Boron Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



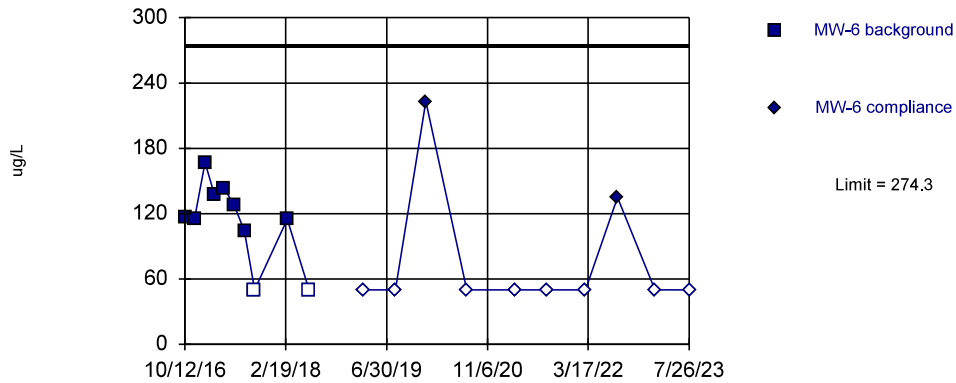
Background Data Summary: Mean=128.5, Std. Dev.=9.56, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9223, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Boron Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



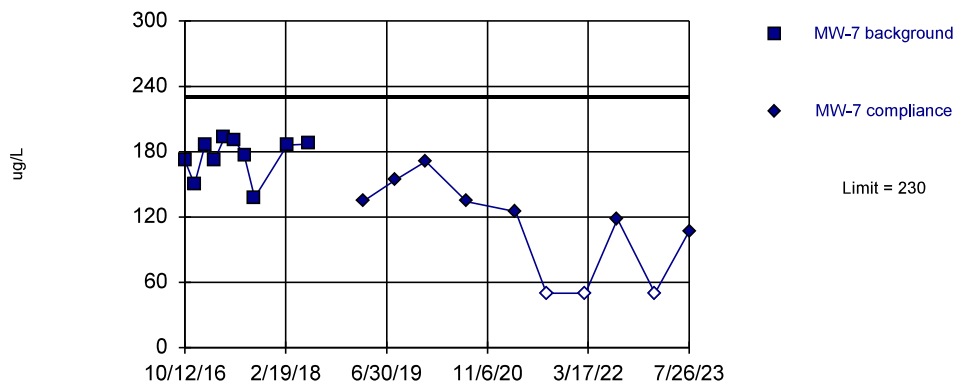
Background Data Summary (after Aitchison's Adjustment): Mean=102.5, Std. Dev.=56.93, n=10, 20% NDs, Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8959, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Boron Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



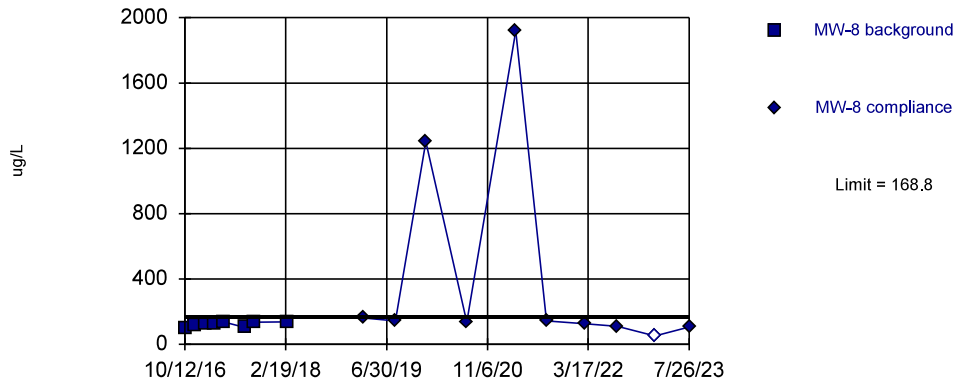
Background Data Summary: Mean=175.1, Std. Dev.=18.19, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8521, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Boron Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



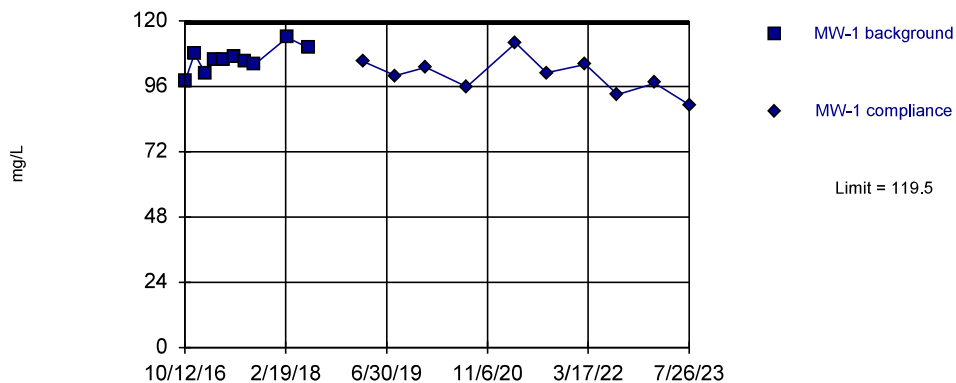
Background Data Summary: Mean=122.6, Std. Dev.=13.49, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8556, critical = 0.749. Kappa = 3.423 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Boron Analysis Run 8/18/2023 11:36 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



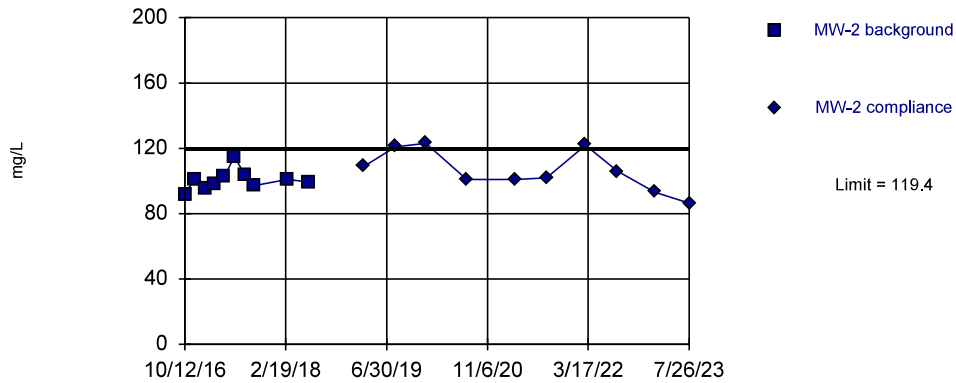
Background Data Summary: Mean=105.9, Std. Dev.=4.518, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9799, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



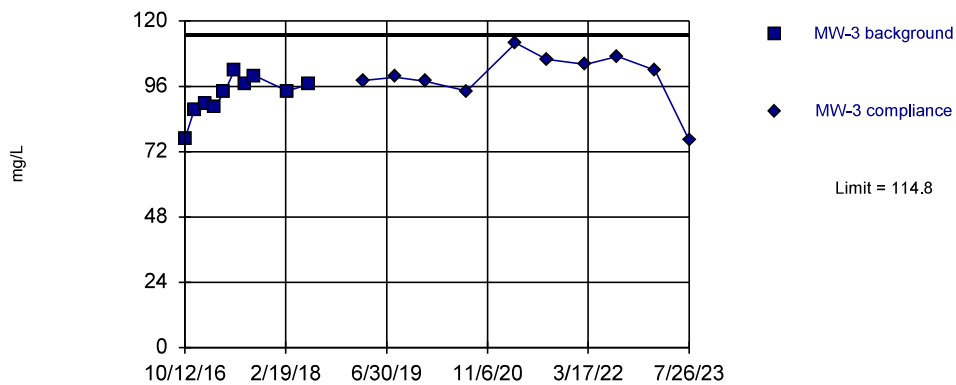
Background Data Summary: Mean=100.6, Std. Dev.=6.214, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9079, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



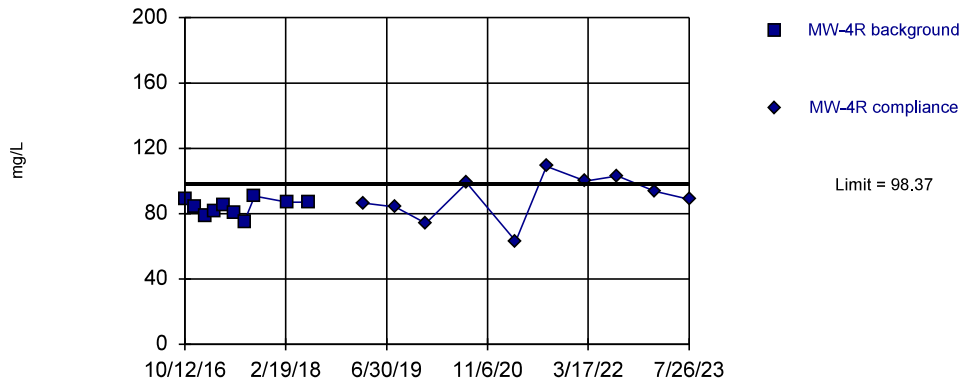
Background Data Summary: Mean=92.59, Std. Dev.=7.372, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9298, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



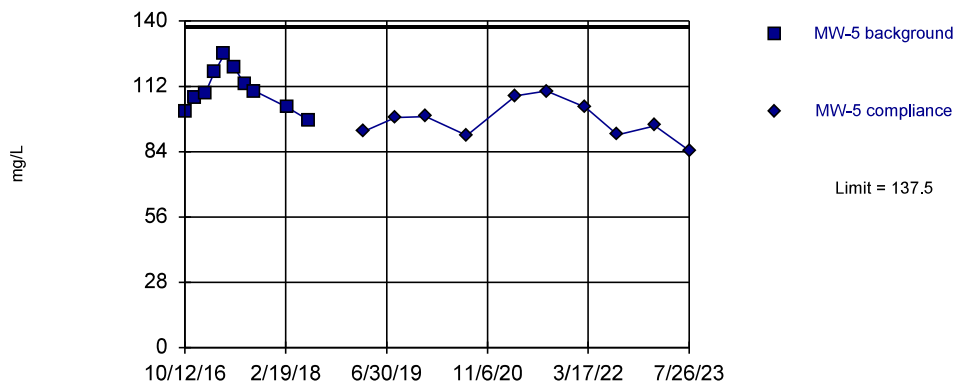
Background Data Summary: Mean=83.88, Std. Dev.=4.802, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9683, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



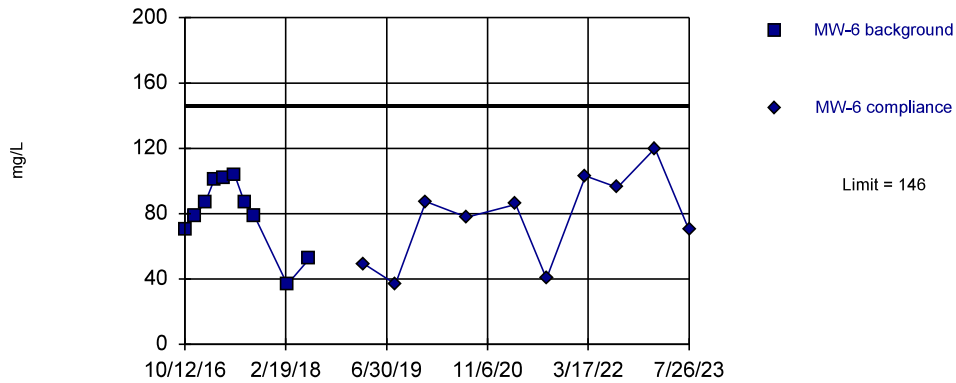
Background Data Summary: Mean=110.4, Std. Dev.=8.98, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9787, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:54 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



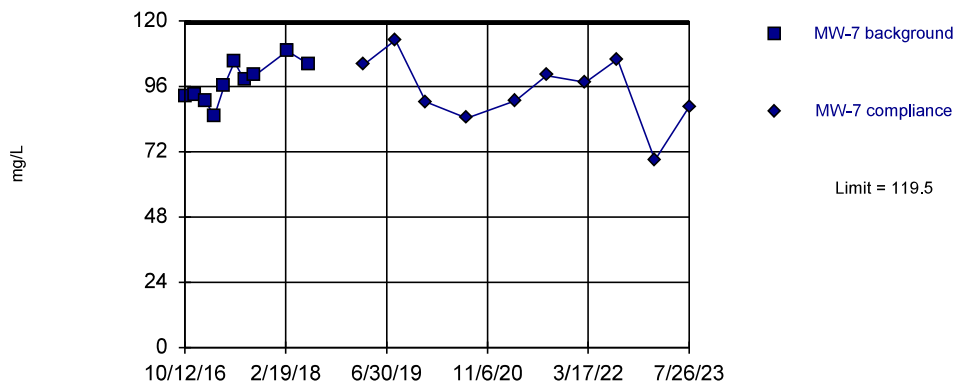
Background Data Summary: Mean=79.7, Std. Dev.=21.97, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9128, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



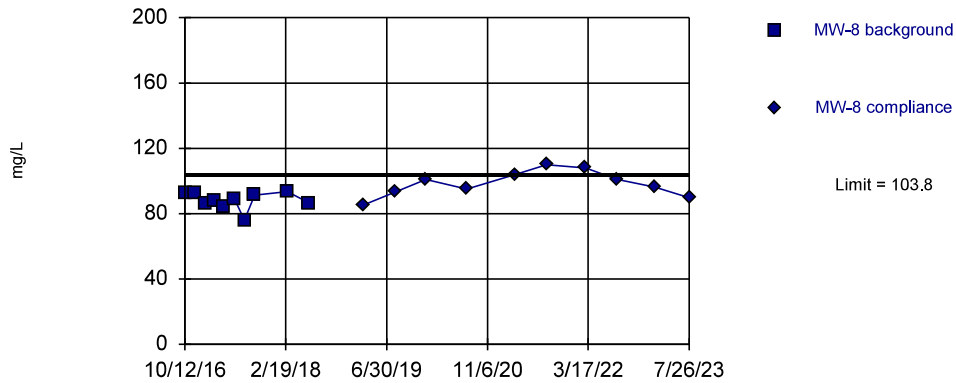
Background Data Summary: Mean=97.44, Std. Dev.=7.317, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9838, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



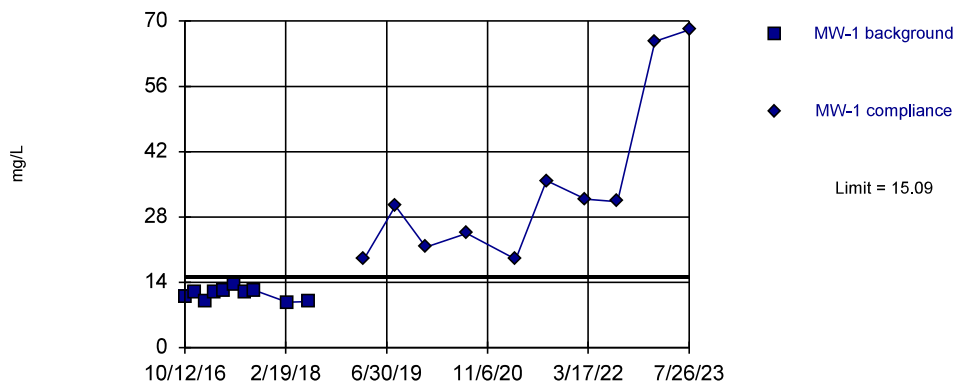
Background Data Summary: Mean=87.99, Std. Dev.=5.239, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8801, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Calcium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



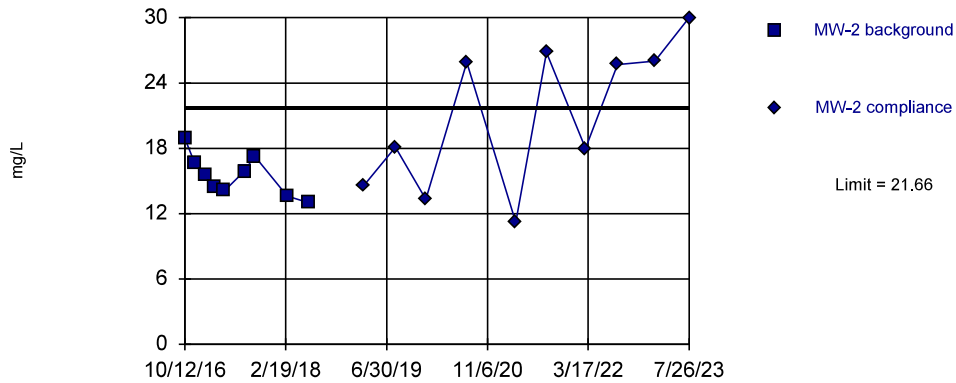
Background Data Summary: Mean=11.38, Std. Dev.=1.23, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9094, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



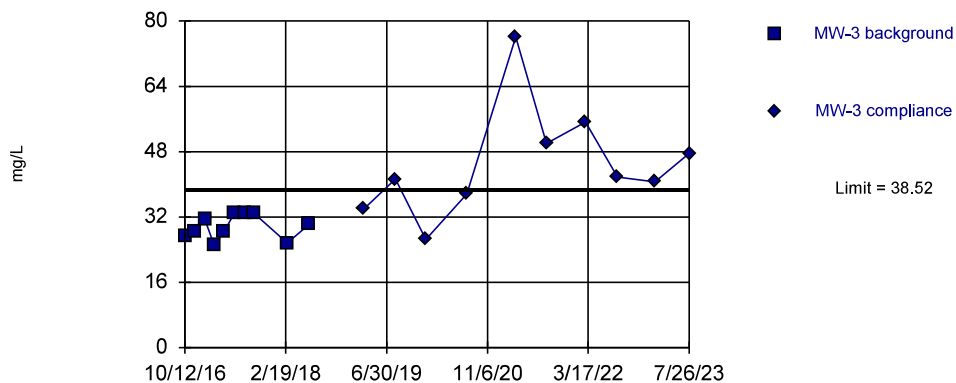
Background Data Summary: Mean=15.49, Std. Dev.=1.918, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9653, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric

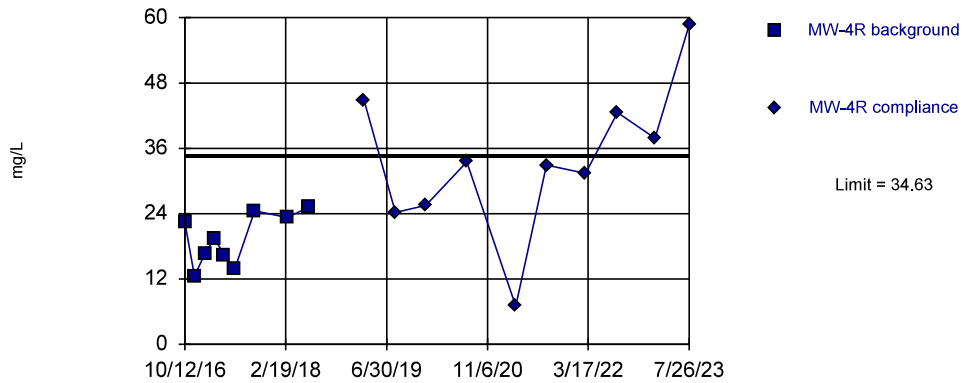


Background Data Summary: Mean=29.52, Std. Dev.=2.984, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9142, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

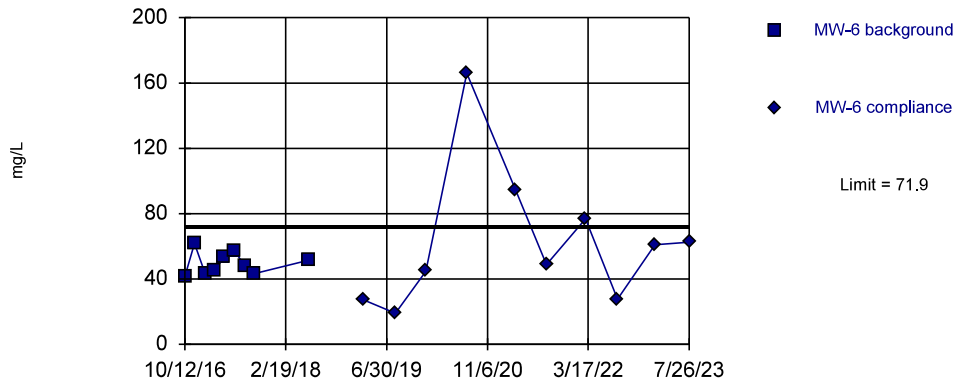
Prediction Limit Intrawell Parametric



Within Limit

Prediction Limit

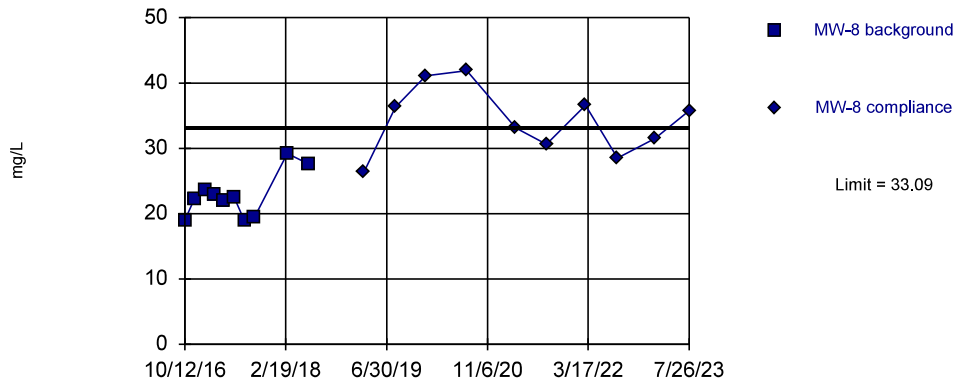
Intrawell Parametric



Exceeds Limit

Prediction Limit

Intrawell Parametric



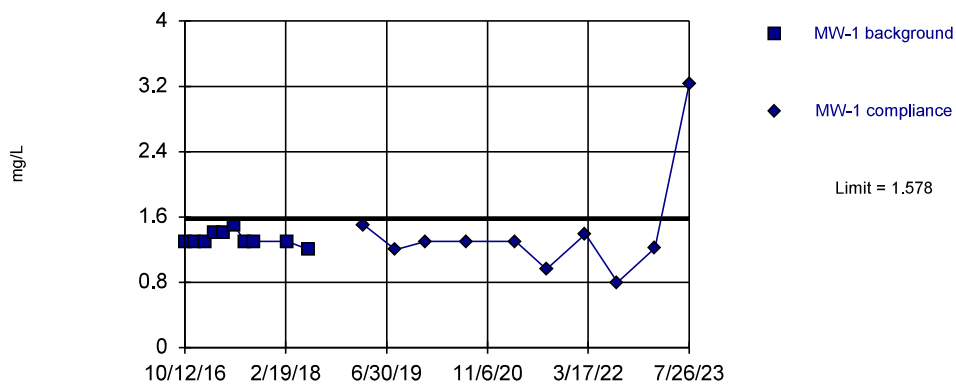
Background Data Summary: Mean=22.73, Std. Dev.=3.435, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.89, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Chloride Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



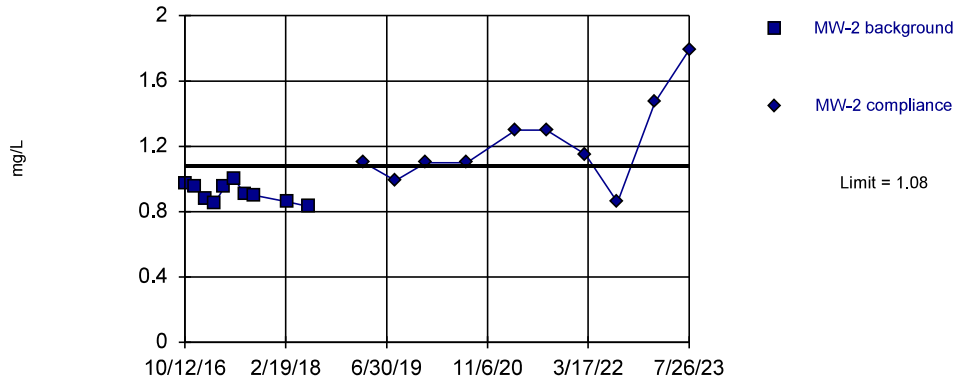
Background Data Summary: Mean=1.33, Std. Dev.=0.08233, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8409, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



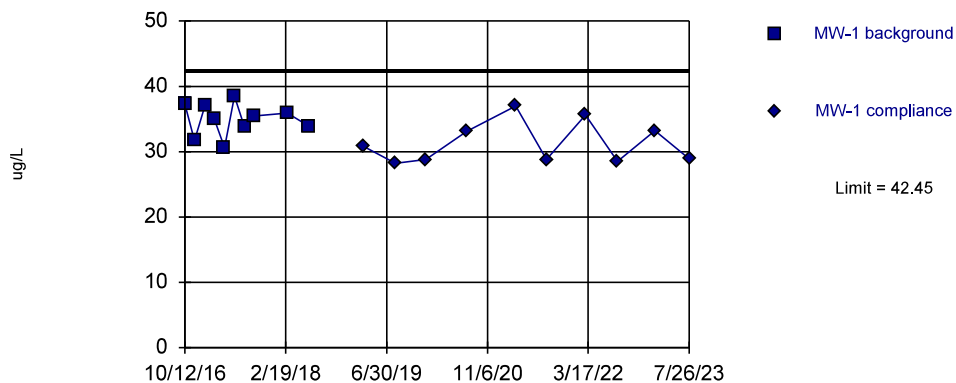
Background Data Summary: Mean=0.91, Std. Dev.=0.05617, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.962, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Fluoride Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



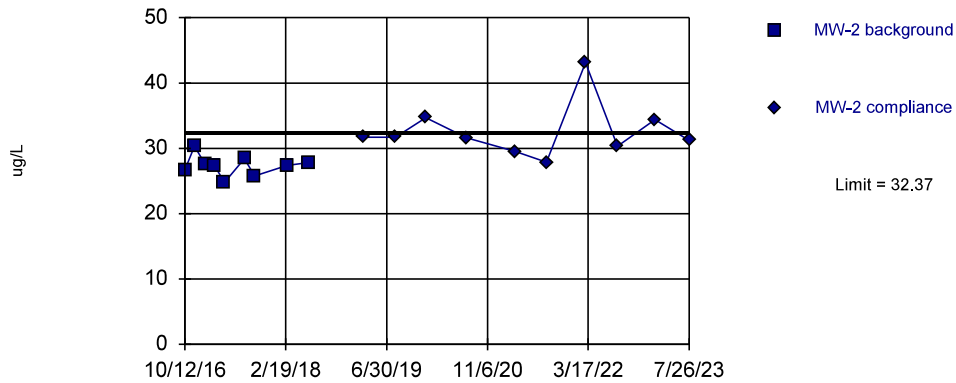
Background Data Summary: Mean=34.93, Std. Dev.=2.491, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9666, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



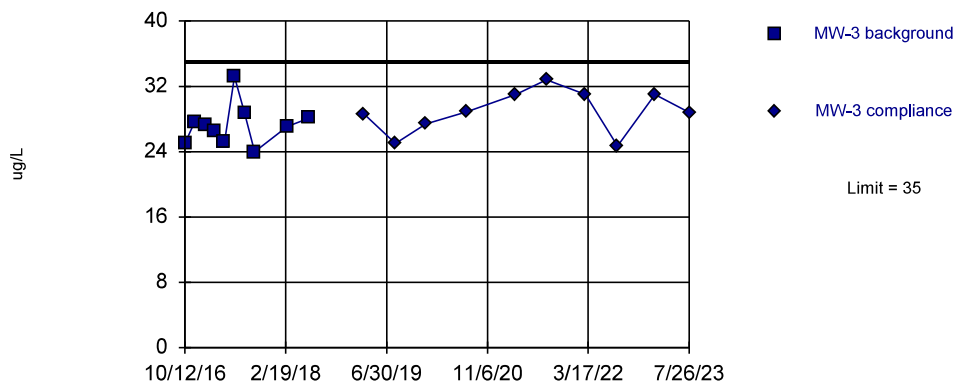
Background Data Summary: Mean=27.36, Std. Dev.=1.557, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.961, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



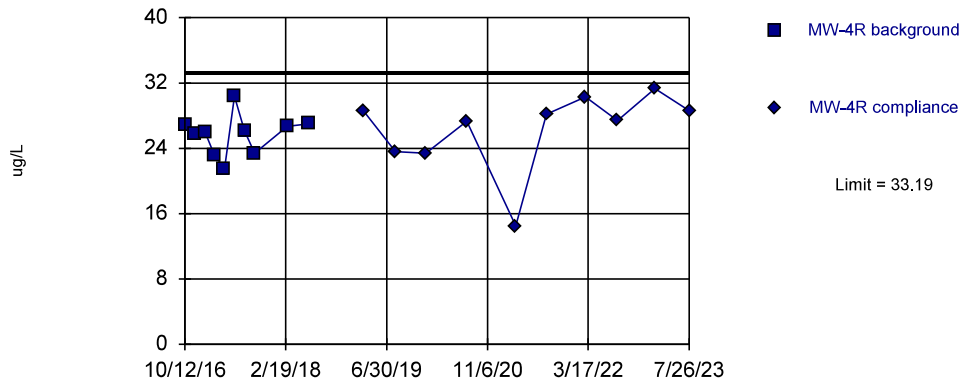
Background Data Summary: Mean=27.27, Std. Dev.=2.562, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8998, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

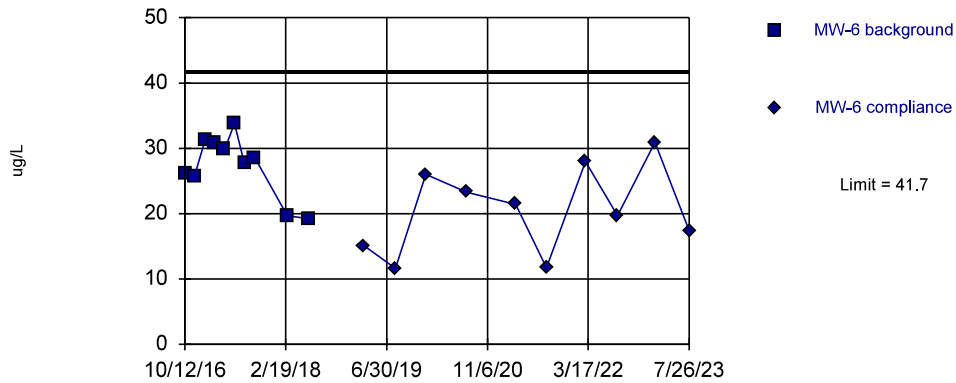
Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



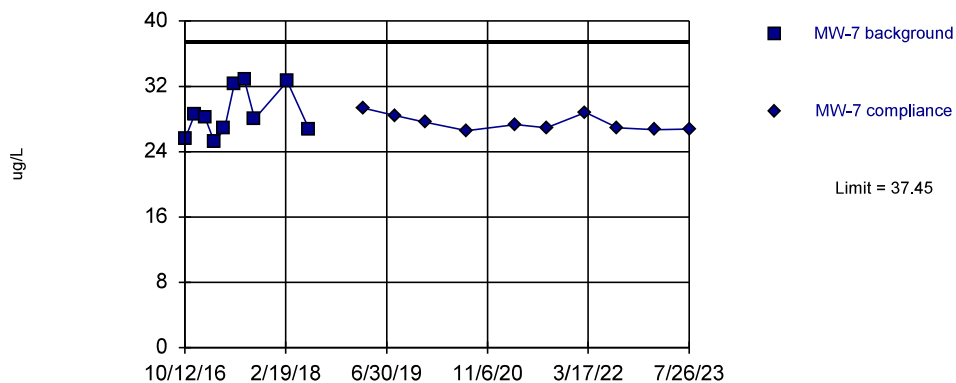
Background Data Summary: Mean=27.29, Std. Dev.=4.777, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9183, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



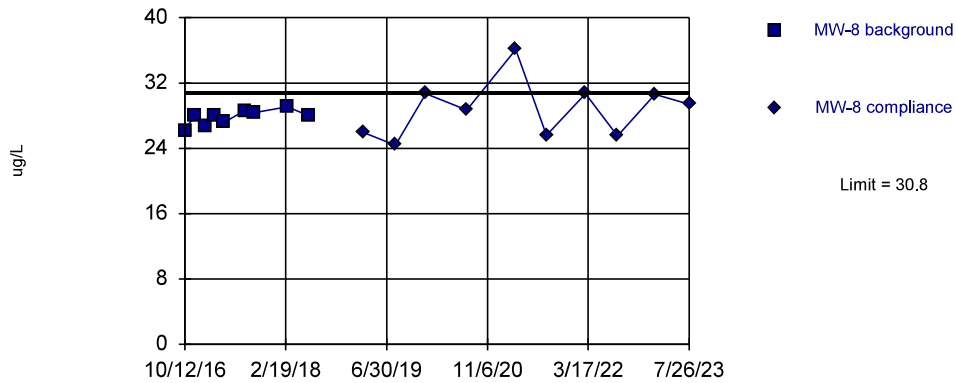
Background Data Summary: Mean=28.68, Std. Dev.=2.906, n=10. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8666, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Lithium Analysis Run 8/18/2023 11:55 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

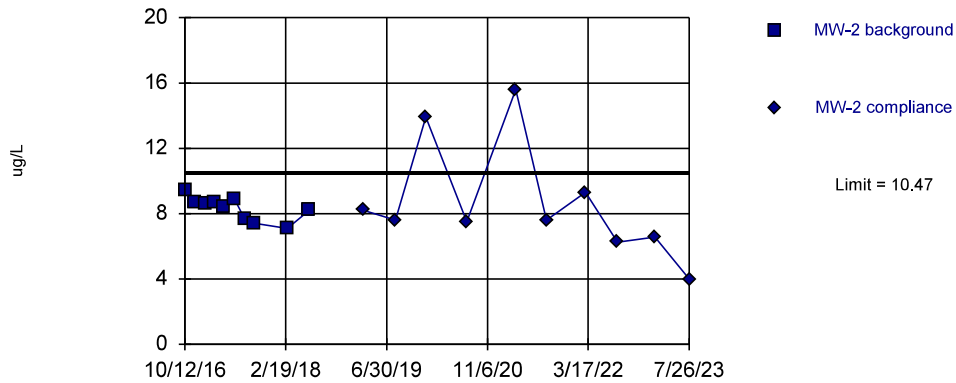
Intrawell Parametric



Within Limit

Prediction Limit

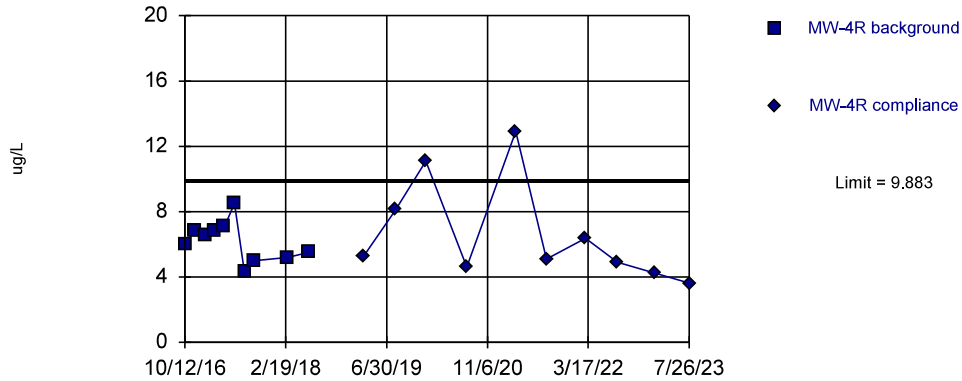
Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.18, Std. Dev.=1.227, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9705, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

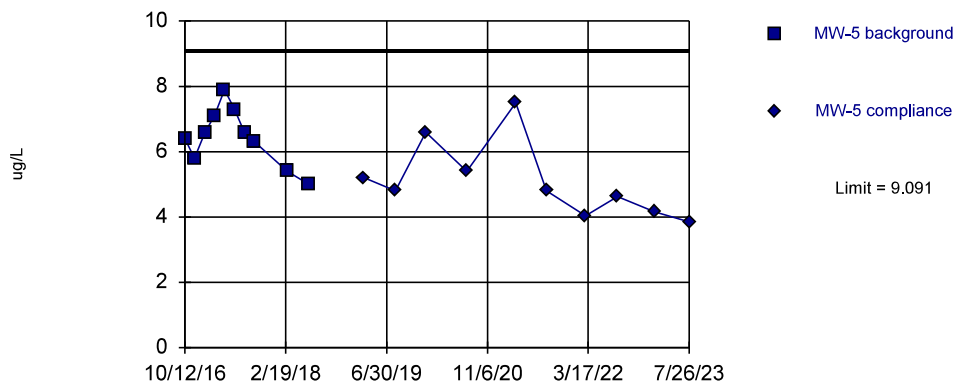
Constituent: Molybdenum Analysis Run 8/18/2023 11:55 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.44, Std. Dev.=0.8784, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.983, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

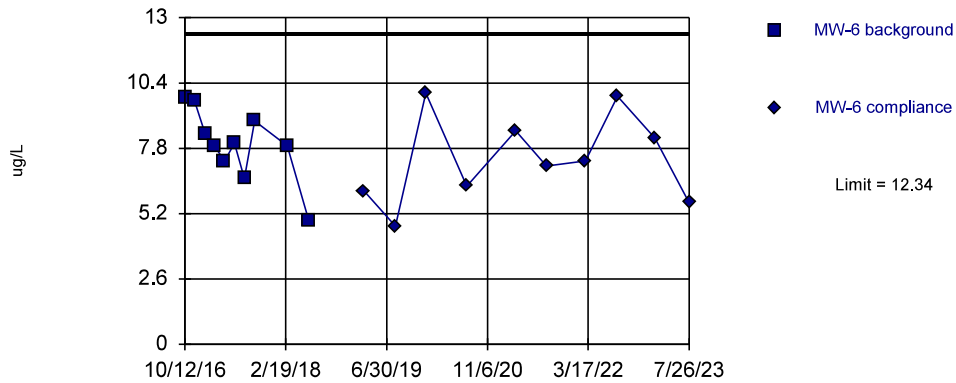
Constituent: Molybdenum Analysis Run 8/18/2023 11:55 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.94, Std. Dev.=1.458, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9391, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

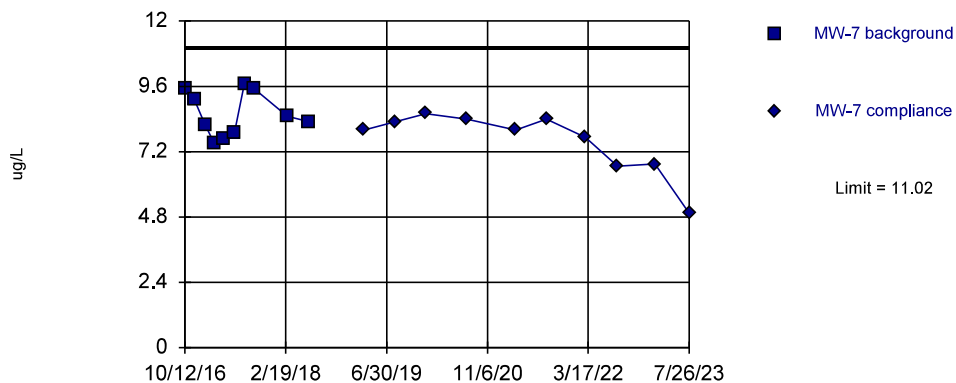
Constituent: Molybdenum Analysis Run 8/18/2023 11:55 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

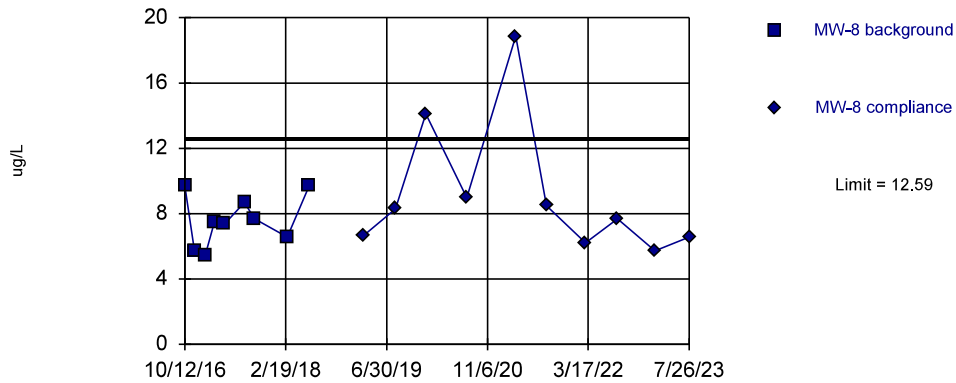
Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.587, Std. Dev.=1.554, n=9. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9342, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

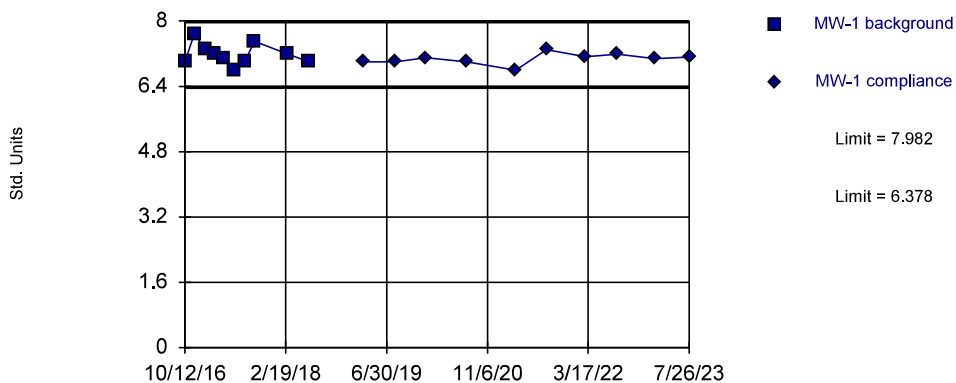
Constituent: Molybdenum Analysis Run 8/18/2023 11:55 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.18, Std. Dev.=0.2658, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9414, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

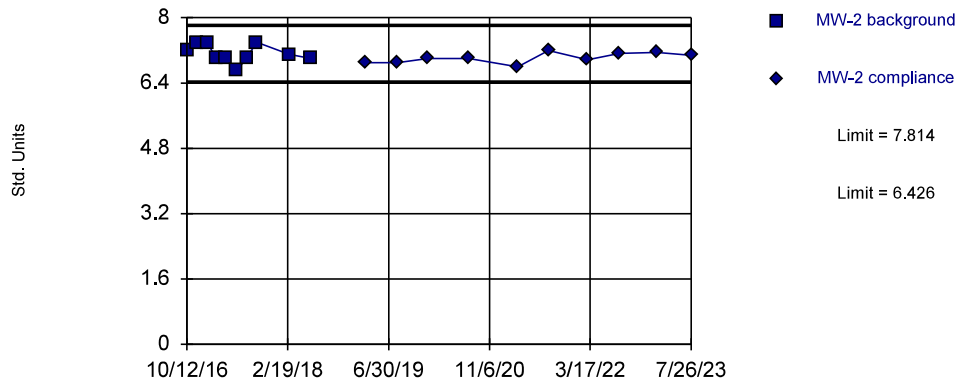
Constituent: pH Analysis Run 8/18/2023 11:55 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit

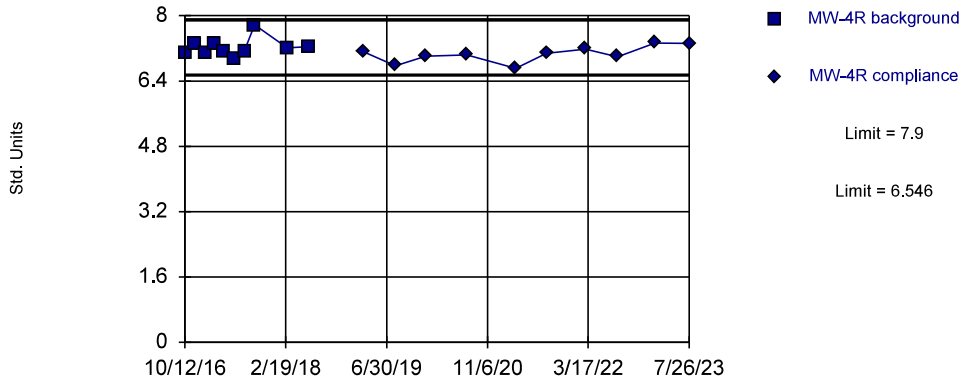
Intrawell Parametric



Within Limits

Prediction Limit

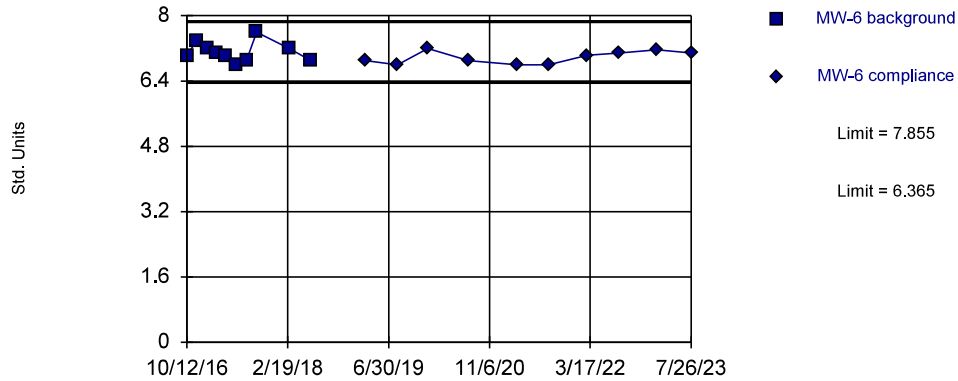
Intrawell Parametric



Within Limits

Prediction Limit

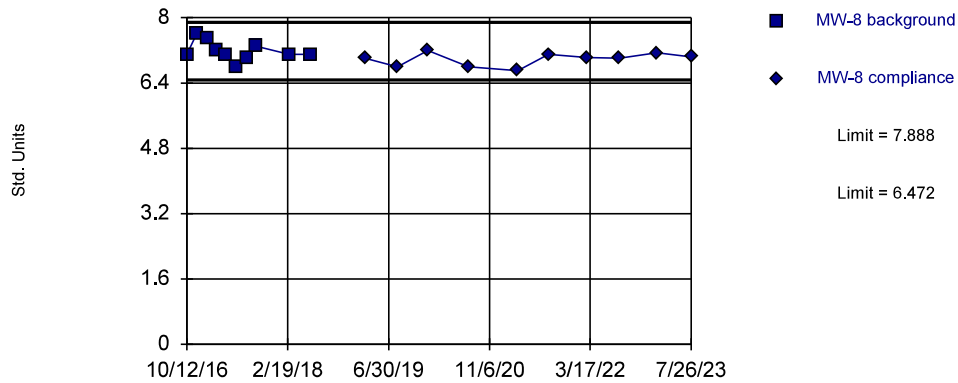
Intrawell Parametric



Within Limits

Prediction Limit

Intrawell Parametric



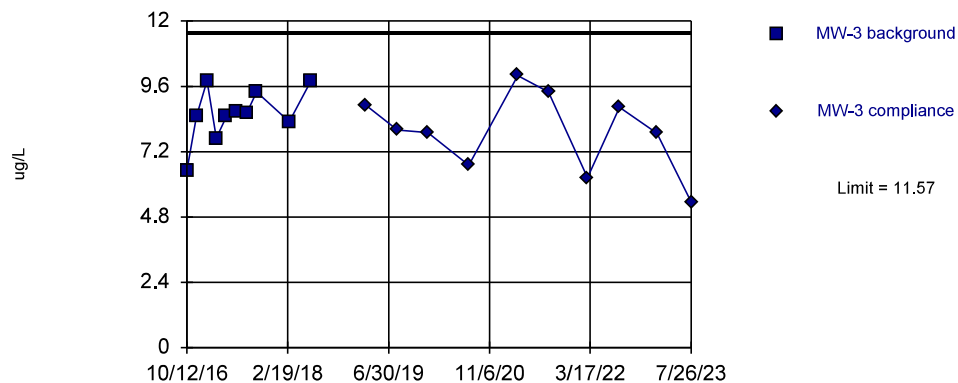
Background Data Summary: Mean=7.18, Std. Dev.=0.2348, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9288, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: pH Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



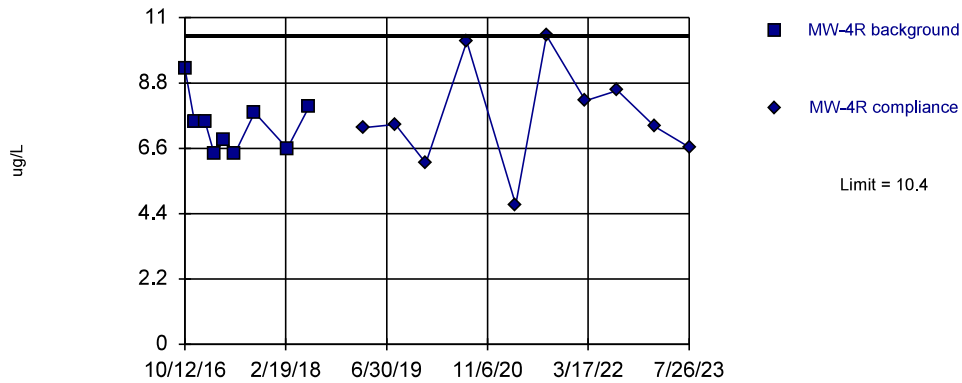
Background Data Summary: Mean=8.58, Std. Dev.=0.992, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9165, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Selenium [total] Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.378, Std. Dev.=0.9378, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.903, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

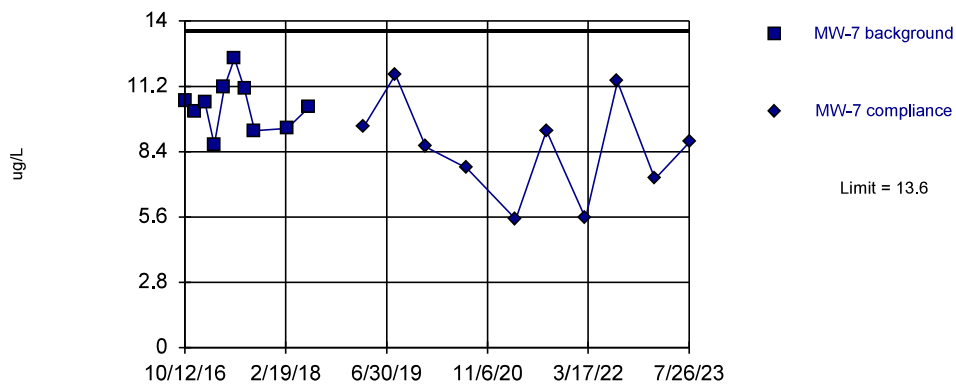
Constituent: Selenium [total] Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=10.36, Std. Dev.=1.073, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9769, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

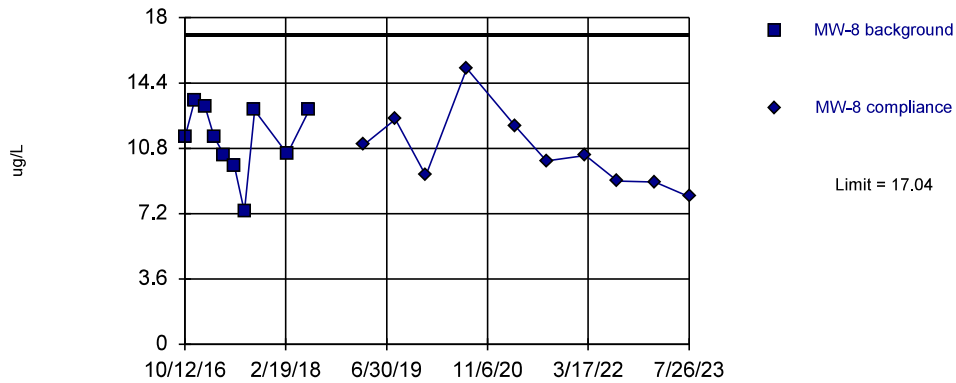
Constituent: Selenium [total] Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=11.31, Std. Dev.=1.9, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9028, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

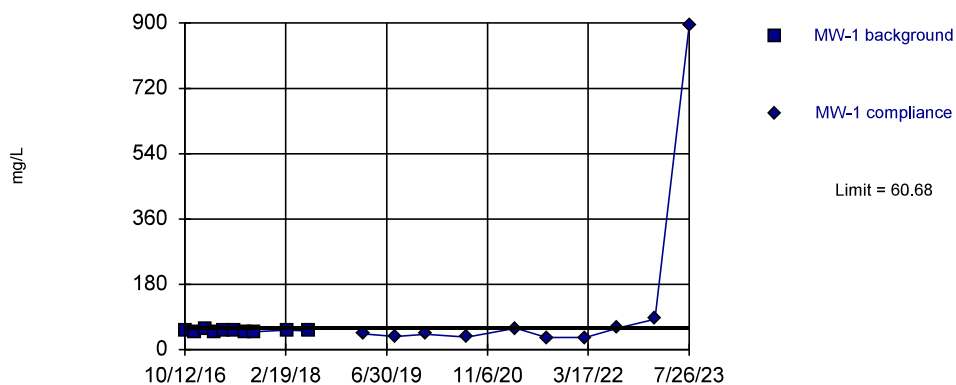
Constituent: Selenium [total] Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



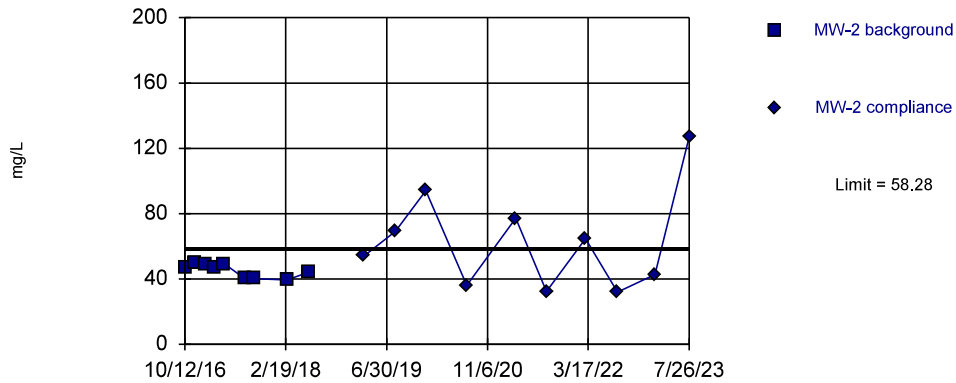
Background Data Summary: Mean=51.63, Std. Dev.=2.999, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9727, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit Intrawell Parametric

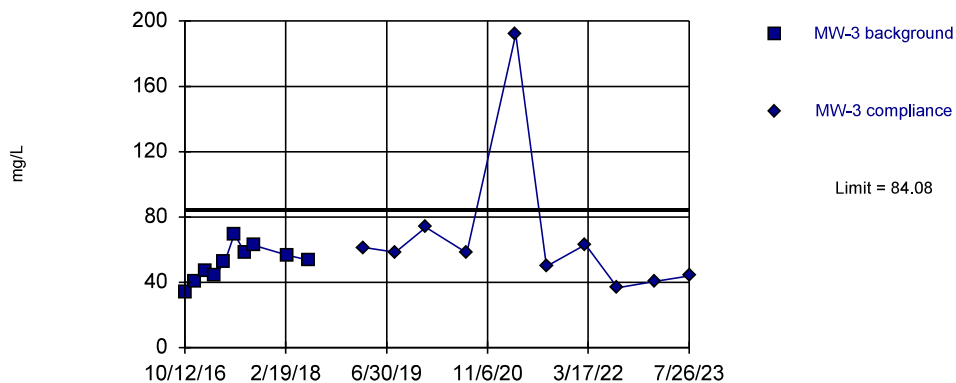


Background Data Summary: Mean=45.01, Std. Dev.=4.122, n=9. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.866, critical = 0.764. Kappa = 3.22 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:27 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit Intrawell Parametric



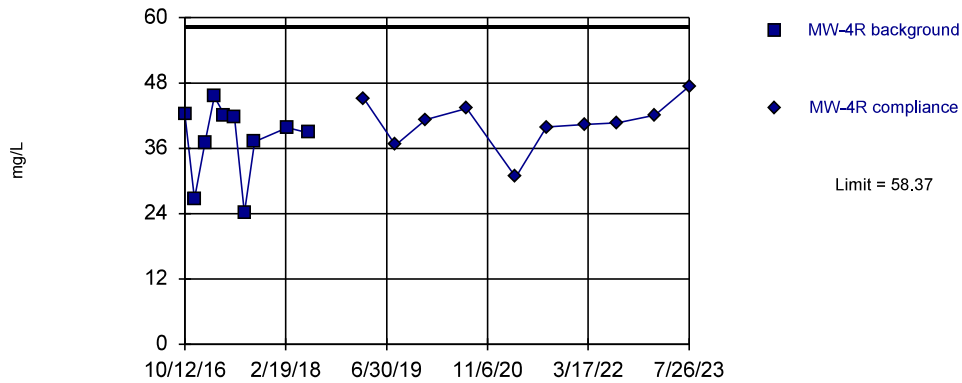
Background Data Summary: Mean=51.88, Std. Dev.=10.67, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9935, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



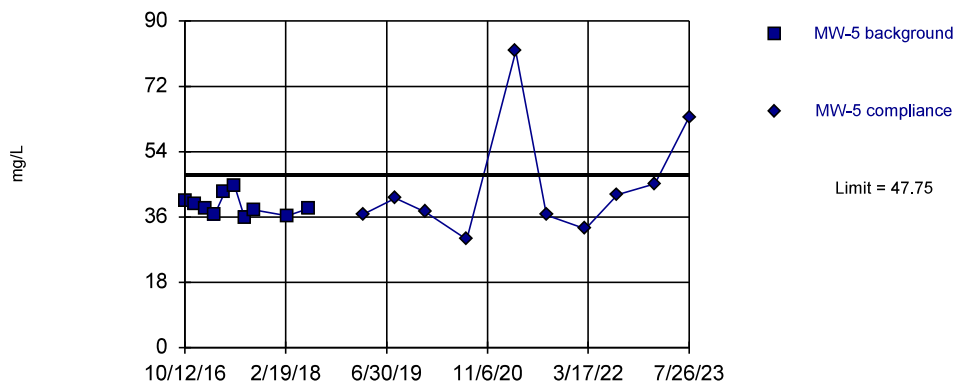
Background Data Summary: Mean=37.53, Std. Dev.=6.906, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8478, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



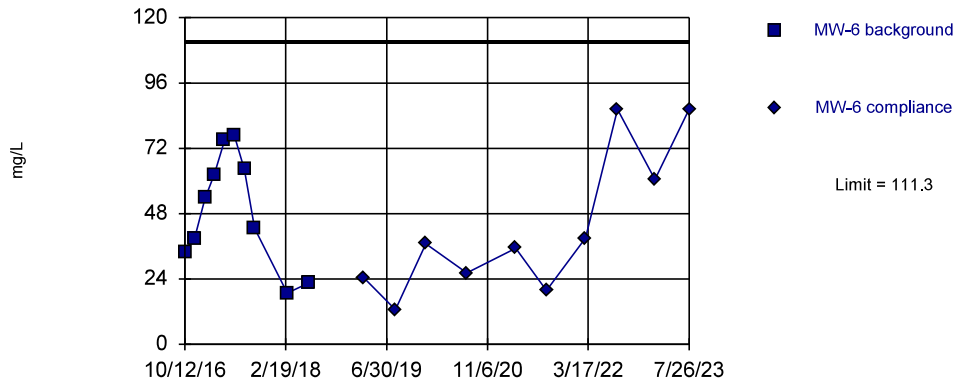
Background Data Summary: Mean=39.12, Std. Dev.=2.859, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9135, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



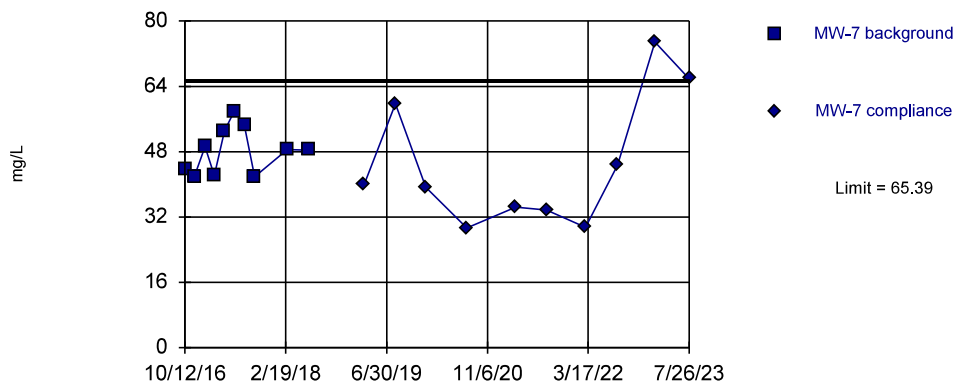
Background Data Summary: Mean=48.84, Std. Dev.=20.69, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9417, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit

Prediction Limit

Intrawell Parametric



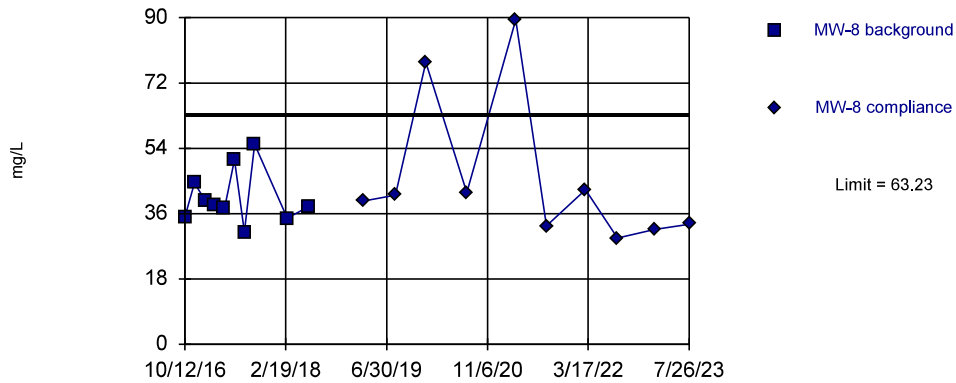
Background Data Summary: Mean=48.14, Std. Dev.=5.715, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9073, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



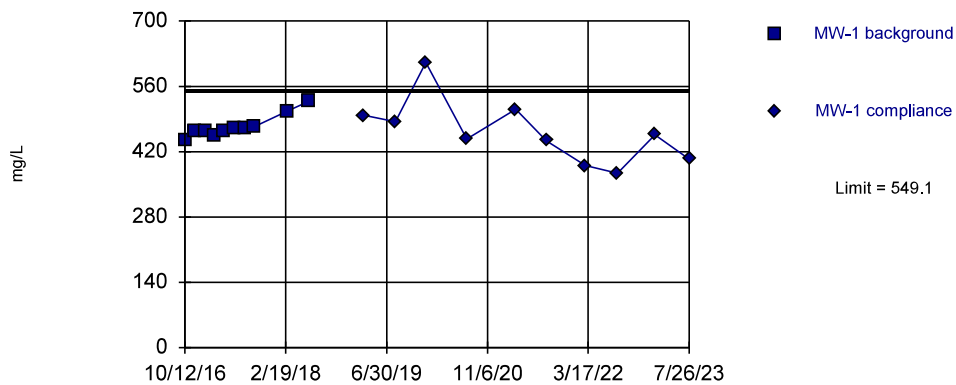
Background Data Summary: Mean=40.48, Std. Dev.=7.538, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9039, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Sulfate Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



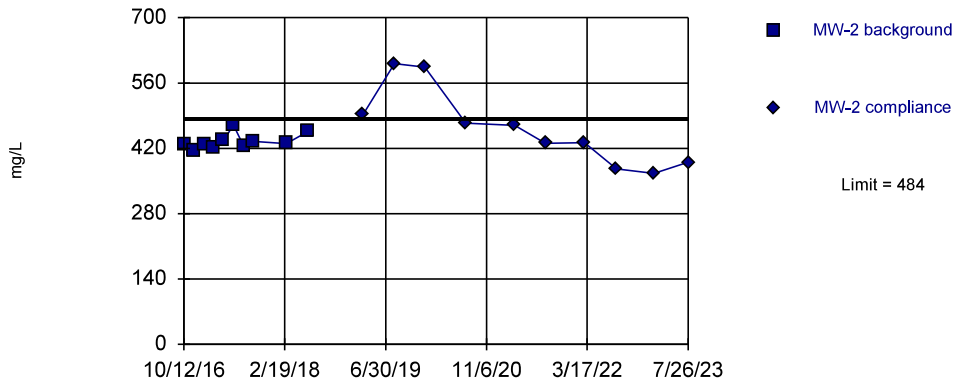
Background Data Summary: Mean=474, Std. Dev.=24.9, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8317, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Dissolved Solids Analysis Run 8/18/2023 11:56 AM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

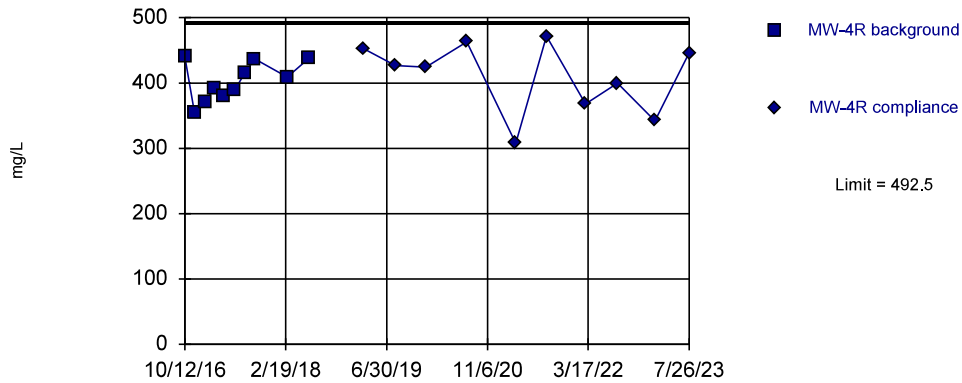
Intrawell Parametric



Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=402.6, Std. Dev.=29.8, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.931, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

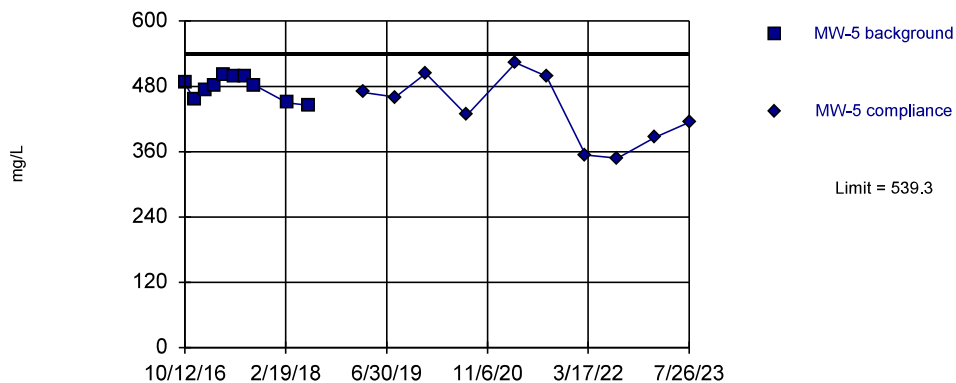
Constituent: Total Dissolved Solids Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=477, Std. Dev.=20.65, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8913, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

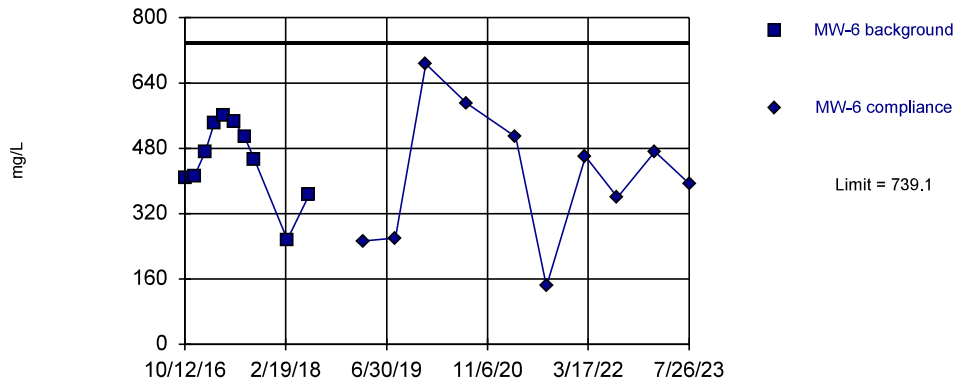
Constituent: Total Dissolved Solids Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=451.7, Std. Dev.=95.24, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9297, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

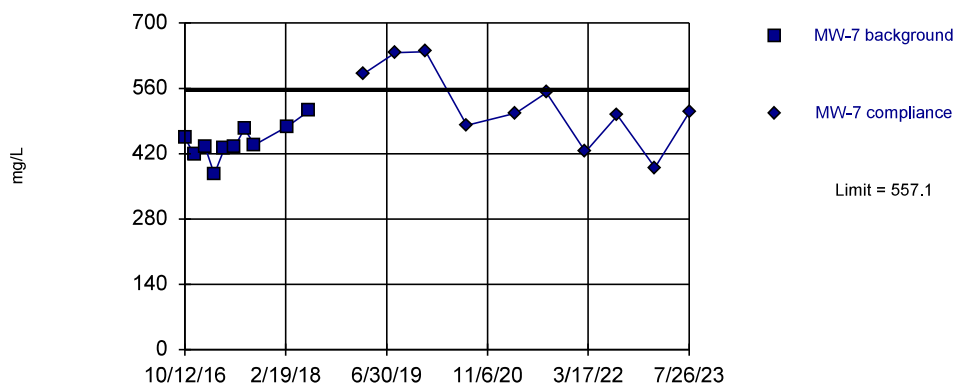
Constituent: Total Dissolved Solids Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Intrawell Parametric



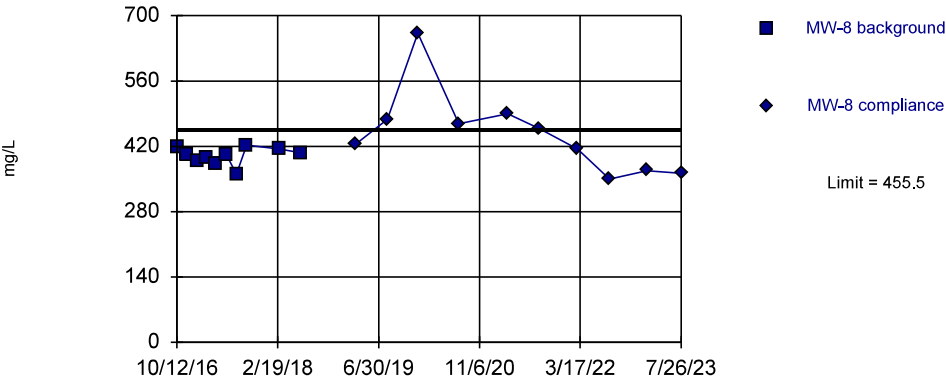
Background Data Summary: Mean=445, Std. Dev.=37.14, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9661, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

Constituent: Total Dissolved Solids Analysis Run 8/18/2023 11:56 AM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=399.1, Std. Dev.=18.69, n=10. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9407, critical = 0.781. Kappa = 3.018 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.0005016.

A.3 Interwell Prediction Limits

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 8/18/2023, 1:19 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic [total] (ug/L)	MW-1	5.866	n/a	8/8/2022	4.2	No	18	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-2	5.866	n/a	8/8/2022	4.06	No	18	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-3	5.866	n/a	8/8/2022	3.42	No	18	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-5	5.866	n/a	8/8/2022	4.22	No	18	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-6	5.866	n/a	8/8/2022	3.11	No	18	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-7	5.866	n/a	8/8/2022	3.65	No	18	0	No	0.000...	Param Inter 1 of 2
Arsenic [total] (ug/L)	MW-8	5.866	n/a	8/8/2022	2.56	No	18	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-1	154.5	n/a	7/26/2023	113	No	20	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-2	154.5	n/a	7/26/2023	94.8	No	20	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-3	154.5	n/a	7/26/2023	106	No	20	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-5	154.5	n/a	7/26/2023	110	No	20	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-6	154.5	n/a	7/26/2023	91.7	No	20	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-7	154.5	n/a	7/26/2023	122	No	20	0	No	0.000...	Param Inter 1 of 2
Barium [total] (ug/L)	MW-8	154.5	n/a	7/26/2023	130	No	20	0	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-1	429.9	n/a	7/26/2023	109	No	20	30	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-2	429.9	n/a	7/26/2023	115	No	20	30	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-5	429.9	n/a	7/26/2023	124	No	20	30	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-6	429.9	n/a	7/26/2023	50ND	No	20	30	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-7	429.9	n/a	7/26/2023	107	No	20	30	No	0.000...	Param Inter 1 of 2
Boron (ug/L)	MW-8	429.9	n/a	7/26/2023	105	No	20	30	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-1	112.6	n/a	7/26/2023	89.2	No	20	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-2	112.6	n/a	7/26/2023	86.4	No	20	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-3	112.6	n/a	7/26/2023	76.2	No	20	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-5	112.6	n/a	7/26/2023	84.5	No	20	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-6	112.6	n/a	7/26/2023	69.8	No	20	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-7	112.6	n/a	7/26/2023	88.6	No	20	0	No	0.000...	Param Inter 1 of 2
Calcium (mg/L)	MW-8	112.6	n/a	7/26/2023	89.7	No	20	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-1	57.96	n/a	7/26/2023	68.1	Yes	19	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-2	57.96	n/a	7/26/2023	30	No	19	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-3	57.96	n/a	7/26/2023	47.6	No	19	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-5	57.96	n/a	7/26/2023	50.7	No	19	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-6	57.96	n/a	7/26/2023	62.4	Yes	19	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-7	57.96	n/a	7/26/2023	92.8	Yes	19	0	No	0.000...	Param Inter 1 of 2
Chloride (mg/L)	MW-8	57.96	n/a	7/26/2023	35.8	No	19	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-1	35.08	n/a	7/26/2023	28.9	No	20	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-2	35.08	n/a	7/26/2023	31.2	No	20	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-3	35.08	n/a	7/26/2023	28.8	No	20	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-5	35.08	n/a	7/26/2023	29.4	No	20	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-6	35.08	n/a	7/26/2023	17.4	No	20	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-7	35.08	n/a	7/26/2023	30.6	No	20	0	No	0.000...	Param Inter 1 of 2
Lithium (ug/L)	MW-8	35.08	n/a	7/26/2023	29.4	No	20	0	No	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-1	12.38	n/a	7/26/2023	5.6	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-2	12.38	n/a	7/26/2023	3.99	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-3	12.38	n/a	7/26/2023	5.5	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-5	12.38	n/a	7/26/2023	3.85	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-6	12.38	n/a	7/26/2023	5.63	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-7	12.38	n/a	7/26/2023	4.94	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
Molybdenum (ug/L)	MW-8	12.38	n/a	7/26/2023	4.49	No	20	0	sqrt(x)	0.000...	Param Inter 1 of 2
pH (Std. Units)	MW-1	7.704	6.582	7/26/2023	7.234	No	20	0	No	0.000...	Param Inter 1 of 2 De...
pH (Std. Units)	MW-2	7.704	6.582	7/26/2023	7.194	No	20	0	No	0.000...	Param Inter 1 of 2 De...

Prediction Limit

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

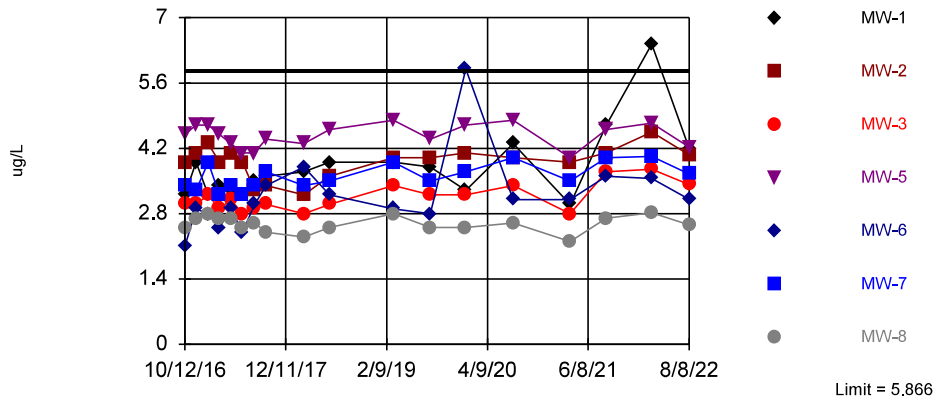
Printed 8/18/2023, 1:19 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
pH (Std. Units)	MW-3	7.704	6.582	7/26/2023	7.184	No	20	0	No	0.000...	Param Inter 1 of 2 De...
pH (Std. Units)	MW-5	7.704	6.582	7/26/2023	7.274	No	20	0	No	0.000...	Param Inter 1 of 2 De...
pH (Std. Units)	MW-6	7.704	6.582	7/26/2023	7.204	No	20	0	No	0.000...	Param Inter 1 of 2 De...
pH (Std. Units)	MW-7	7.704	6.582	7/26/2023	7.134	No	20	0	No	0.000...	Param Inter 1 of 2 De...
pH (Std. Units)	MW-8	7.704	6.582	7/26/2023	7.154	No	20	0	No	0.000...	Param Inter 1 of 2 De...
Selenium [total] (ug/L)	MW-3	10.95	n/a	7/26/2023	5.35	No	19	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-7	10.95	n/a	7/26/2023	8.8	No	19	0	No	0.000...	Param Inter 1 of 2
Selenium [total] (ug/L)	MW-8	10.95	n/a	7/26/2023	8.13	No	19	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-1	53.48	n/a	7/26/2023	893	Yes	20	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-2	53.48	n/a	7/26/2023	127	Yes	20	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-3	53.48	n/a	7/26/2023	43.9	No	20	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-5	53.48	n/a	7/26/2023	63.6	Yes	20	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-6	53.48	n/a	7/26/2023	86.4	Yes	20	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-7	53.48	n/a	7/26/2023	65.9	Yes	20	0	No	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	MW-8	53.48	n/a	7/26/2023	33.1	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-1	510.4	n/a	7/26/2023	404	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-2	510.4	n/a	7/26/2023	390	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-3	510.4	n/a	7/26/2023	440	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-5	510.4	n/a	7/26/2023	414	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-6	510.4	n/a	7/26/2023	394	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-7	510.4	n/a	7/26/2023	508	No	20	0	No	0.000...	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-8	510.4	n/a	7/26/2023	362	No	20	0	No	0.000...	Param Inter 1 of 2

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=4.134, Std. Dev.=0.7007, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9626, critical = 0.858. Kappa = 2.472 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

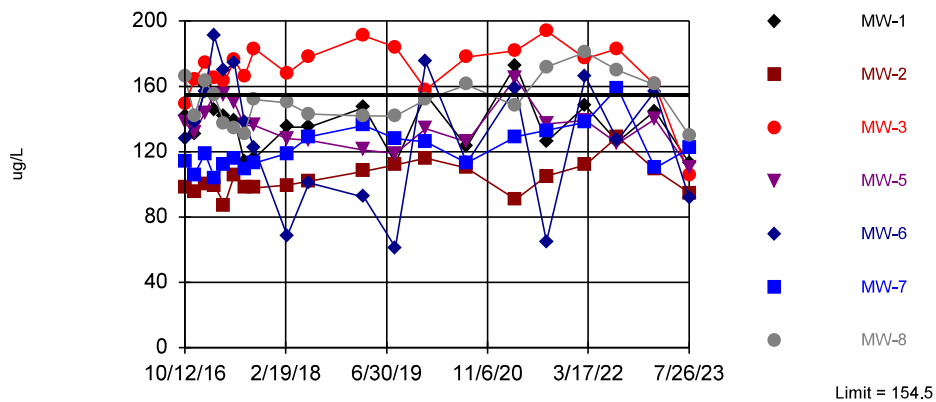
Constituent: Arsenic [total] Analysis Run 8/18/2023 1:16 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=124.9, Std. Dev.=12.29, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9647, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

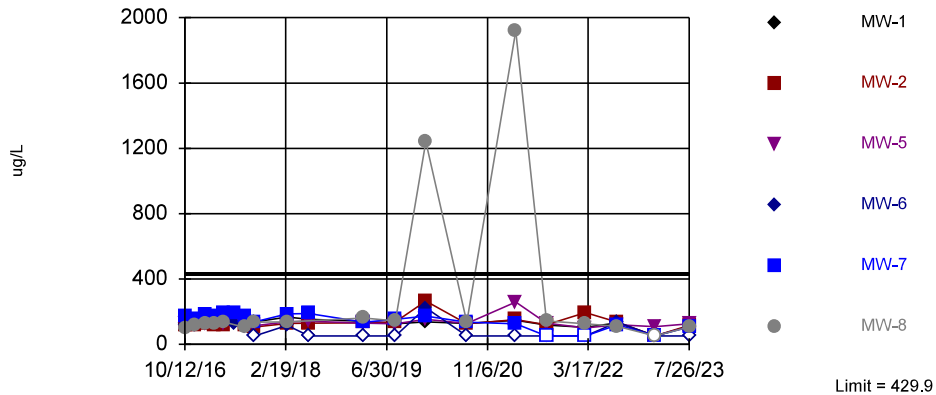
Constituent: Barium [total] Analysis Run 8/18/2023 1:16 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Interwell Parametric



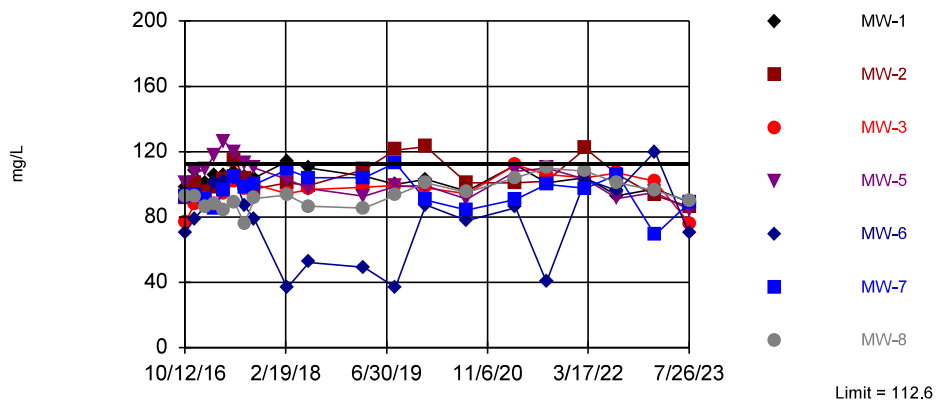
Background Data Summary (after Aitchison's Adjustment): Mean=148.6, Std. Dev.=116.7, n=20, 30% NDs, Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9093, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 6 points to limit.

Constituent: Boron Analysis Run 8/18/2023 1:16 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Interwell Parametric



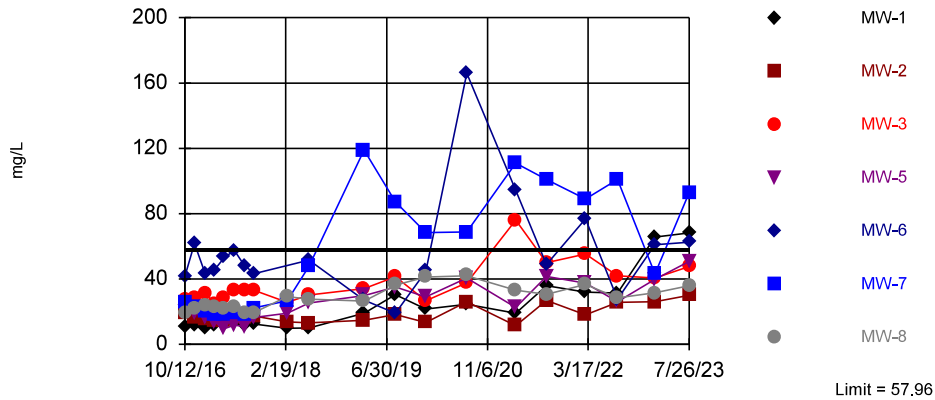
Background Data Summary: Mean=86.99, Std. Dev.=10.63, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9784, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Calcium Analysis Run 8/18/2023 1:17 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit: MW-1, MW-6, MW-7

Prediction Limit

Interwell Parametric



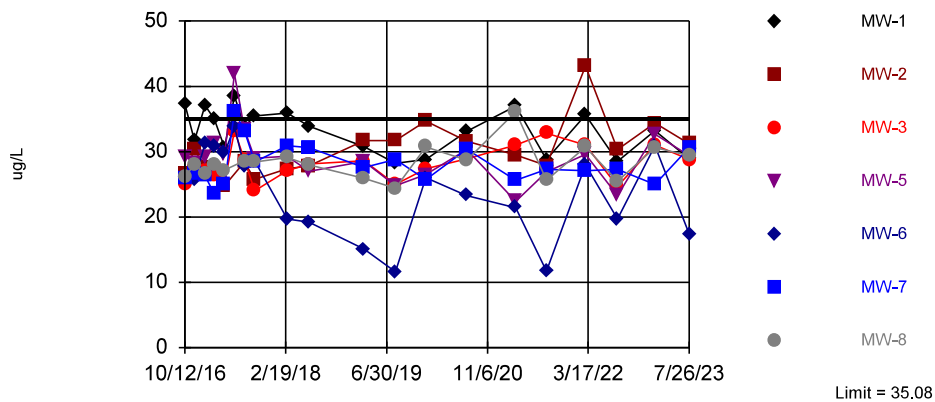
Background Data Summary: Mean=26.98, Std. Dev.=12.69, n=19. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9547, critical = 0.863. Kappa = 2.442 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Chloride Analysis Run 8/18/2023 1:17 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Interwell Parametric



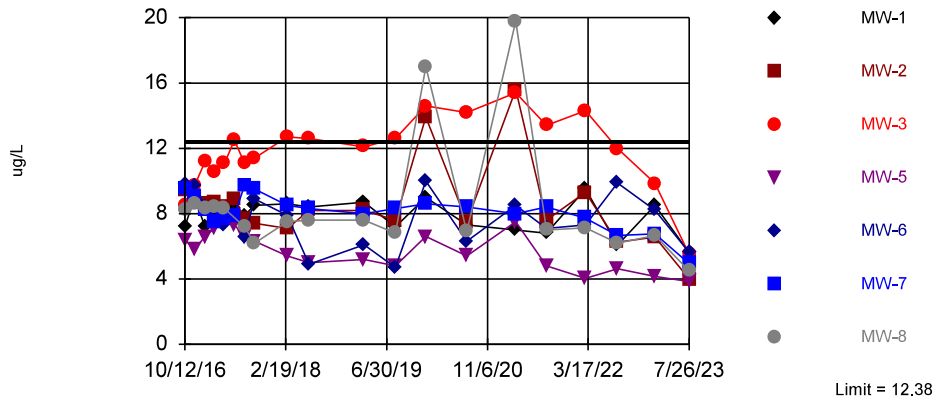
Background Data Summary: Mean=26.01, Std. Dev.=3.765, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8899, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Lithium Analysis Run 8/18/2023 1:17 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation): Mean=2.496, Std. Dev.=0.4241, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9103, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

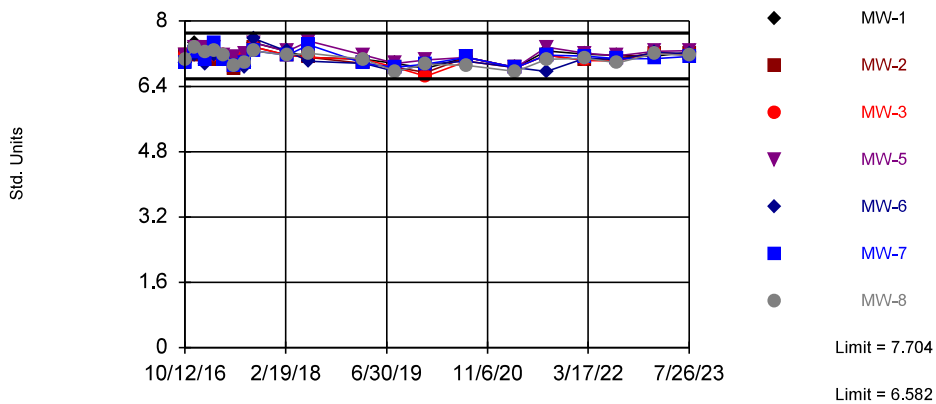
Constituent: Molybdenum Analysis Run 8/18/2023 1:17 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.143, Std. Dev.=0.2328, n=20. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8803, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0002508. Comparing 7 points to limit.

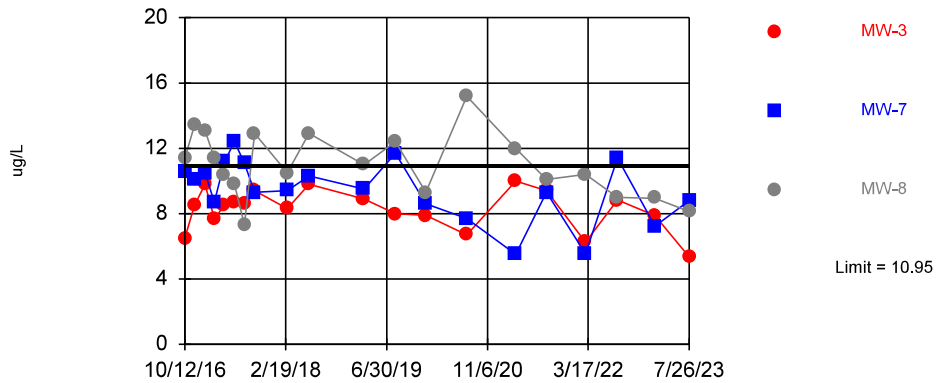
Constituent: pH Analysis Run 8/18/2023 1:17 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.538, Std. Dev.=1.396, n=19. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9556, critical = 0.863. Kappa = 2.442 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 3 points to limit. Assumes 2 future values.

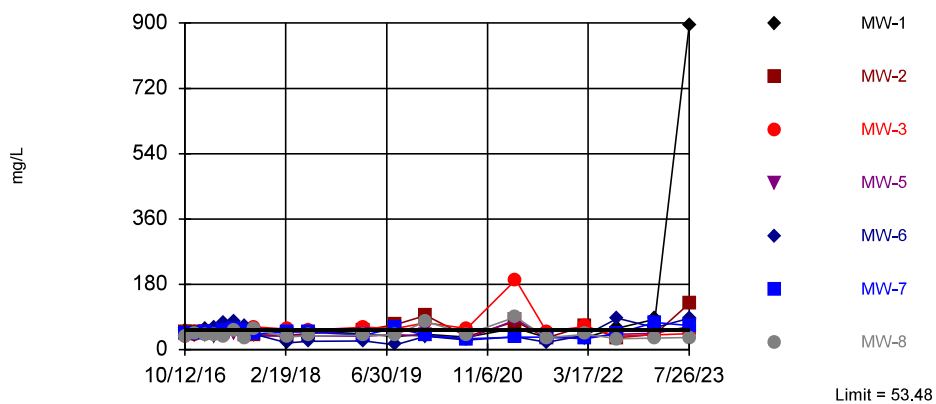
Constituent: Selenium [total] Analysis Run 8/18/2023 1:17 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Exceeds Limit: MW-1, MW-2, MW-5, MW-6, MW-7

Prediction Limit

Interwell Parametric



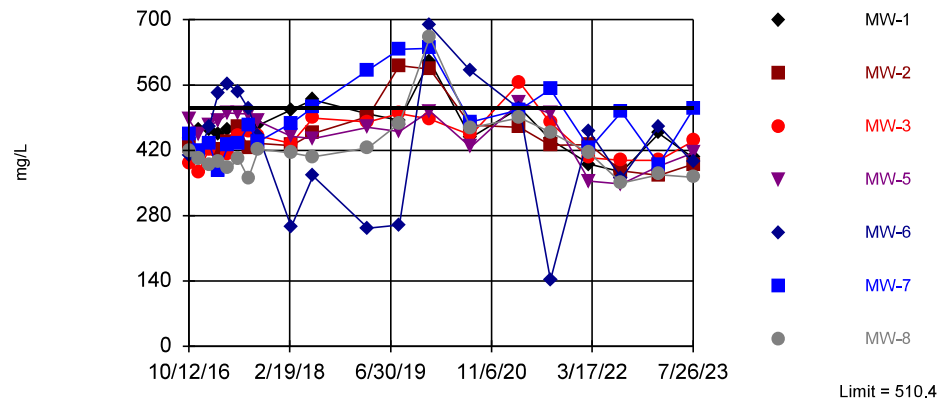
Background Data Summary: Mean=39.14, Std. Dev.=5.947, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.873, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

Constituent: Sulfate Analysis Run 8/18/2023 1:17 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Within Limit

Prediction Limit
Interwell Parametric



Background Data Summary: Mean=406.4, Std. Dev.=43.15, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9697, critical = 0.868. Kappa = 2.411 (c=21, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Individual comparison alpha = 0.0005016. Comparing 7 points to limit.

A.4 Sen's Slope/Mann-Kendall Analysis

Trend Test

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 8/18/2023, 1:32 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic [total] (ug/L)	MW-1	0.2483	70	63	Yes	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-2	0.02944	24	63	No	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-3	0.1011	59	63	No	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-4R (bg)	0.1475	41	63	No	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-5	0	6	63	No	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-6	0.148	70	63	Yes	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-7	0.08291	76	63	Yes	18	0	n/a	n/a	0.02	NP
Arsenic [total] (ug/L)	MW-8	0	-9	-63	No	18	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-1	-1.631	-20	-73	No	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-2	2.267	66	73	No	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-3	2.466	42	73	No	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-4R (bg)	2.941	66	73	No	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-5	-2.557	-50	-73	No	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-6	-5.091	-38	-73	No	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-7	4.026	83	73	Yes	20	0	n/a	n/a	0.02	NP
Barium [total] (ug/L)	MW-8	1.782	23	73	No	20	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-1	-4.282	-65	-73	No	20	5	n/a	n/a	0.02	NP
Boron (ug/L)	MW-2	3.336	39	68	No	19	5.263	n/a	n/a	0.02	NP
Boron (ug/L)	MW-4R (bg)	-11.65	-37	-73	No	20	30	n/a	n/a	0.02	NP
Boron (ug/L)	MW-5	-0.961	-27	-73	No	20	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-6	-12.12	-72	-73	No	20	50	n/a	n/a	0.02	NP
Boron (ug/L)	MW-7	-13.86	-109	-73	Yes	20	15	n/a	n/a	0.02	NP
Boron (ug/L)	MW-8	1.718	19	63	No	18	5.556	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-1	-1.419	-64	-73	No	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-2	0.8888	30	73	No	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-3	2.456	86	73	Yes	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-4R (bg)	2.01	51	73	No	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-5	-3.018	-80	-73	Yes	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-6	0.1847	4	73	No	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-7	-0.0239	-2	-73	No	20	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MW-8	2.204	77	73	Yes	20	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-1	3.998	130	73	Yes	20	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-2	1.14	43	68	No	19	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-3	2.985	106	73	Yes	20	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-4R (bg)	3.743	97	68	Yes	19	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-5	4.679	110	73	Yes	20	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-6	1.809	29	68	No	19	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-7	12.56	95	73	Yes	20	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-8	2.275	100	73	Yes	20	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	MW-1	0	-29	-73	No	20	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	MW-2	0.06892	83	73	Yes	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-1	-0.7794	-61	-73	No	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-2	0.7274	76	68	Yes	19	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-3	0.5889	55	73	No	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-4R (bg)	0.4318	63	73	No	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-5	-0.4558	-35	-73	No	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-6	-1.737	-62	-73	No	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-7	-0.00...	-2	-73	No	20	0	n/a	n/a	0.02	NP
Lithium (ug/L)	MW-8	0.408	39	68	No	19	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-1	-0.1493	-27	-73	No	20	0	n/a	n/a	0.02	NP

Trend Test

Fremont Dept. of Utilities

Client: SCS Engineers

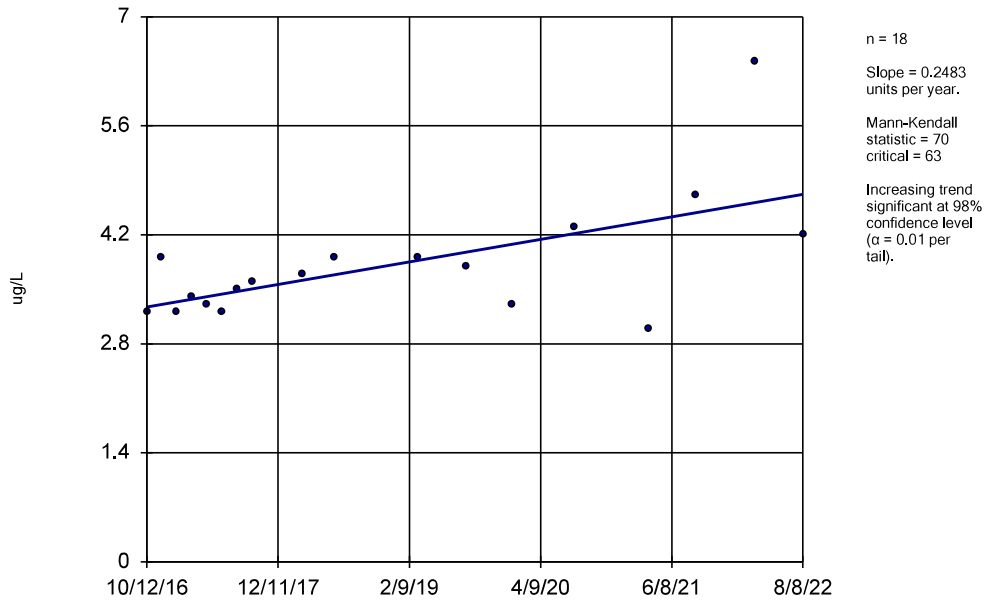
Data: Fremont Department of Utilities Groundwater

Printed 8/18/2023, 1:32 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Molybdenum (ug/L)	MW-2	-0.3496	-71	-73	No	20	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-3	0.6124	66	73	No	20	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-4R (bg)	-0.242	-45	-73	No	20	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-5	-0.3927	-101	-73	Yes	20	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-6	-0.2264	-38	-73	No	20	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-7	-0.2882	-68	-73	No	20	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-8	-0.2949	-71	-68	Yes	19	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-1	0	-17	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-2	-0.00...	-24	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-3	-0.04488	-56	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-4R (bg)	-0.025	-24	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-5	-0.03289	-40	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-6	-0.01348	-27	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-7	-0.03507	-30	-73	No	20	0	n/a	n/a	0.02	NP
pH (Std. Units)	MW-8	-0.03046	-53	-73	No	20	0	n/a	n/a	0.02	NP
Selenium [total] (ug/L)	MW-3	-0.1276	-23	-73	No	20	0	n/a	n/a	0.02	NP
Selenium [total] (ug/L)	MW-4R (bg)	0.007652	5	68	No	19	0	n/a	n/a	0.02	NP
Selenium [total] (ug/L)	MW-7	-0.438	-65	-73	No	20	0	n/a	n/a	0.02	NP
Selenium [total] (ug/L)	MW-8	-0.3645	-69	-73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-1	-0.9309	-10	-73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-2	0.416	1	68	No	19	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-3	1.51	26	73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-4R (bg)	0.5184	29	73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-5	0.1803	10	73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-6	0.9351	10	73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-7	-0.9055	-20	-73	No	20	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-8	-0.453	-14	-73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-1	-1.518	-8	-73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-2	0.5569	5	73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-3	8.284	44	73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-4R (bg)	6.296	30	73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-5	-11.61	-58	-73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-6	-10.21	-24	-73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-7	13.2	62	73	No	20	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-8	2.721	15	73	No	20	0	n/a	n/a	0.02	NP

Sen's Slope Estimator

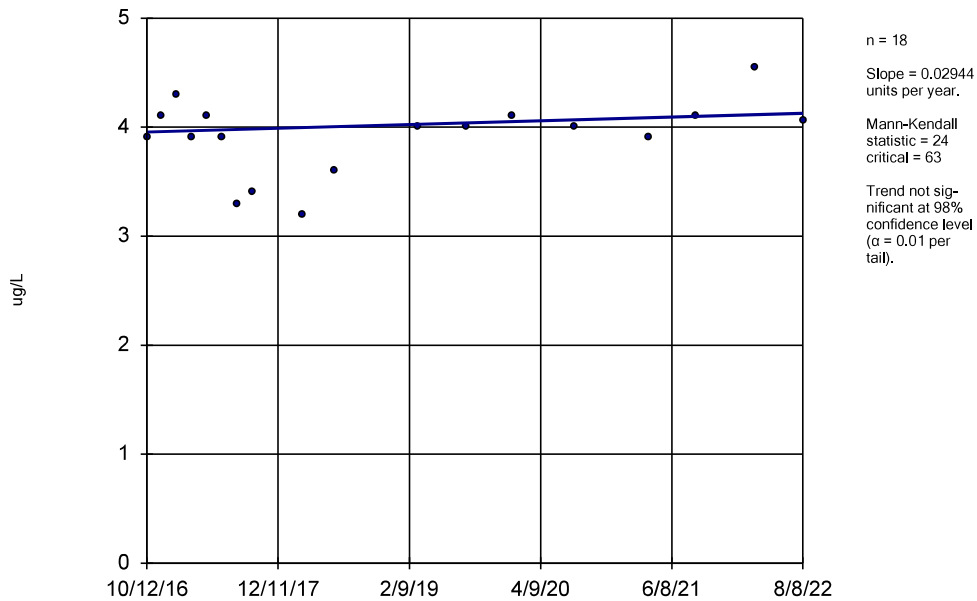
MW-1



Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

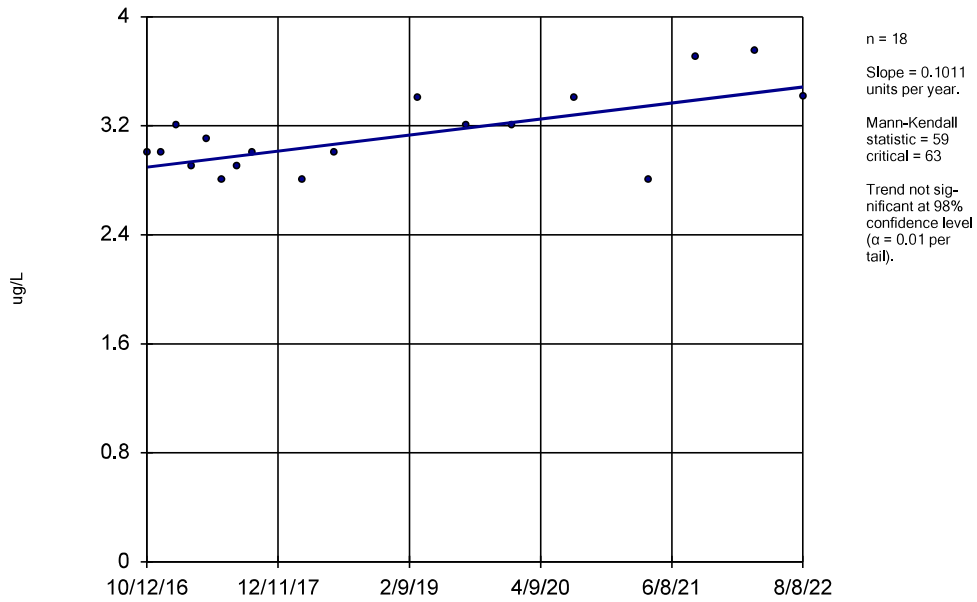
MW-2



Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

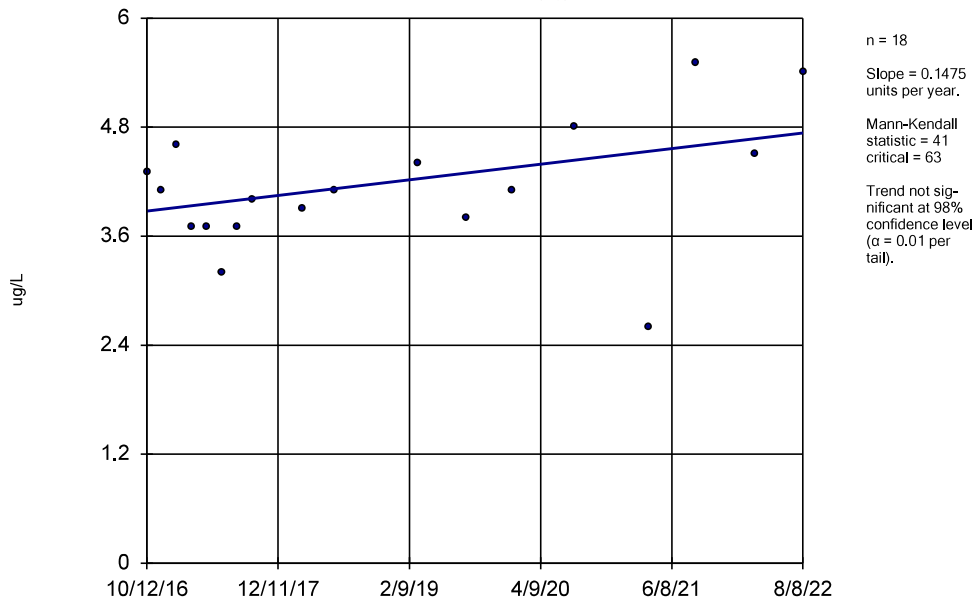
MW-3



Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

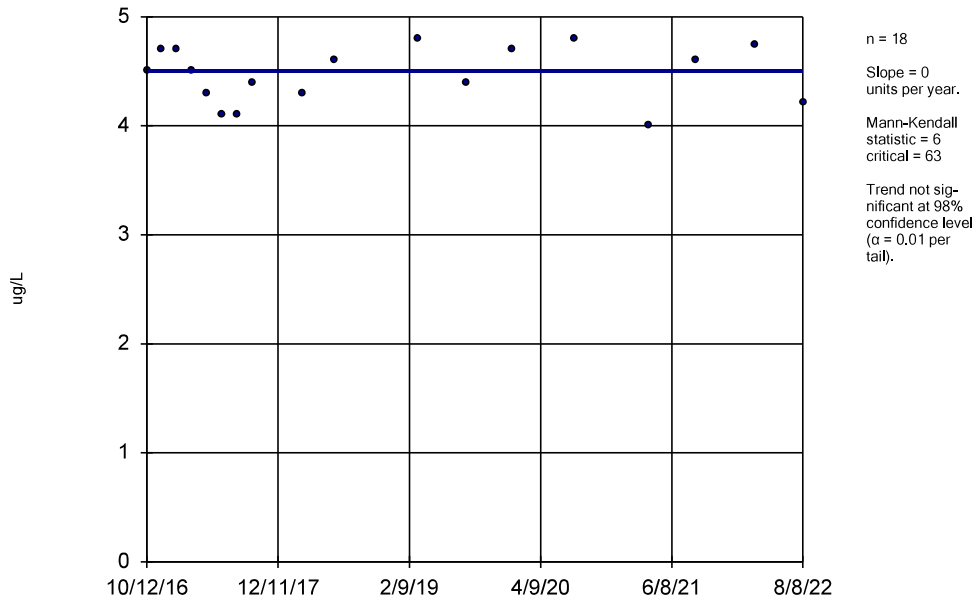
MW-4R (bg)



Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

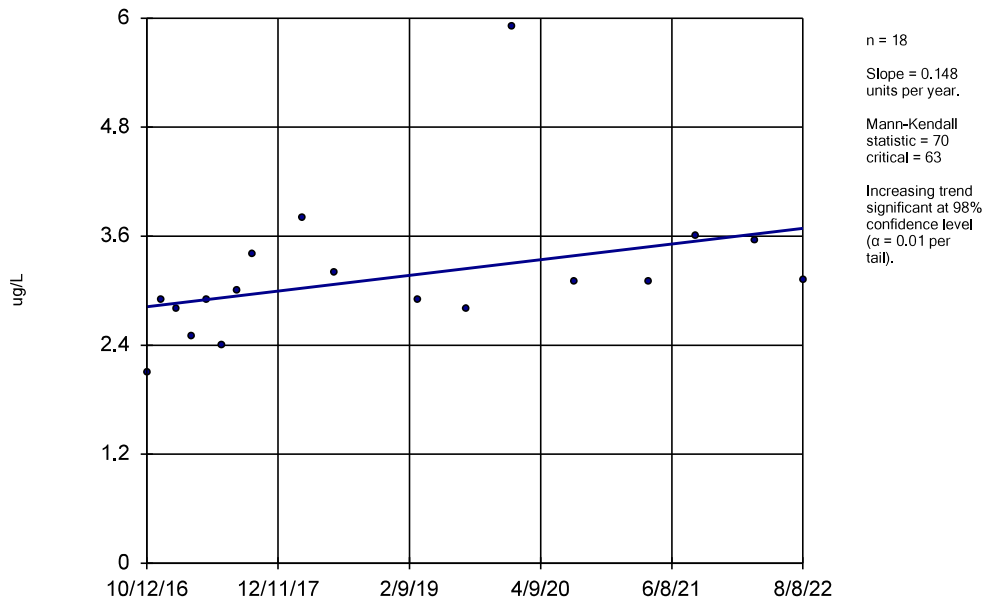
MW-5



Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

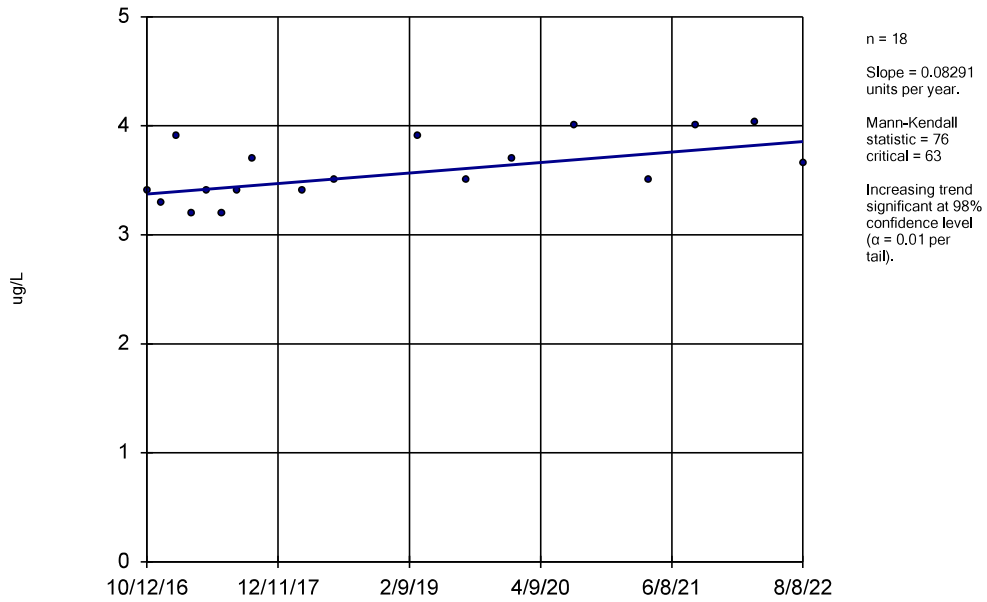
MW-6



Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-7

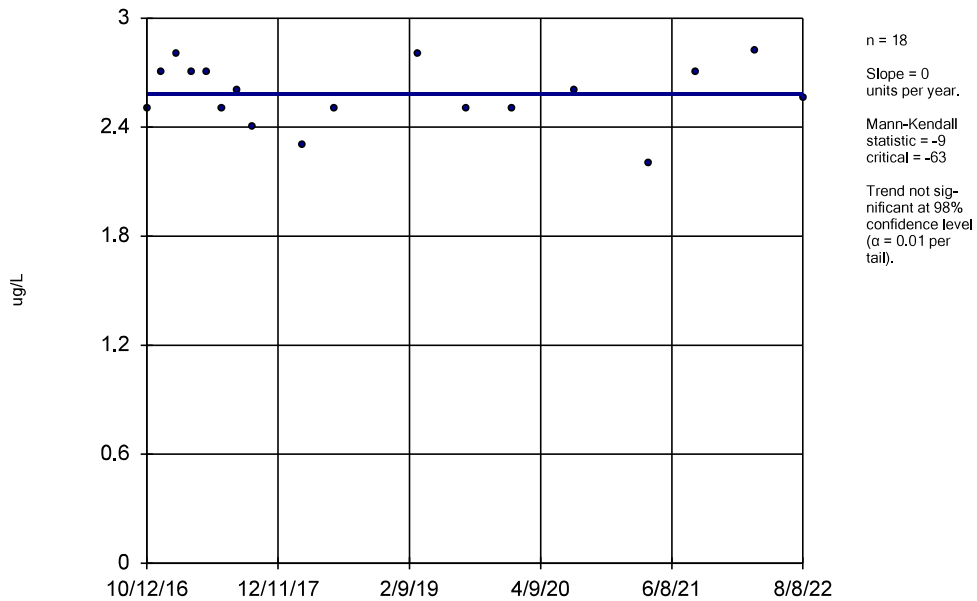


Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-8



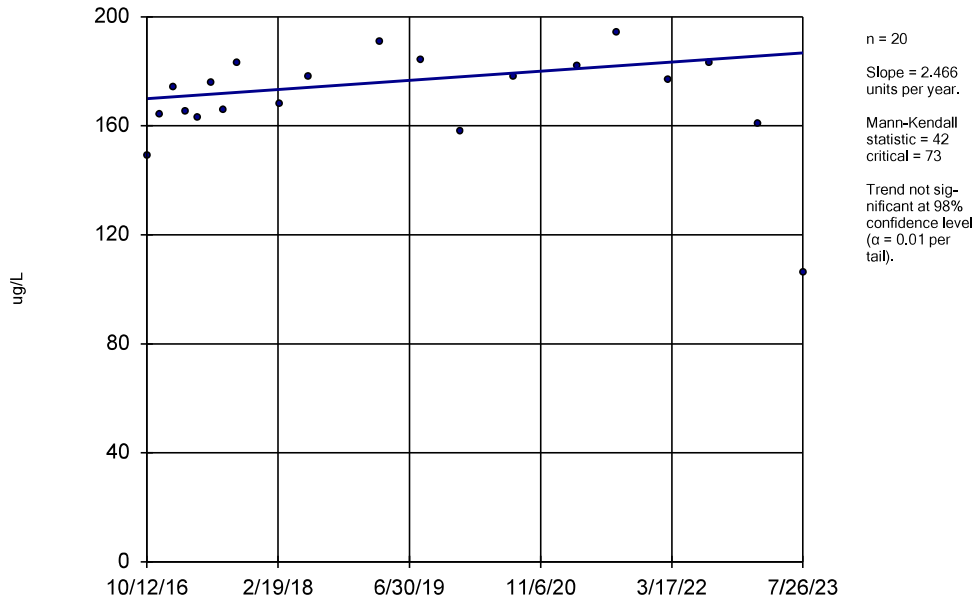
Constituent: Arsenic [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

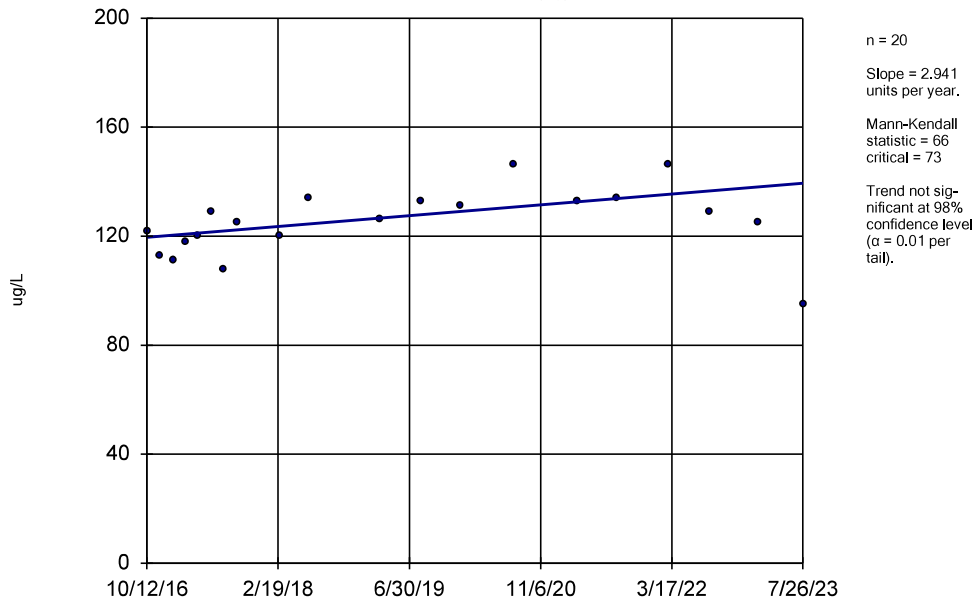
MW-3



Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

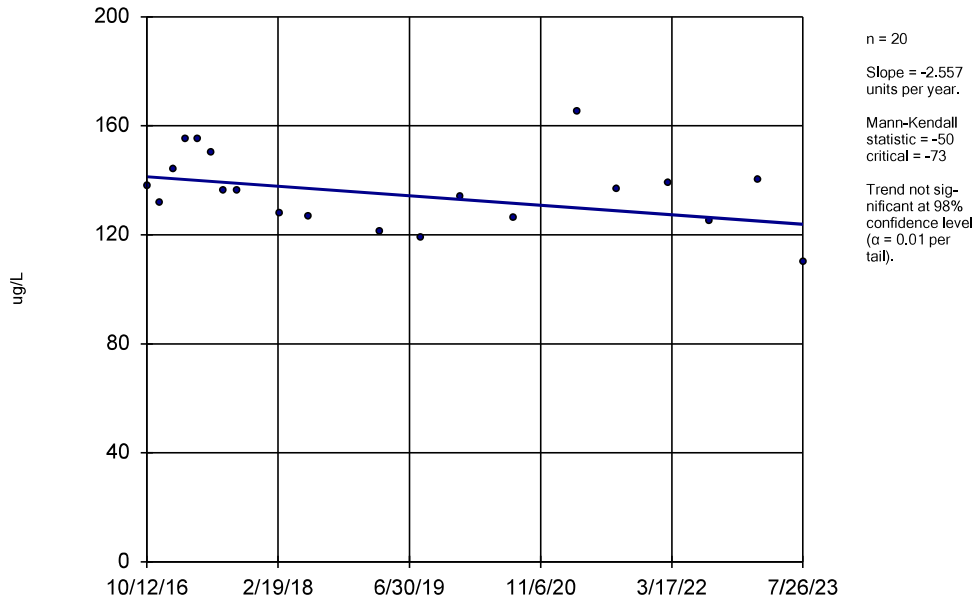
MW-4R (bg)



Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

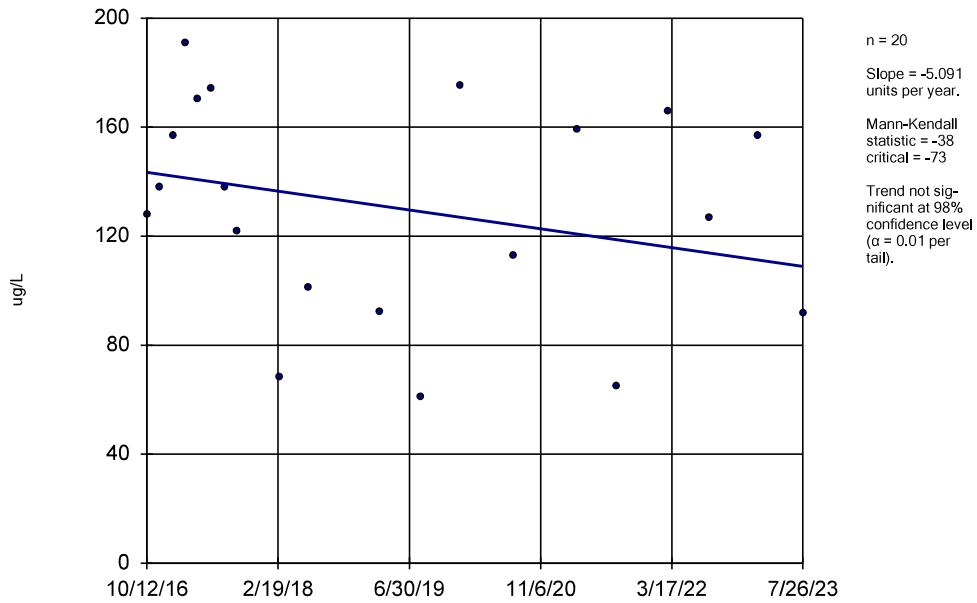
MW-5



Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

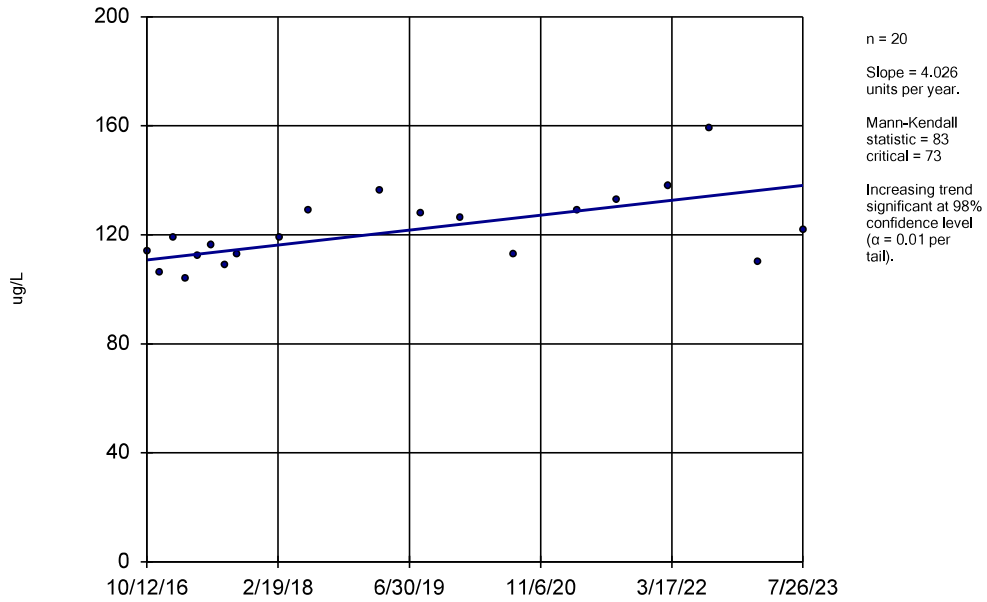
MW-6



Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

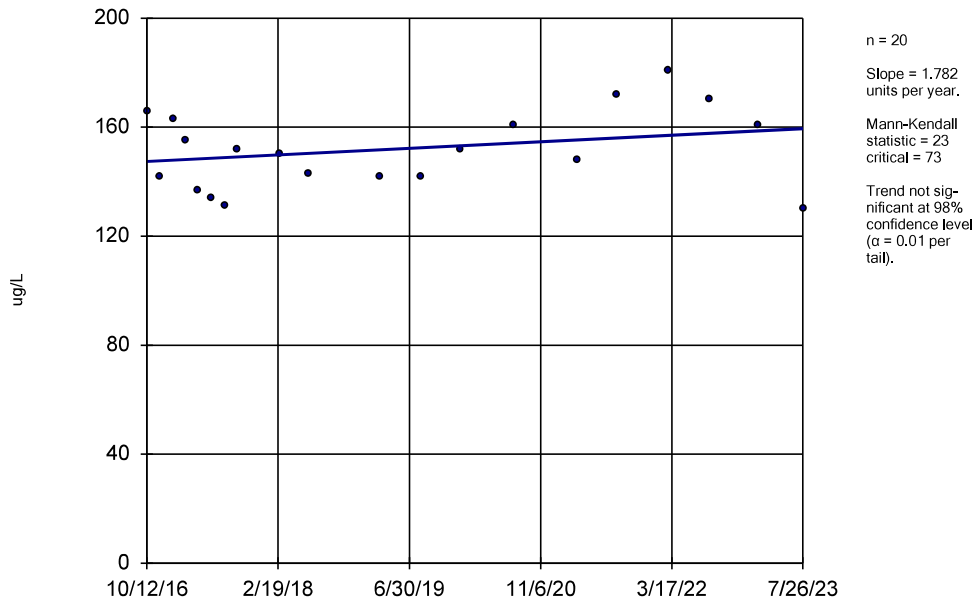
MW-7



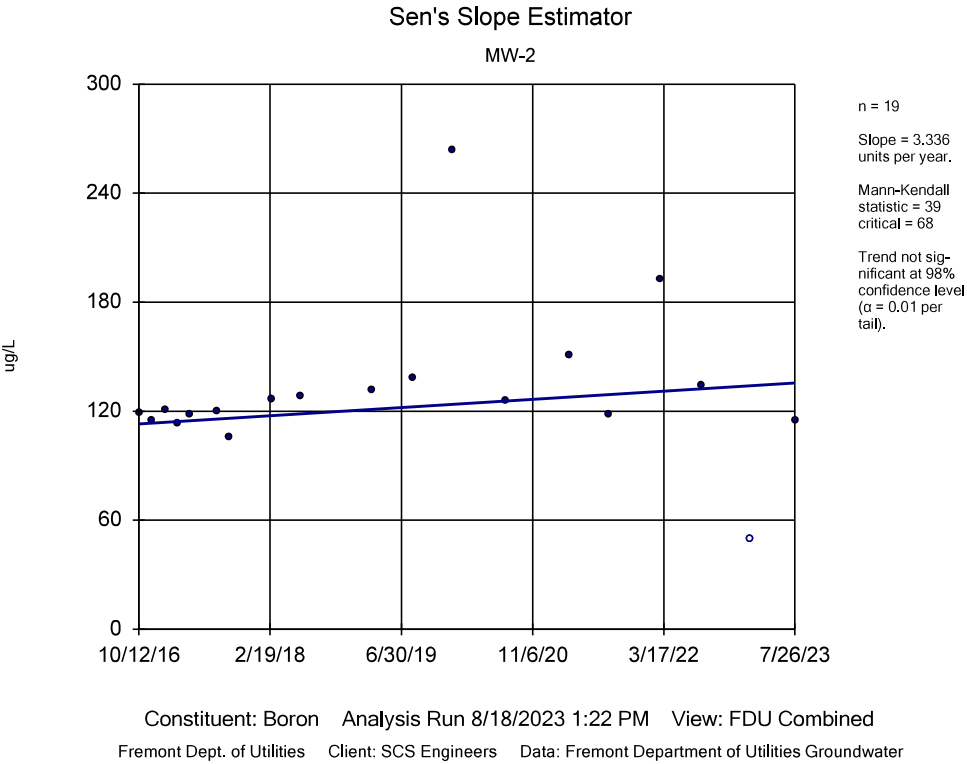
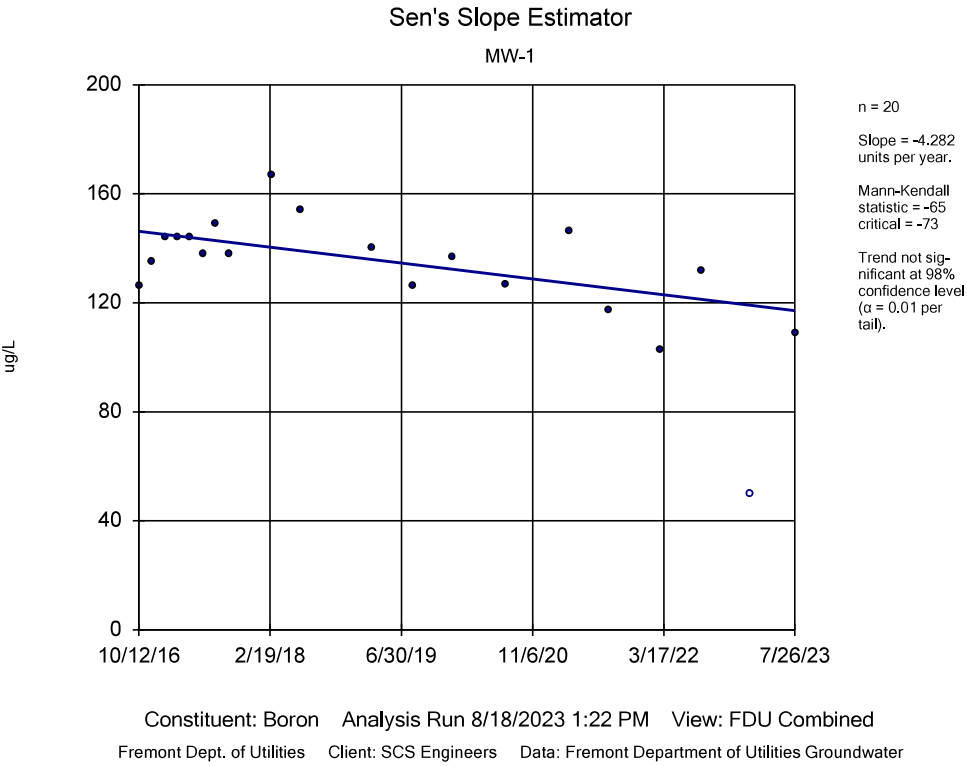
Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

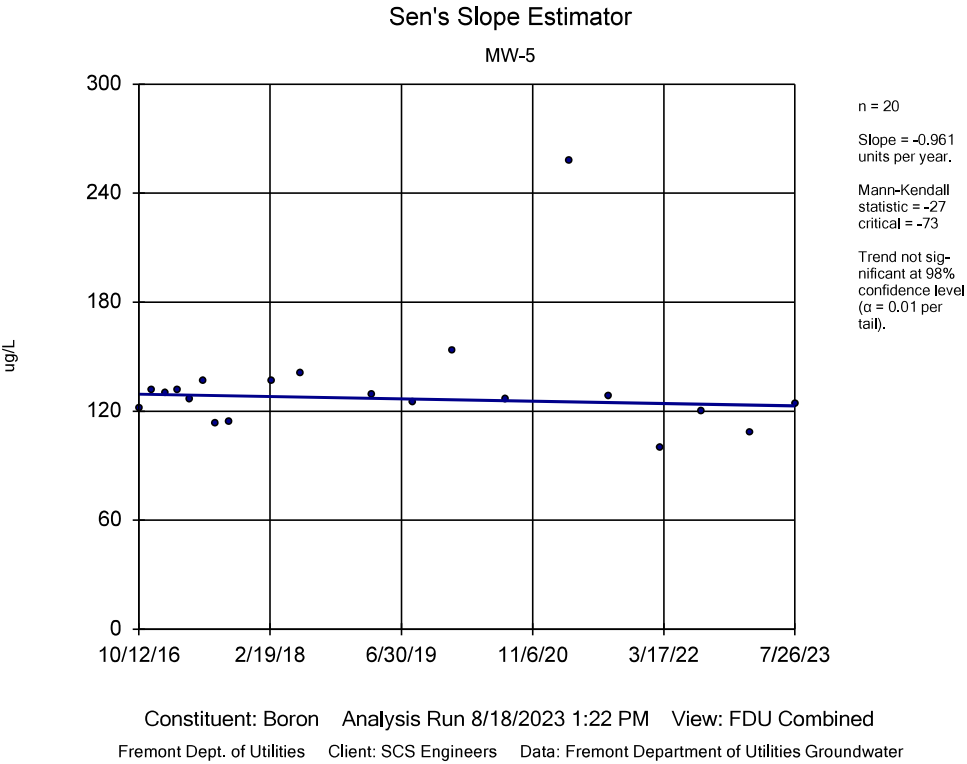
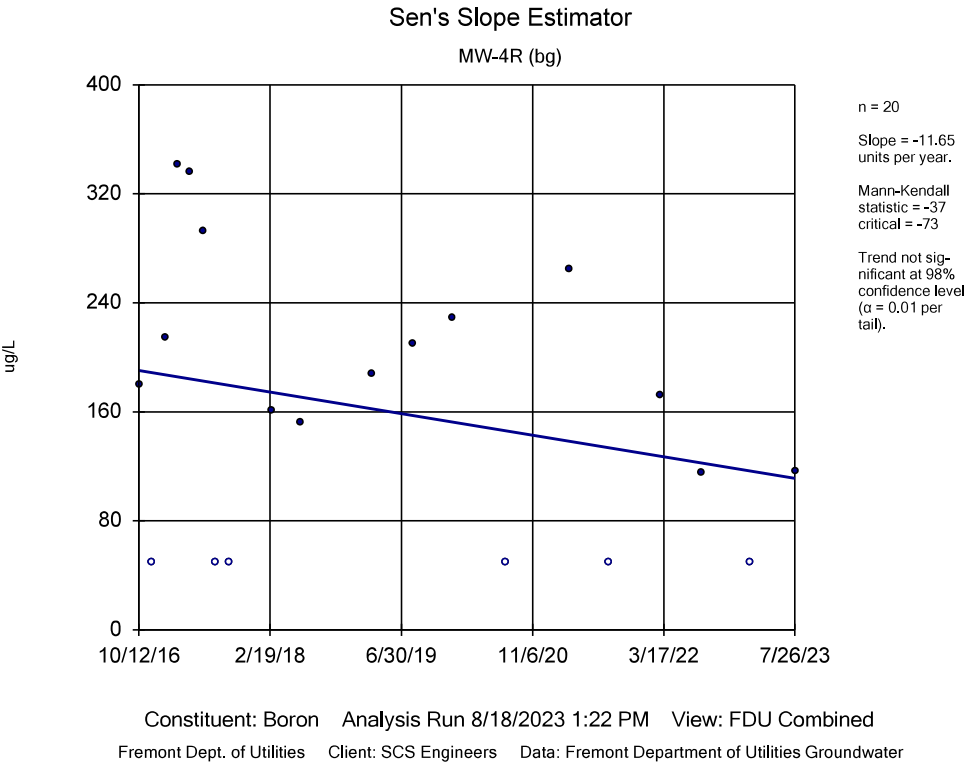
Sen's Slope Estimator

MW-8



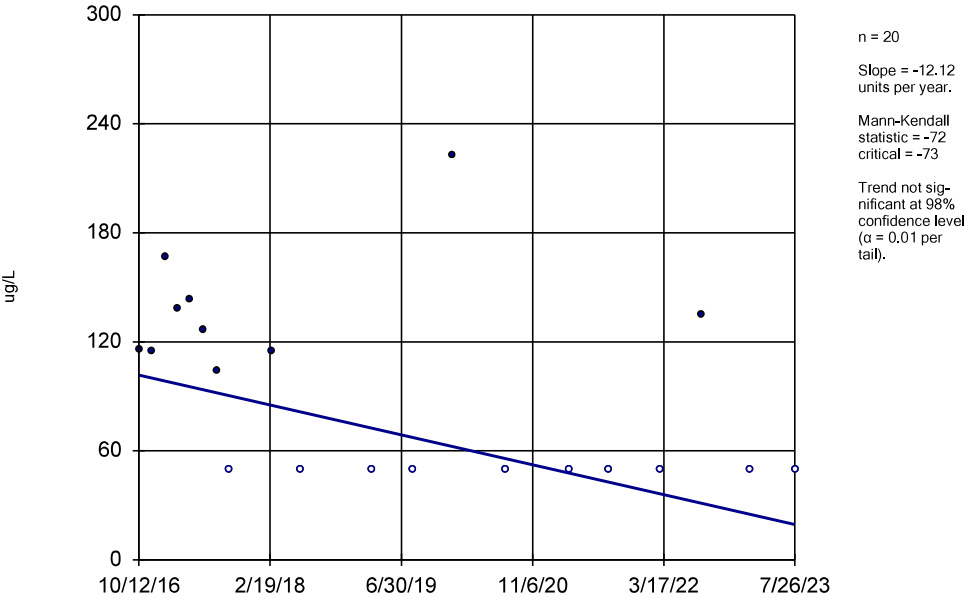
Constituent: Barium [total] Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater





Sen's Slope Estimator

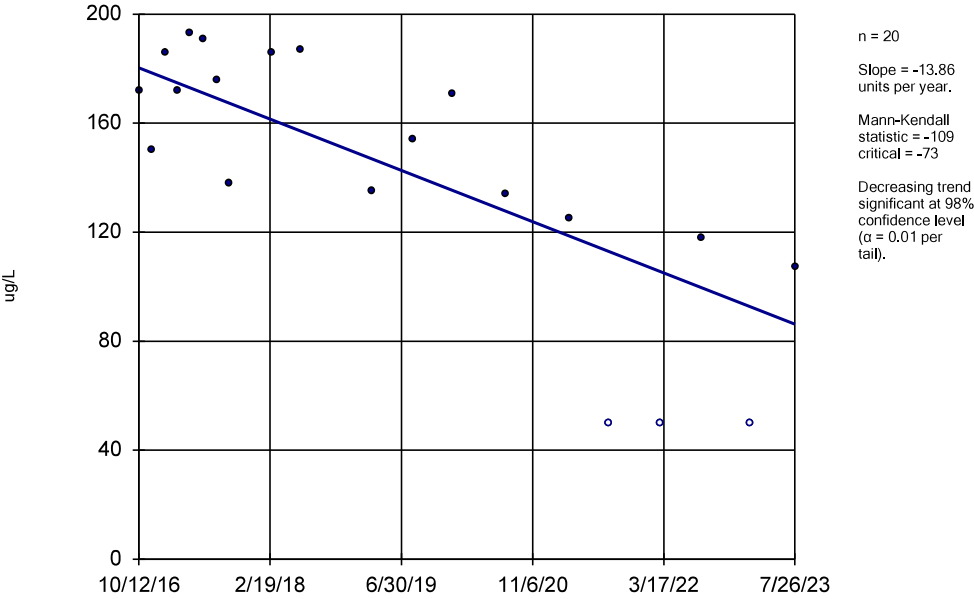
MW-6



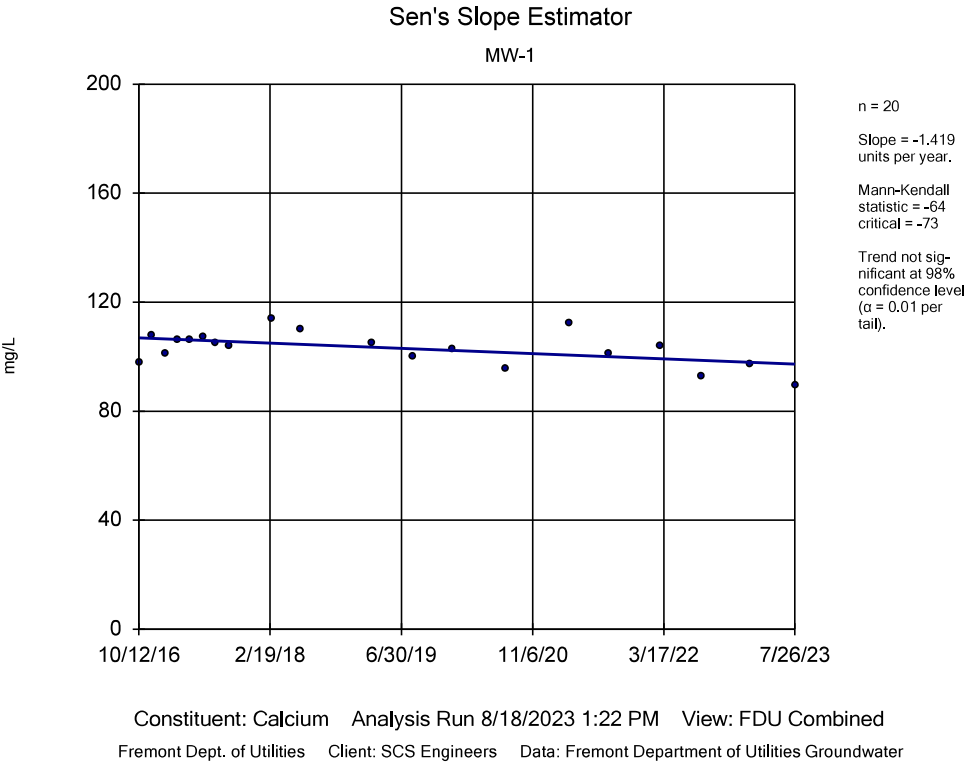
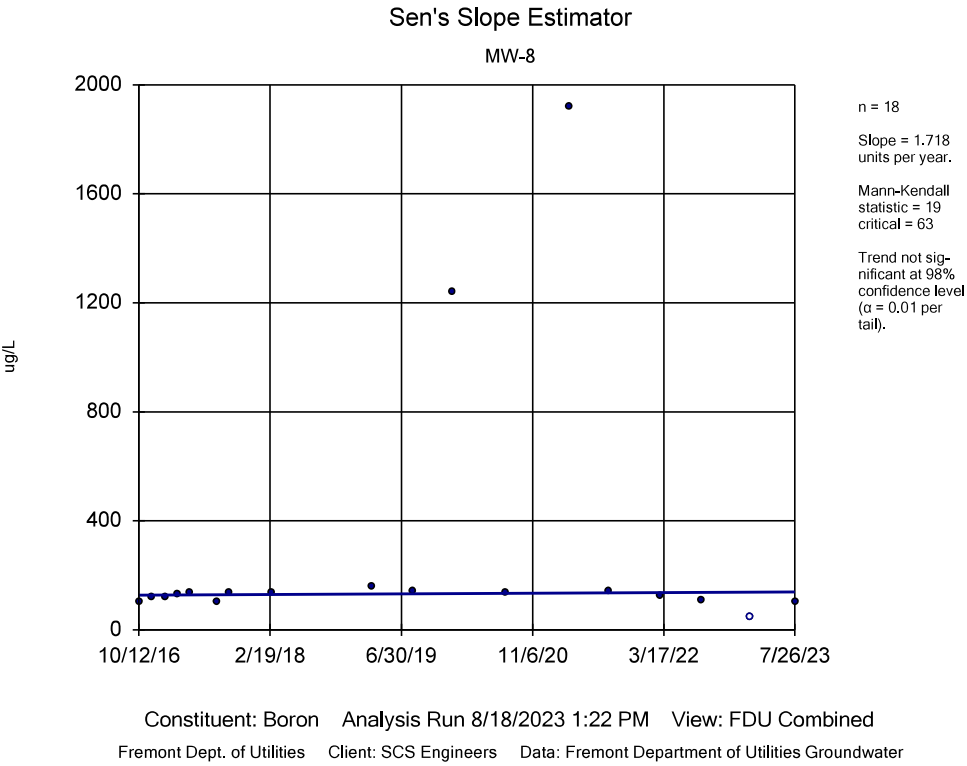
Constituent: Boron Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-7

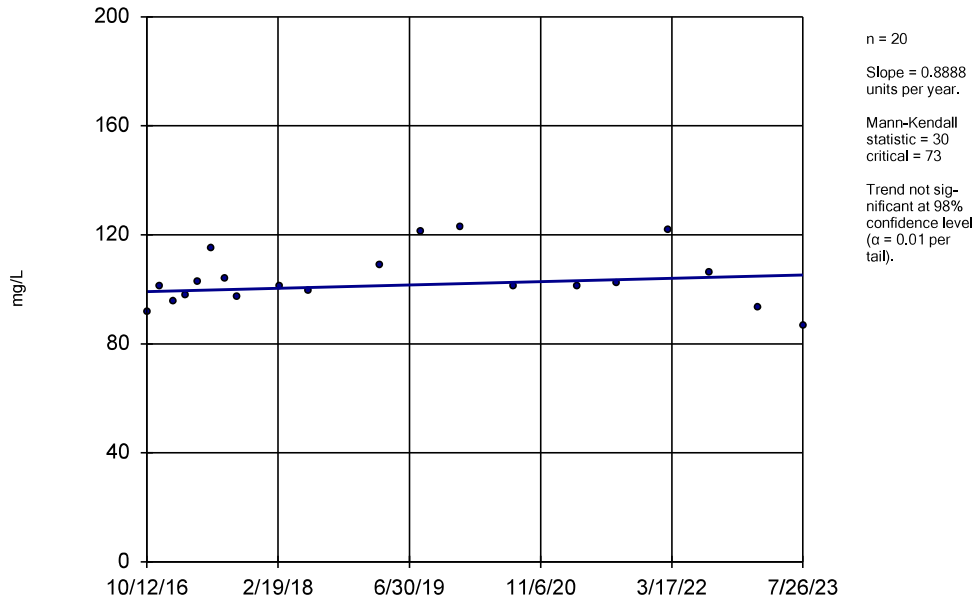


Constituent: Boron Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Sen's Slope Estimator

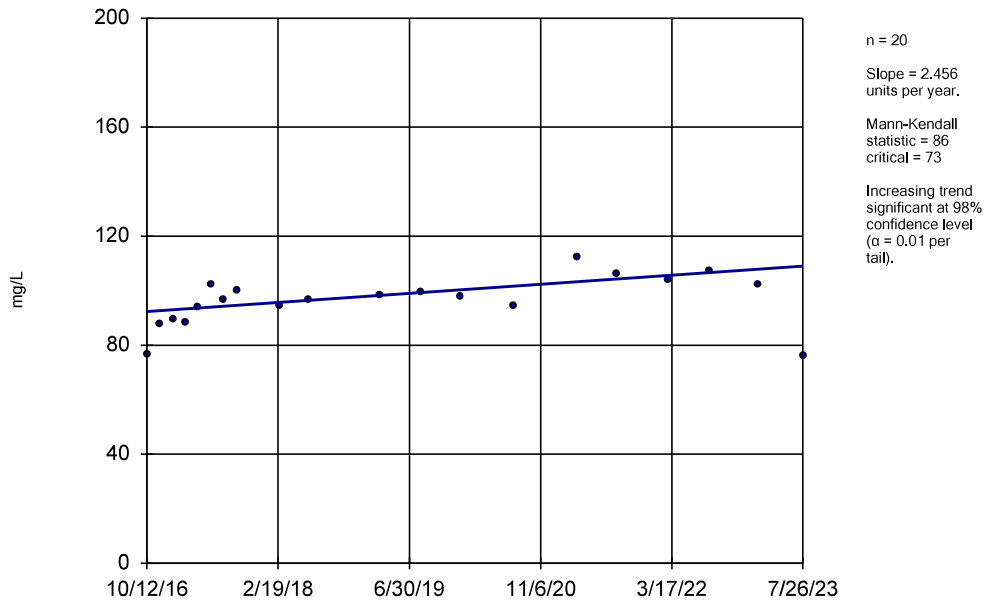
MW-2



Constituent: Calcium Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

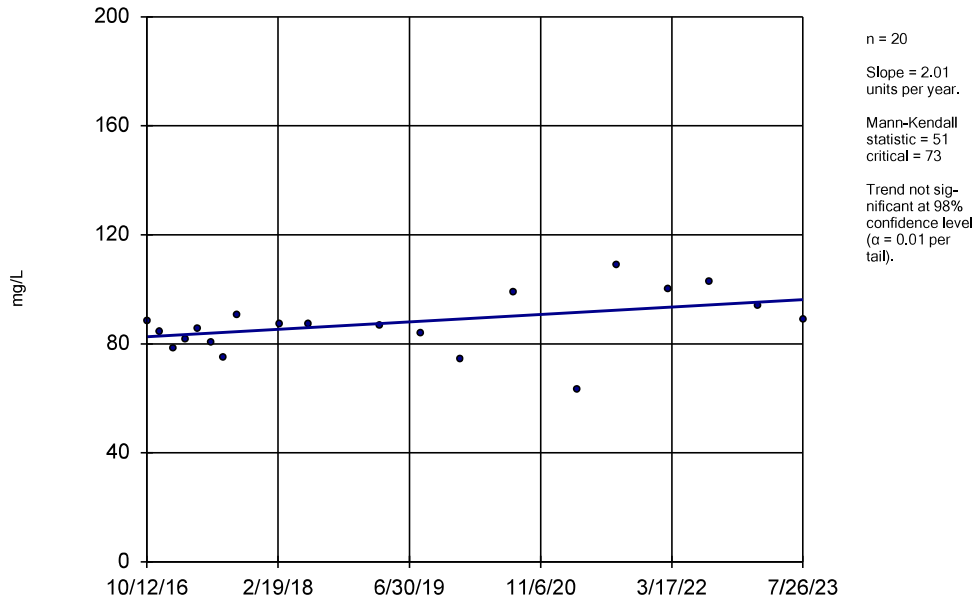
MW-3



Constituent: Calcium Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

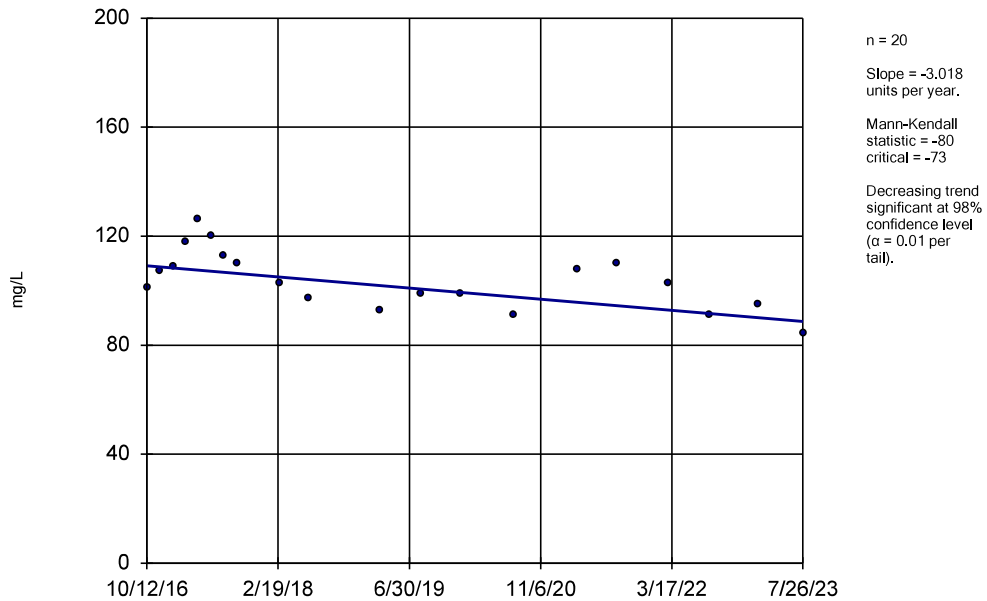
MW-4R (bg)



Constituent: Calcium Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

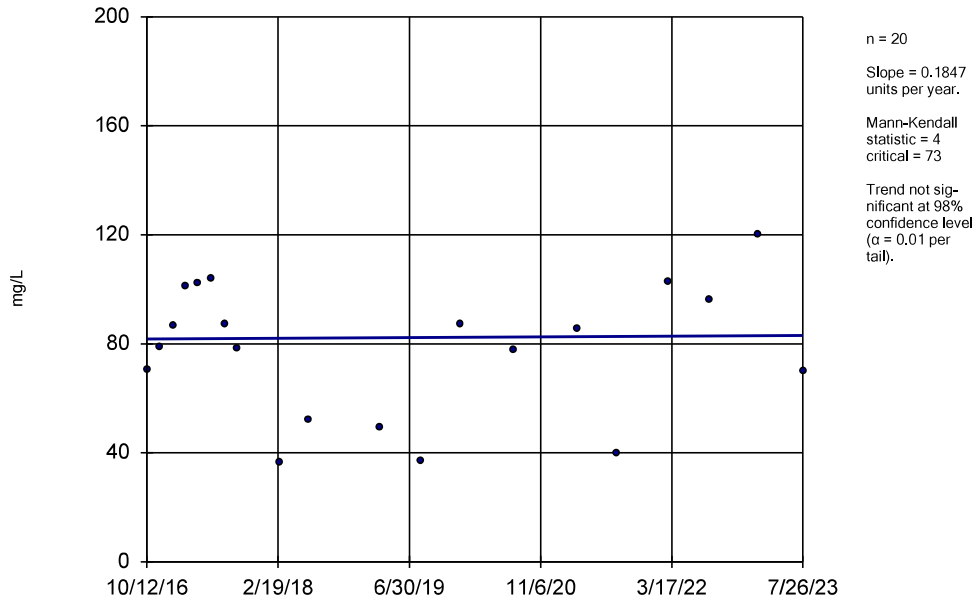
MW-5



Constituent: Calcium Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

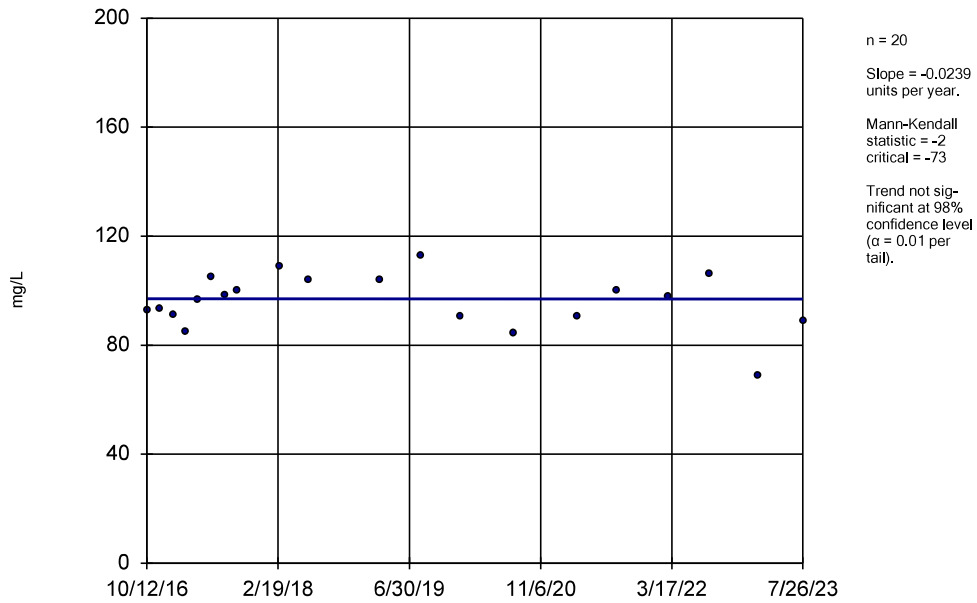
MW-6



Constituent: Calcium Analysis Run 8/18/2023 1:22 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

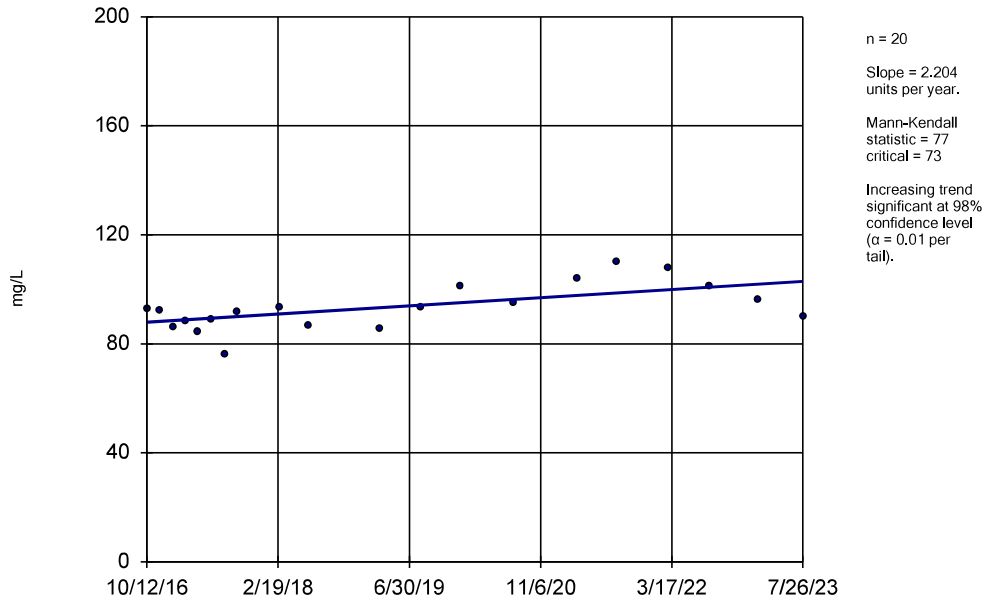
MW-7



Constituent: Calcium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

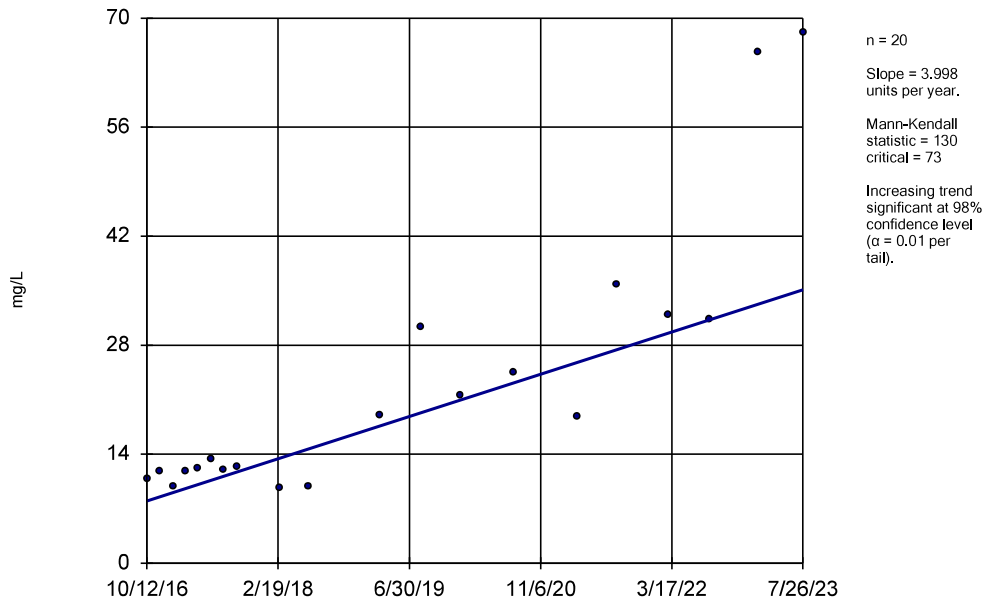
MW-8



Constituent: Calcium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

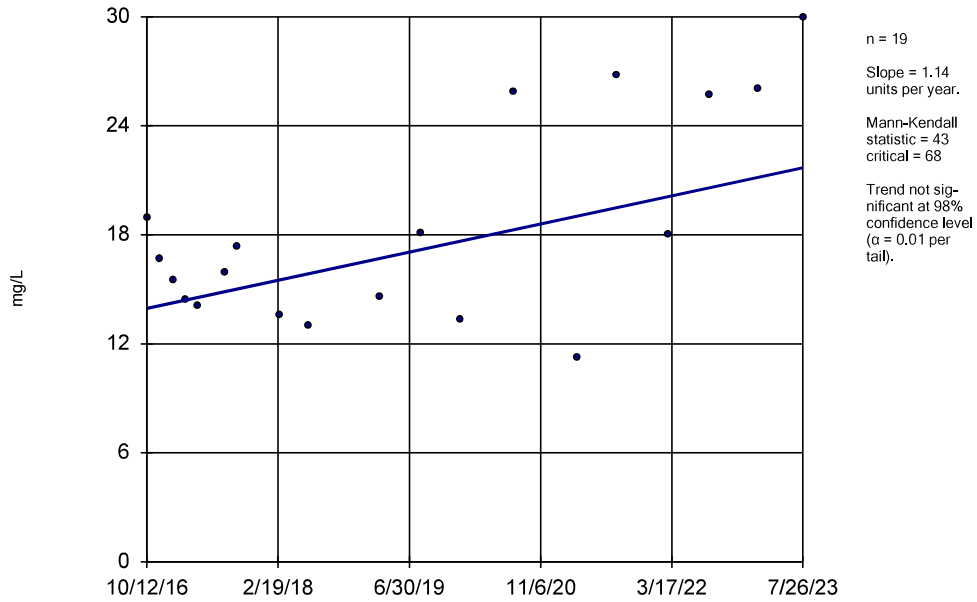
MW-1



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

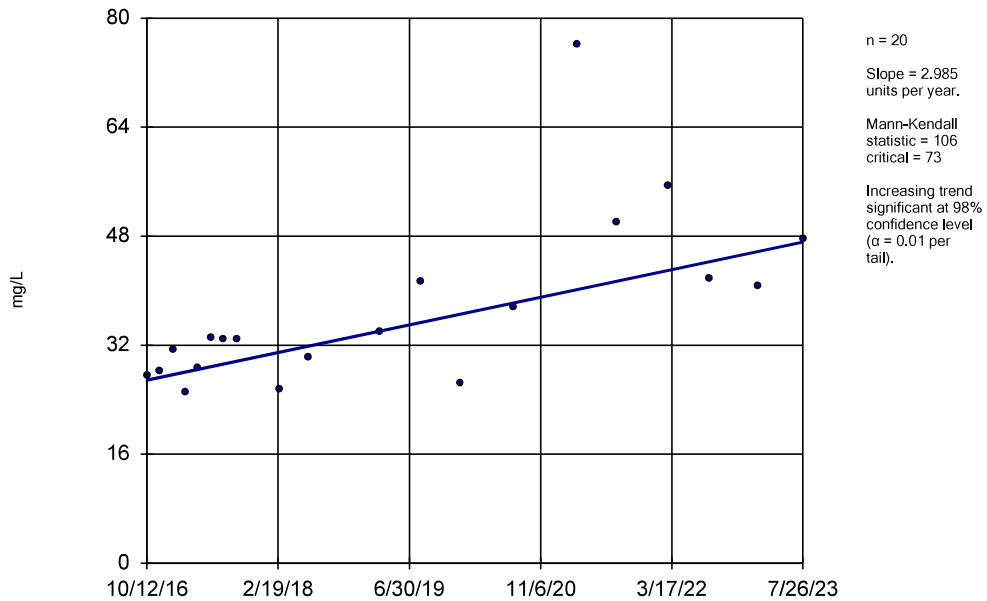
MW-2



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

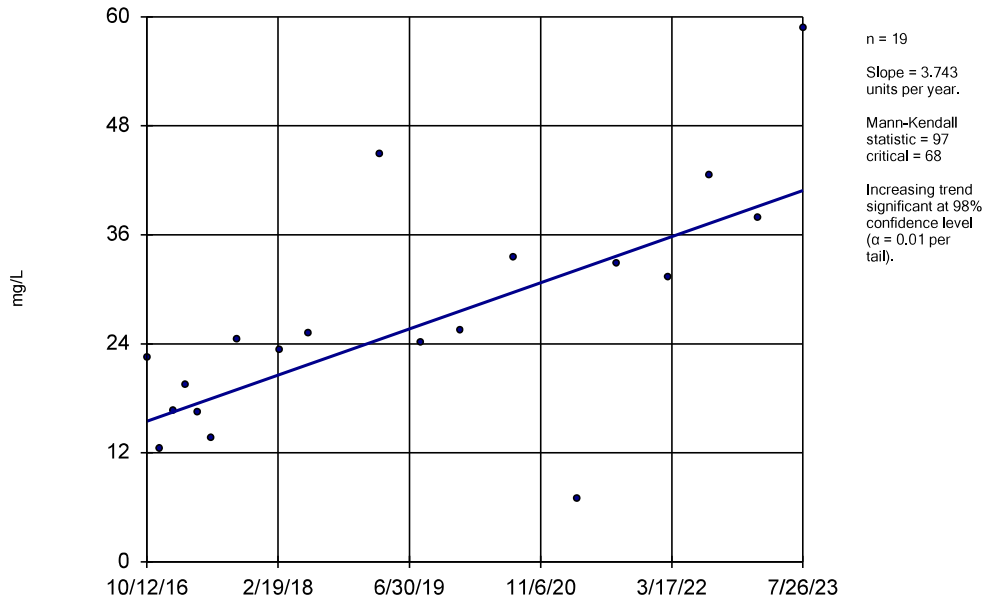
MW-3



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

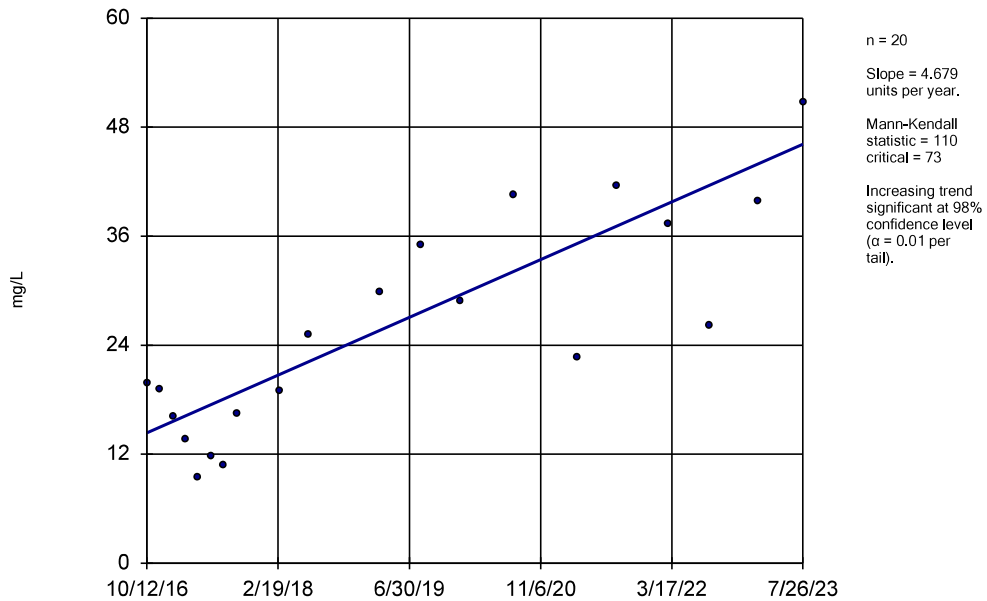
MW-4R (bg)



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

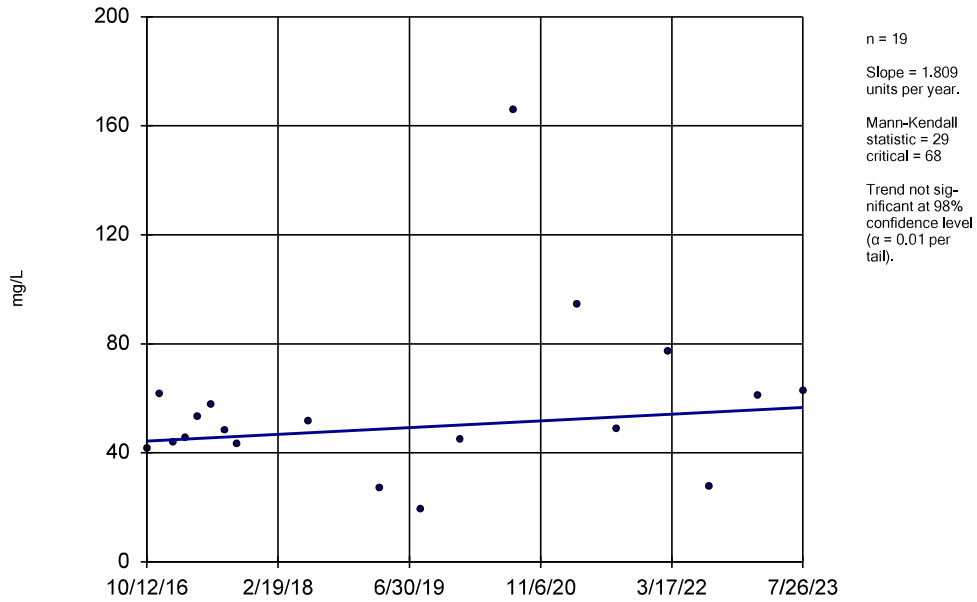
MW-5



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

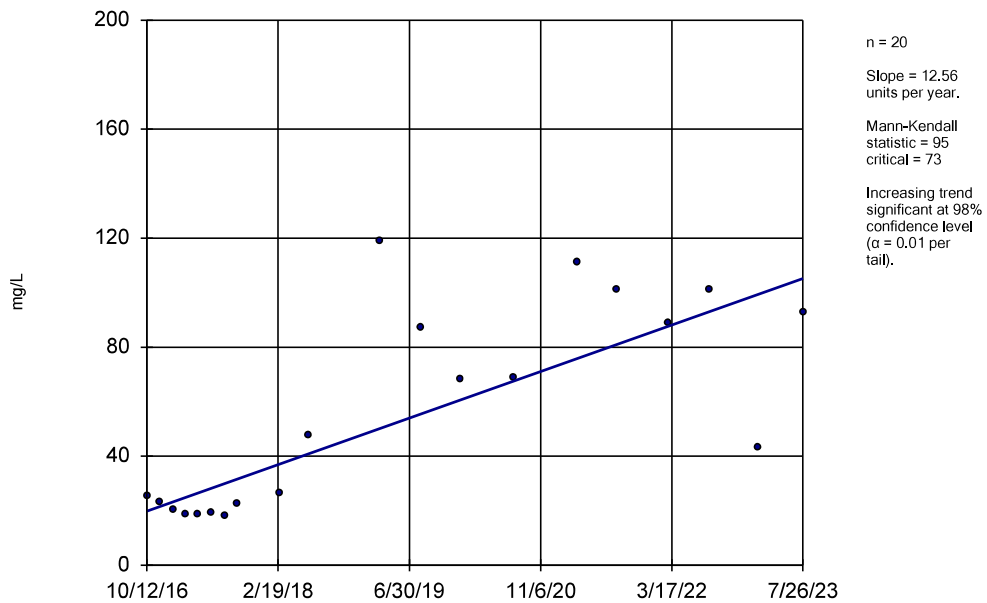
MW-6



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

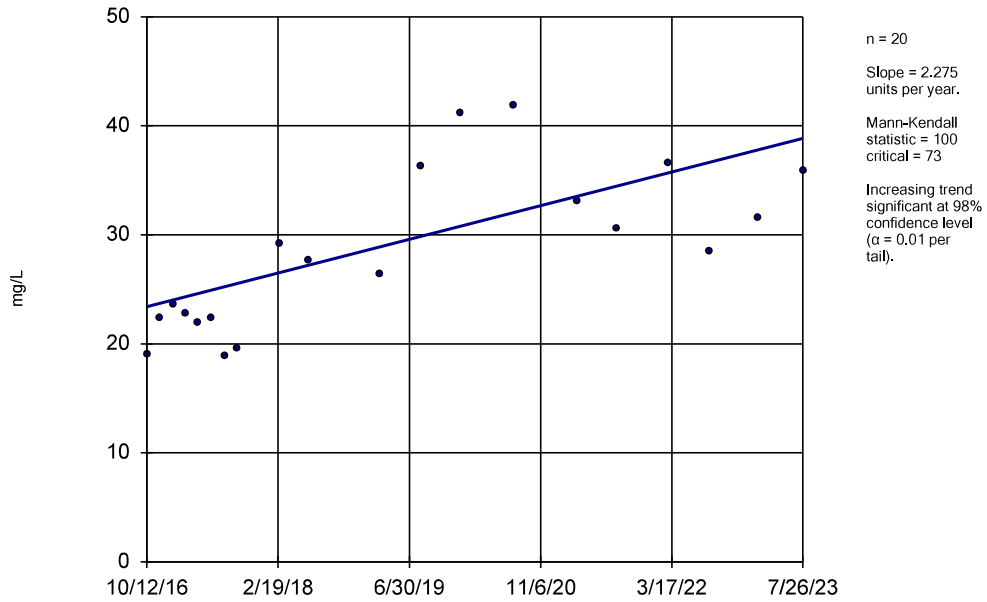
MW-7



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

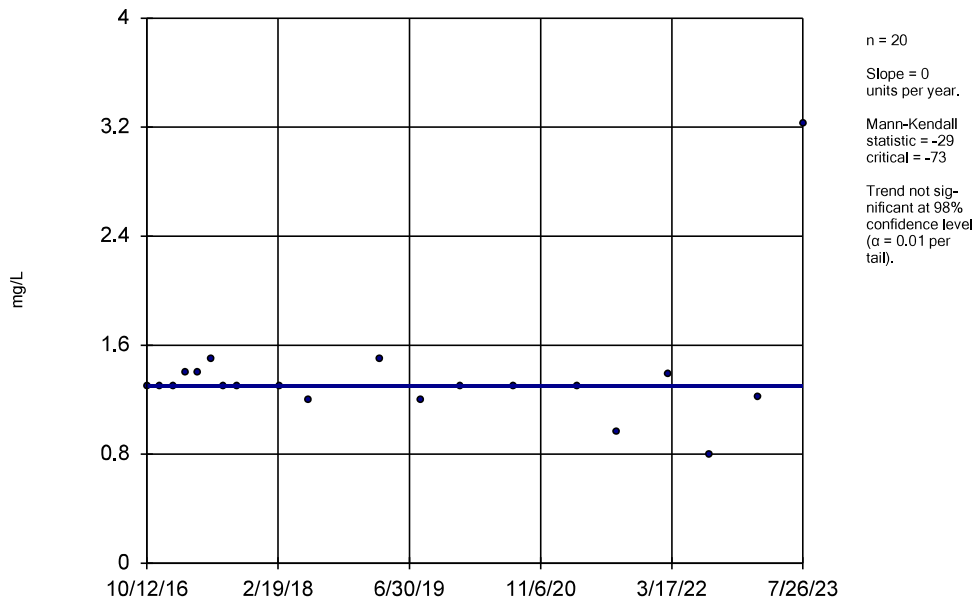
MW-8



Constituent: Chloride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

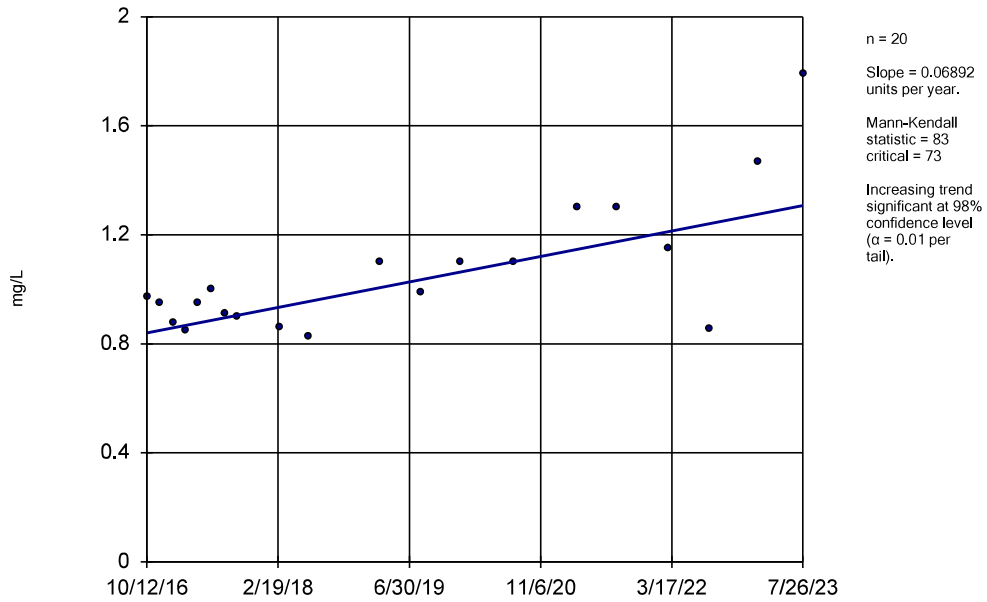
MW-1



Constituent: Fluoride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

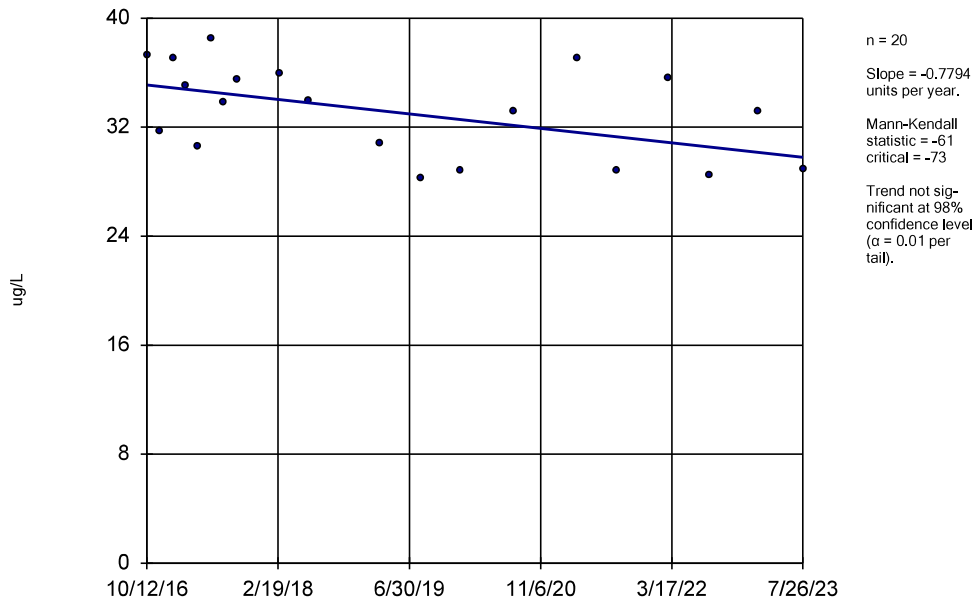
MW-2



Constituent: Fluoride Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

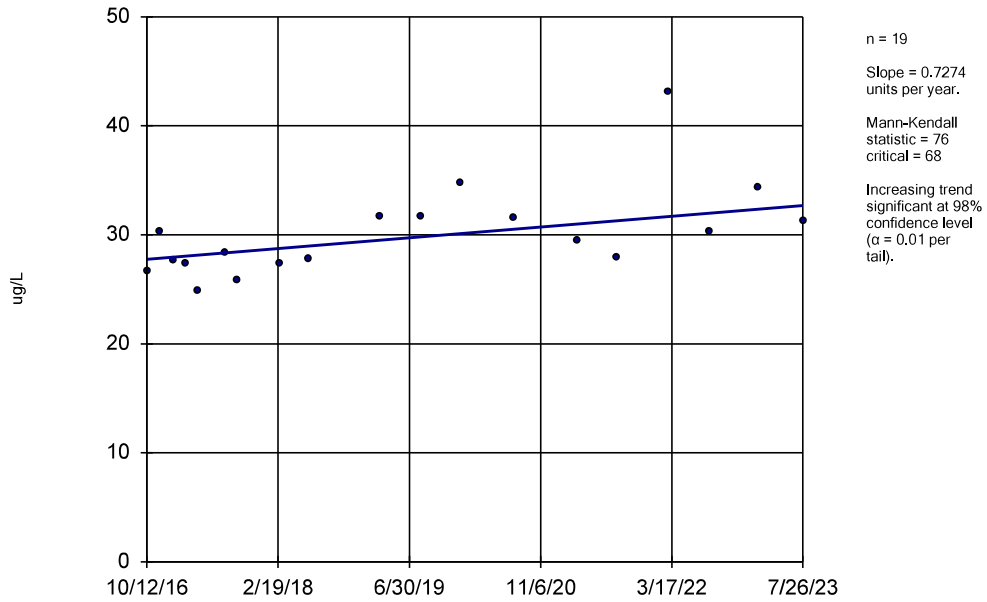
MW-1



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

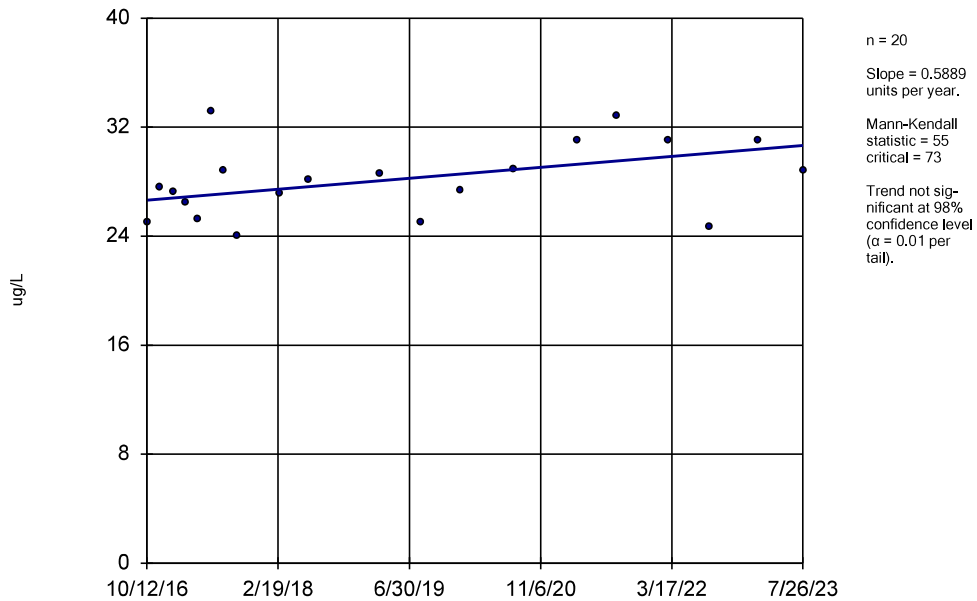
MW-2



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

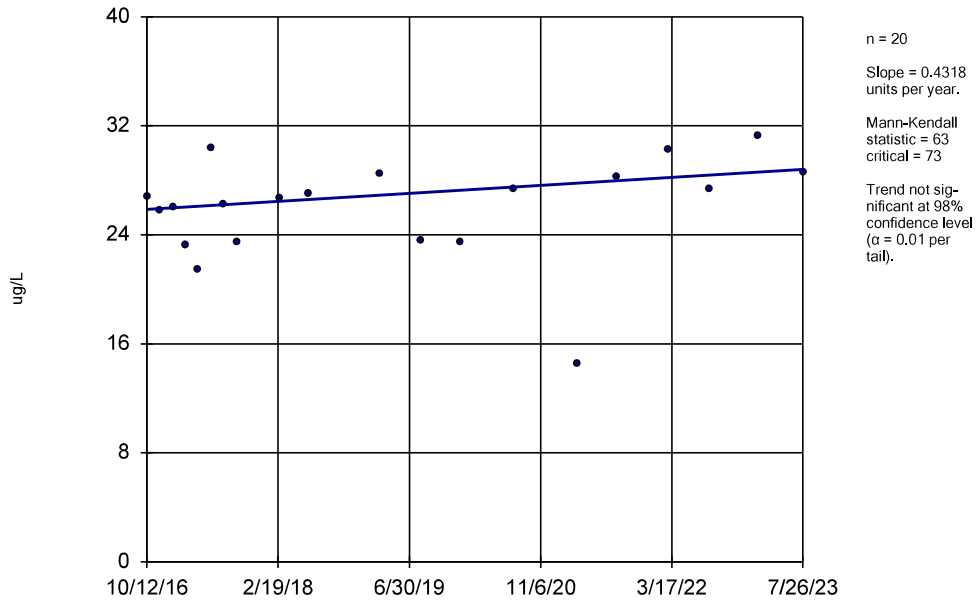
MW-3



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

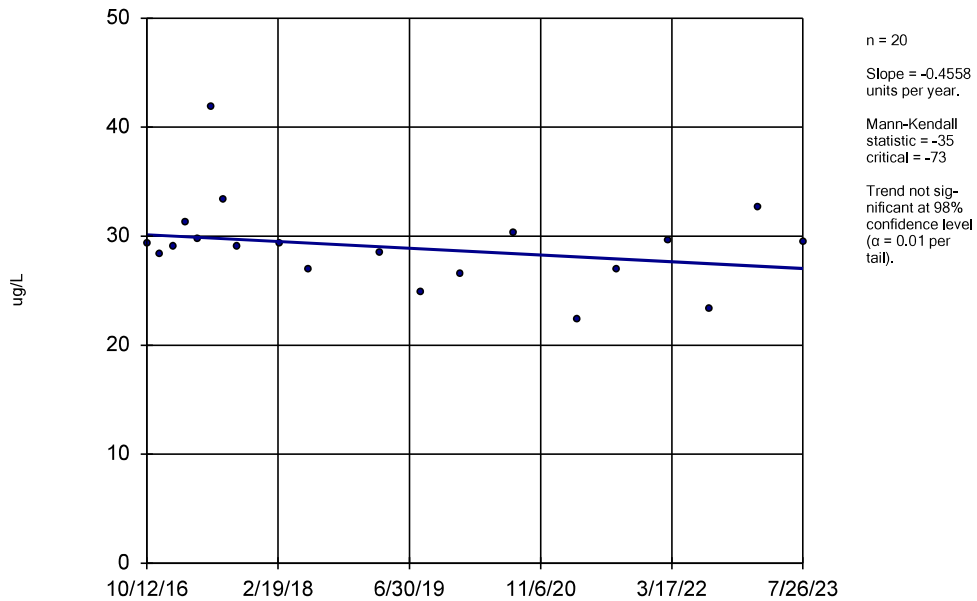
MW-4R (bg)



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

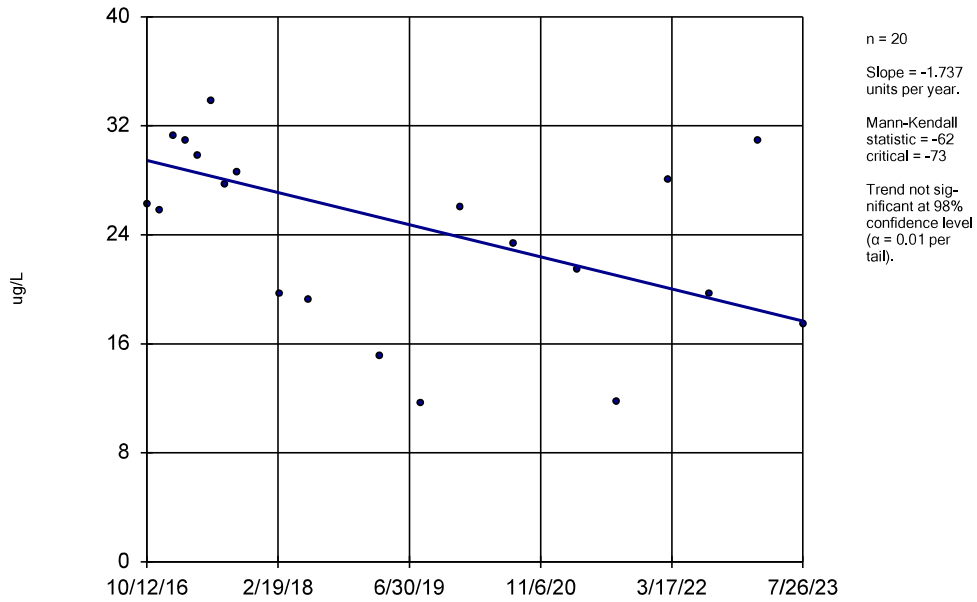
MW-5



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

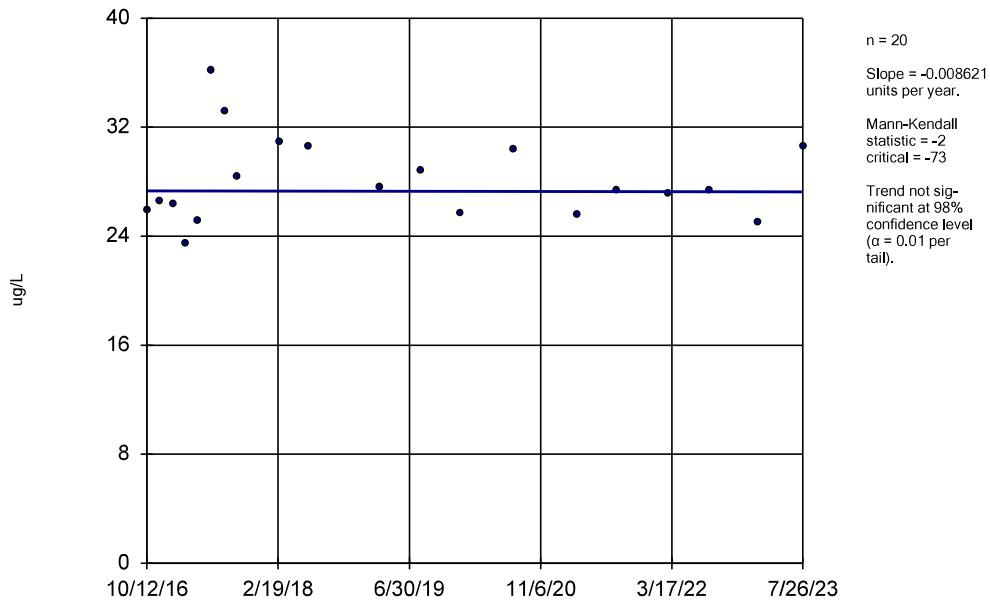
MW-6



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

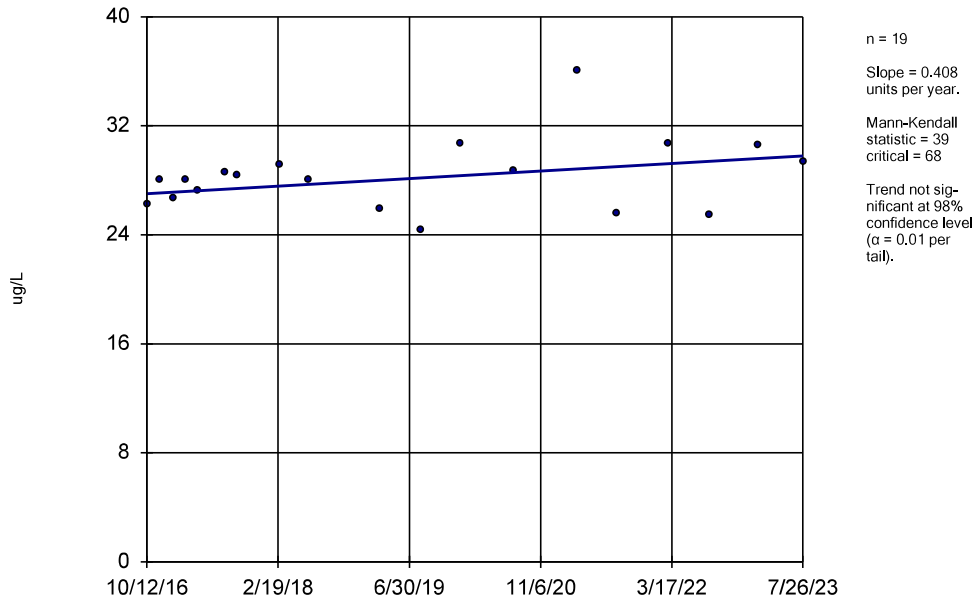
MW-7



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

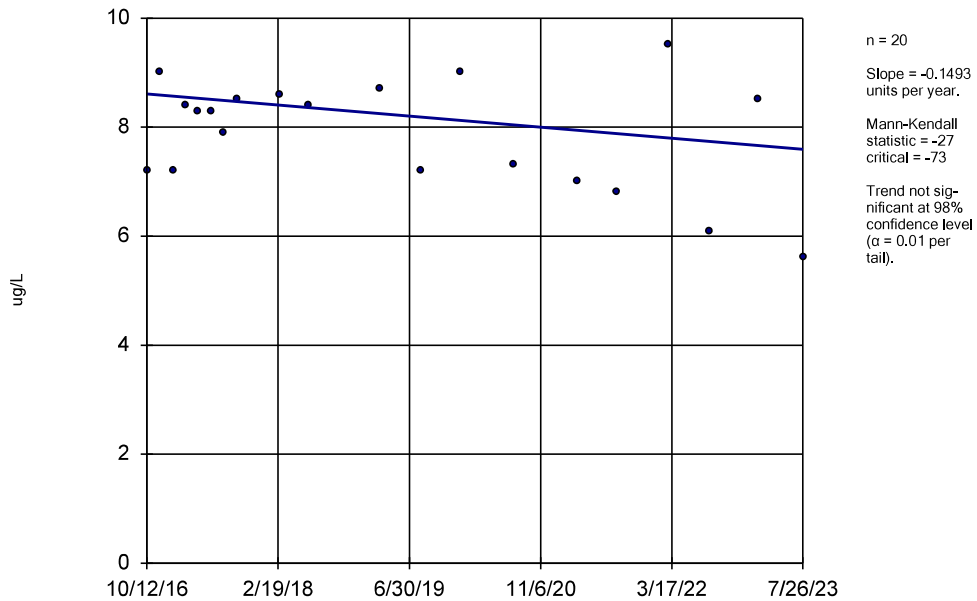
MW-8



Constituent: Lithium Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

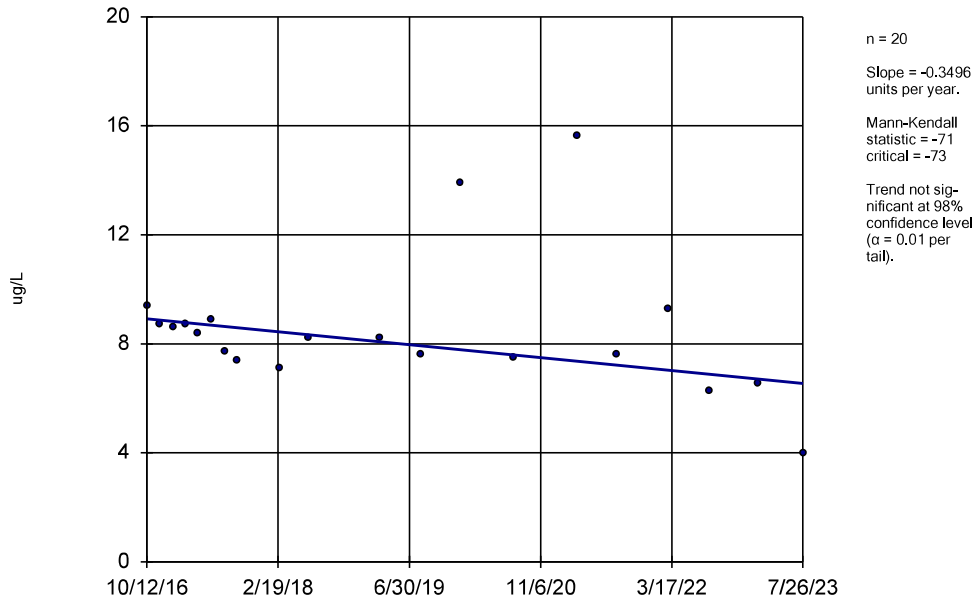
MW-1



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

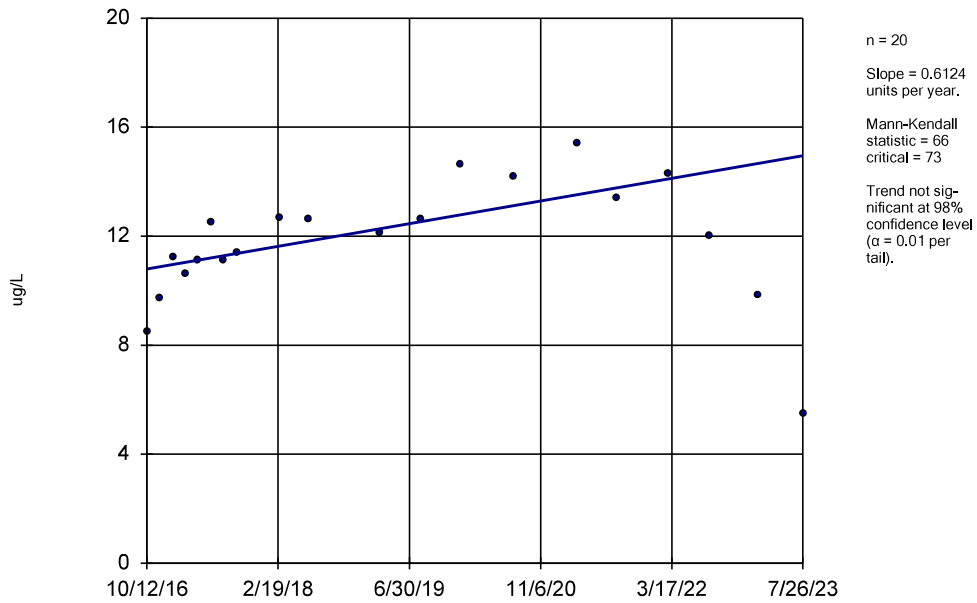
MW-2



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

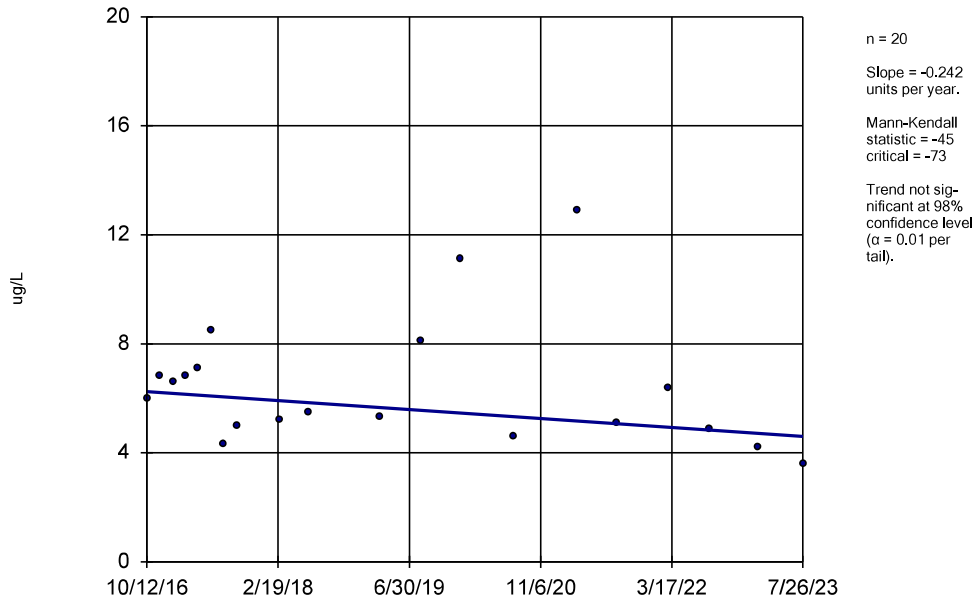
MW-3



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

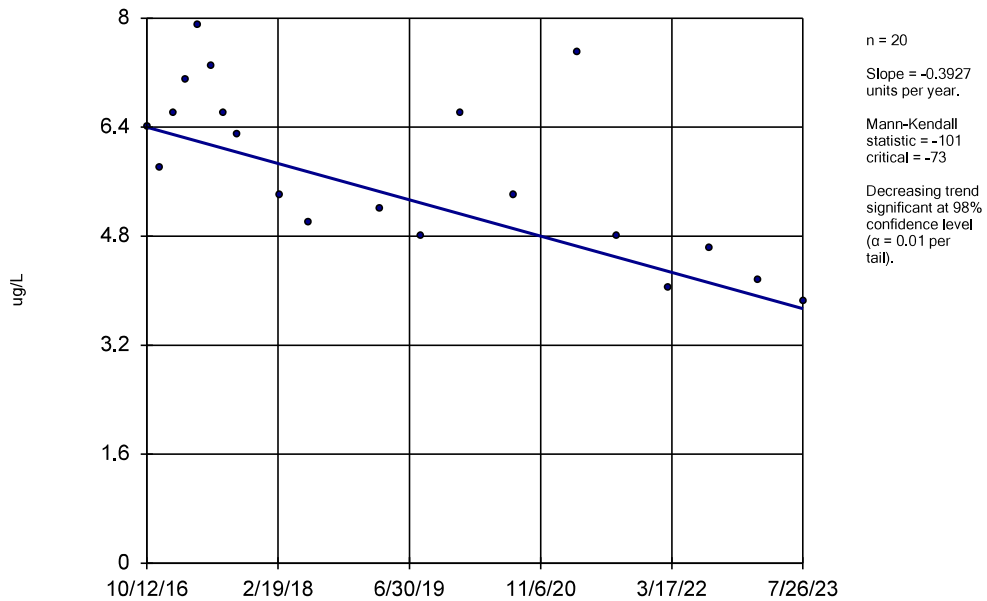
MW-4R (bg)



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

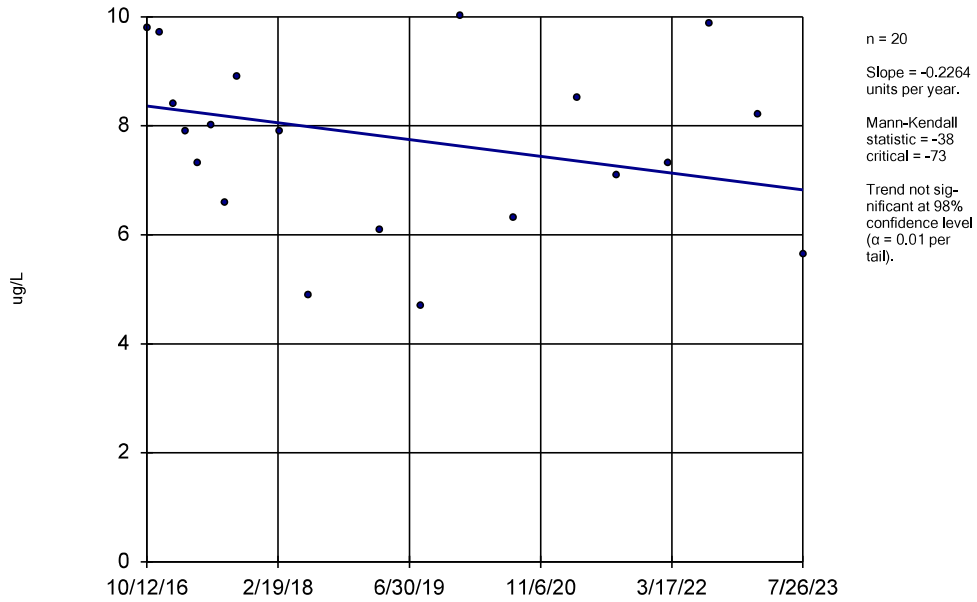
MW-5



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

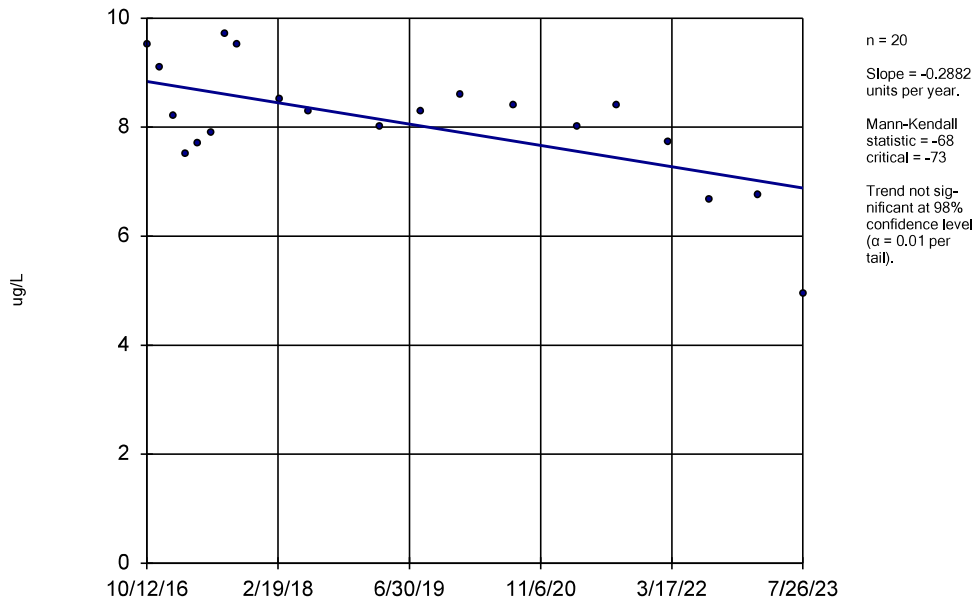
MW-6



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

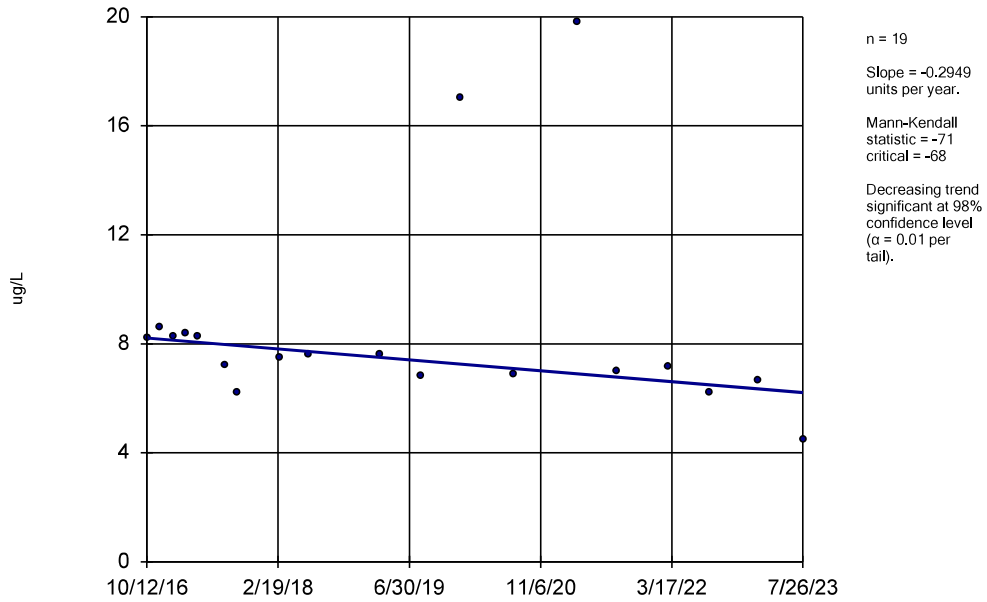
MW-7



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

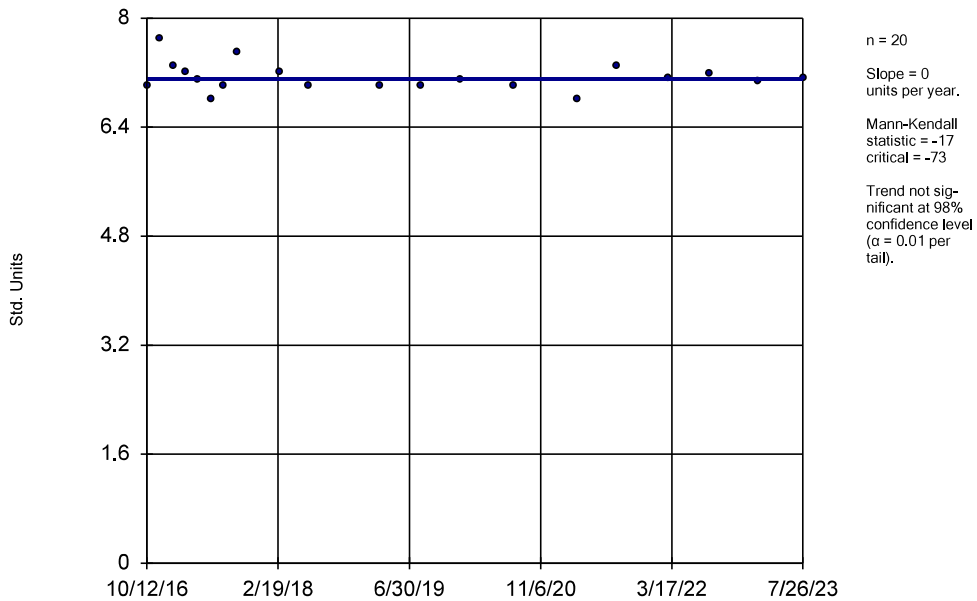
MW-8



Constituent: Molybdenum Analysis Run 8/18/2023 1:23 PM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

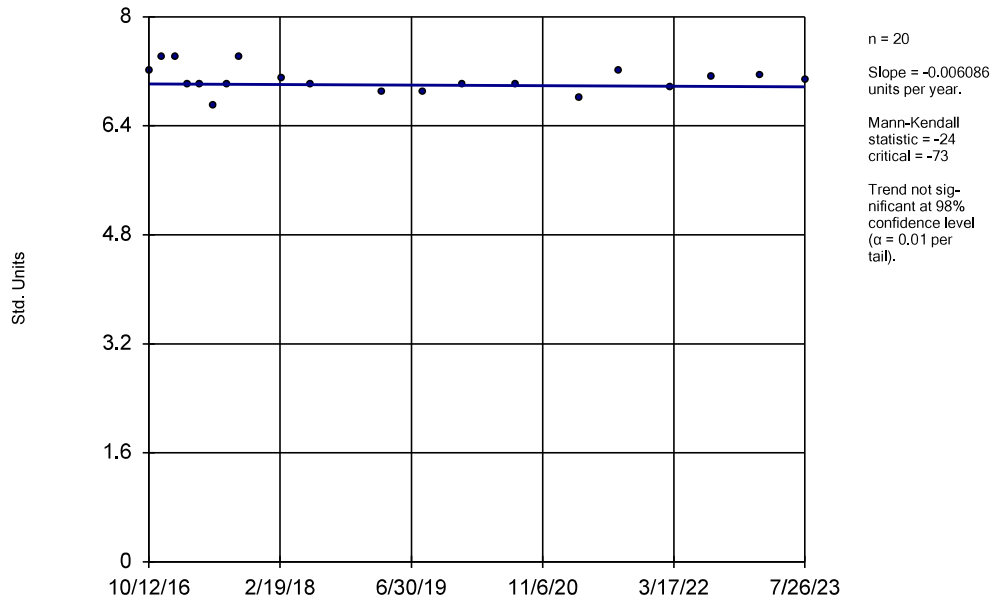
MW-1



Constituent: pH Analysis Run 8/18/2023 1:23 PM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

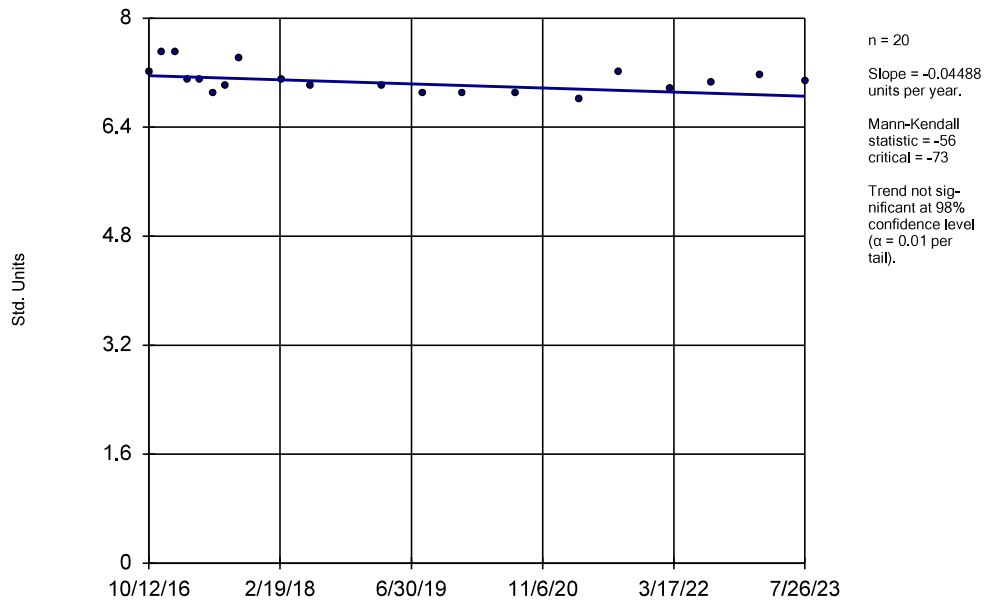
MW-2



Constituent: pH Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

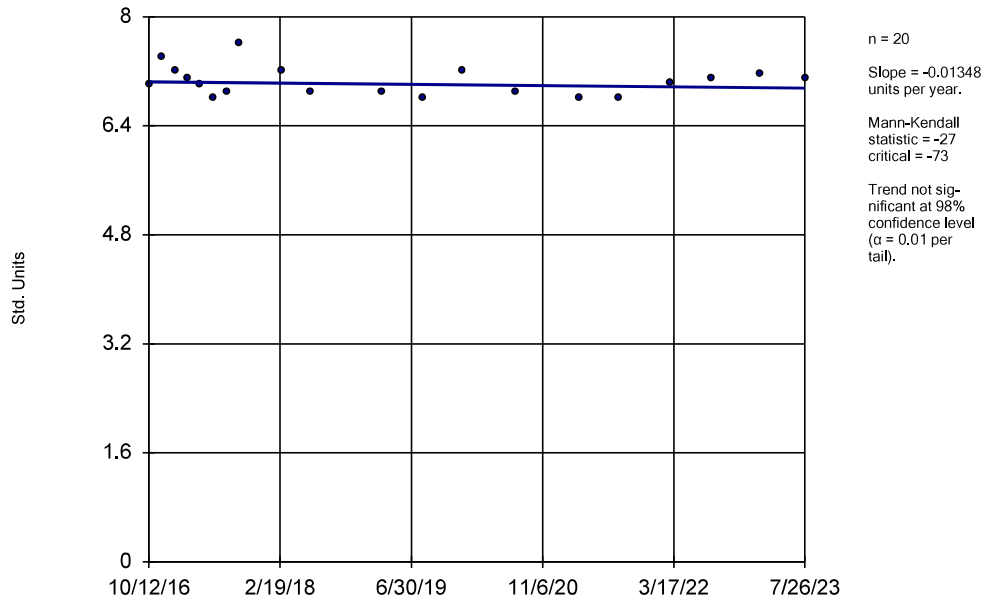
MW-3



Constituent: pH Analysis Run 8/18/2023 1:23 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

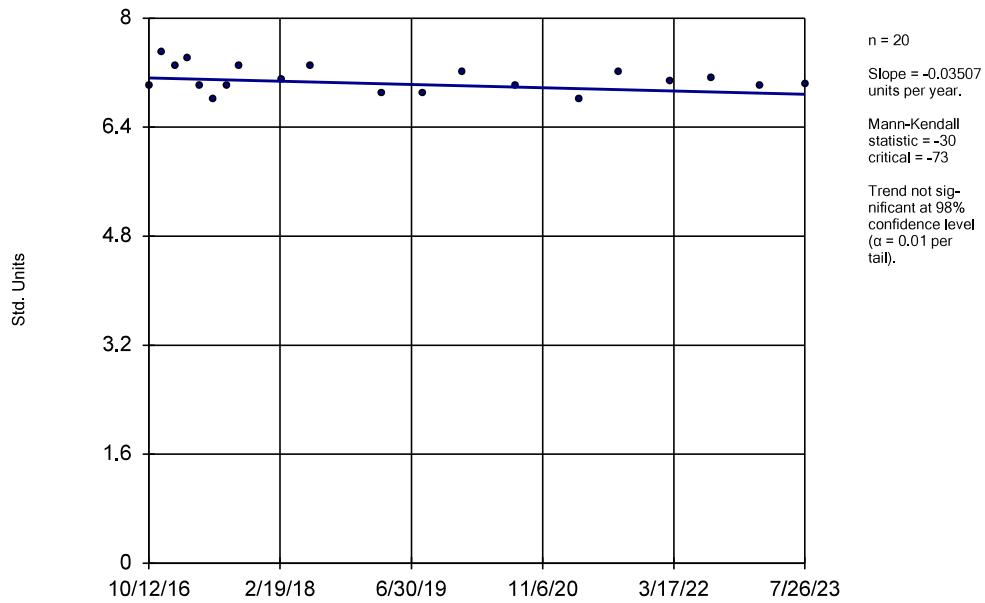
MW-6



Constituent: pH Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

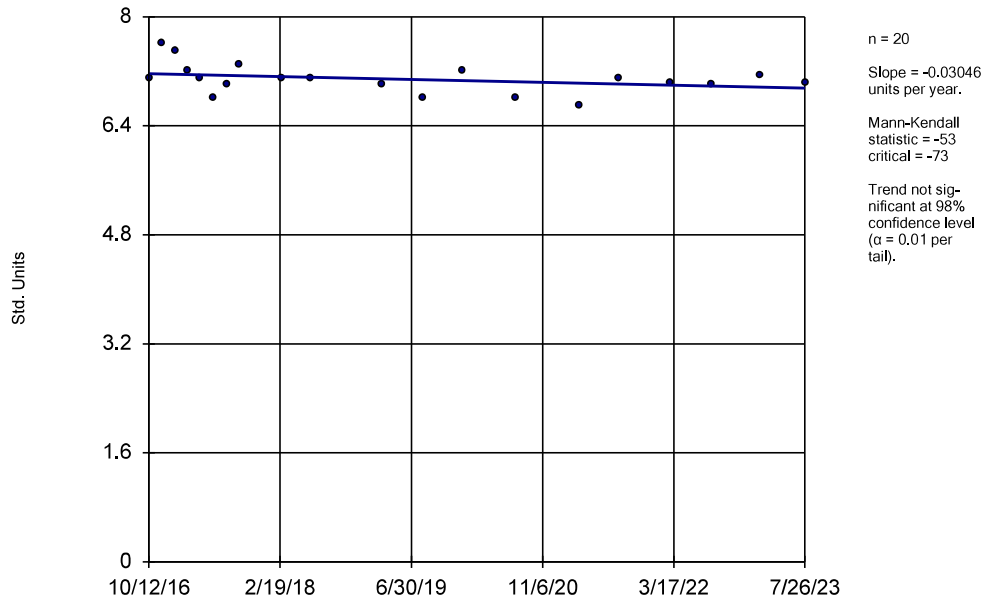
MW-7



Constituent: pH Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

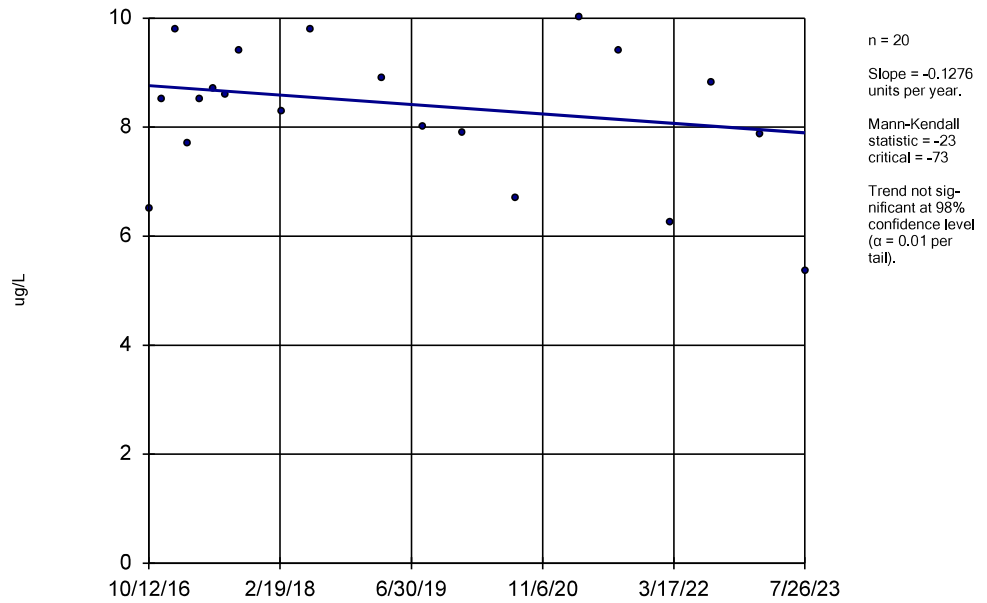
MW-8



Constituent: pH Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

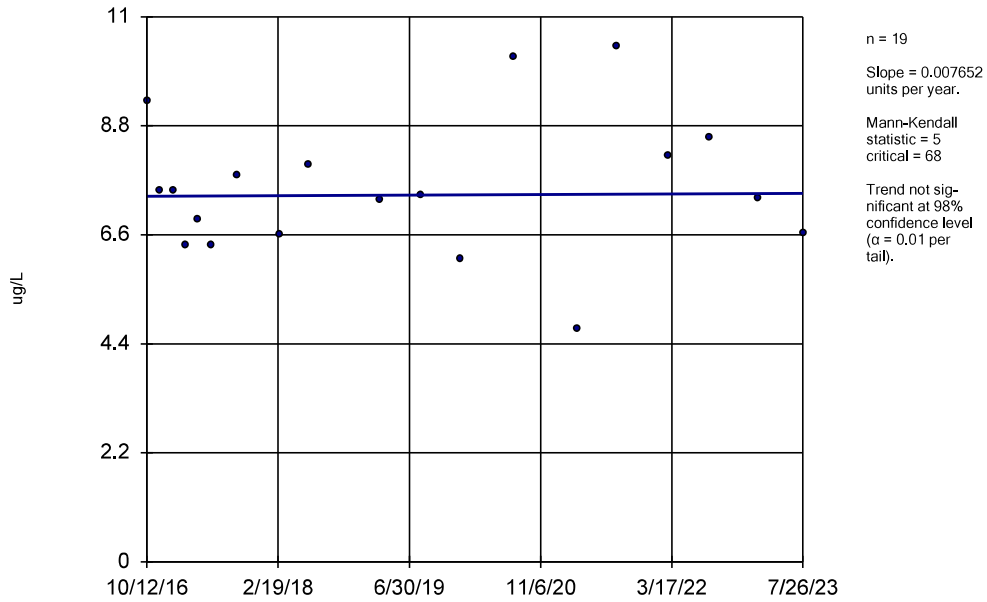
MW-3



Constituent: Selenium [total] Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

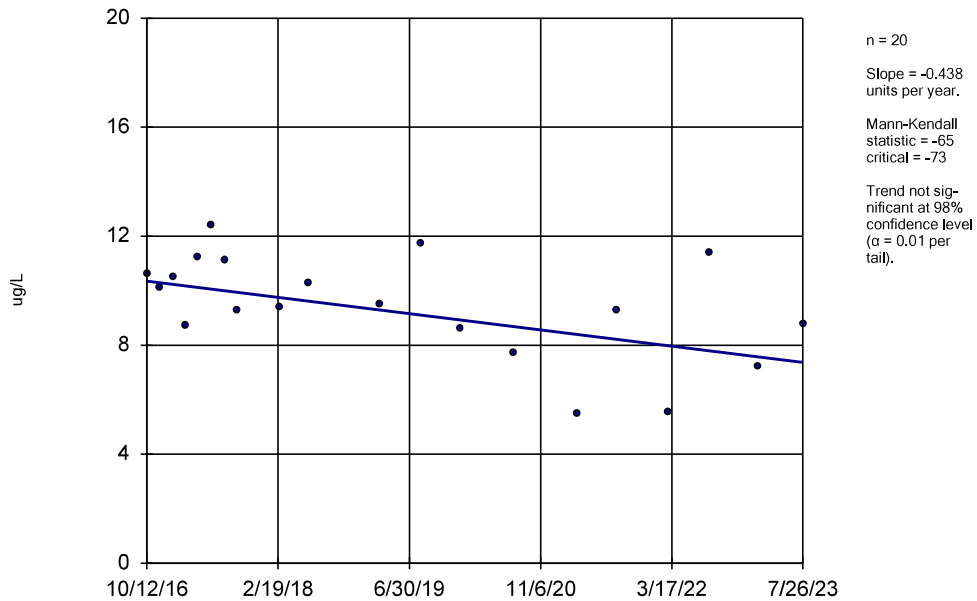
MW-4R (bg)



Constituent: Selenium [total] Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

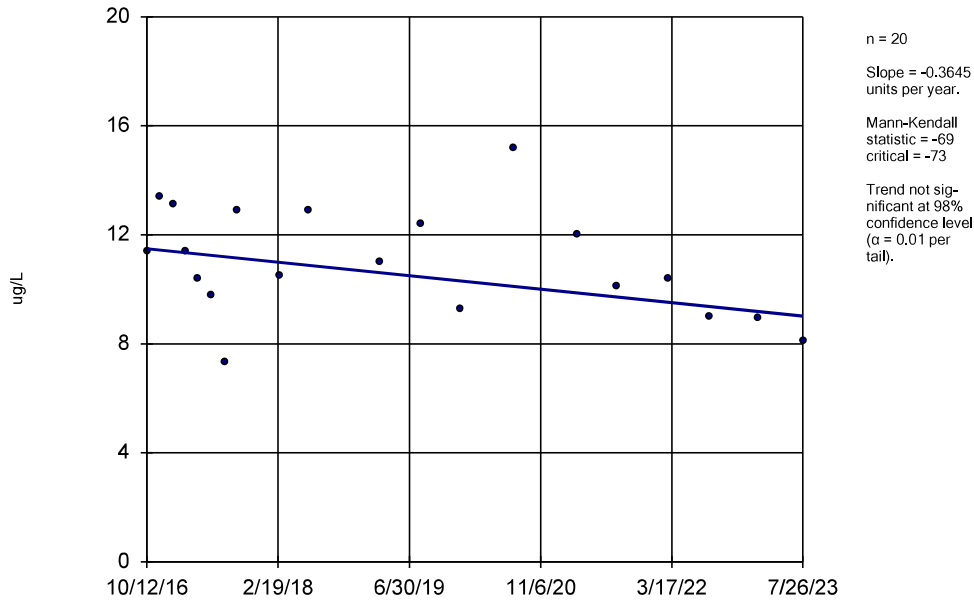
MW-7



Constituent: Selenium [total] Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

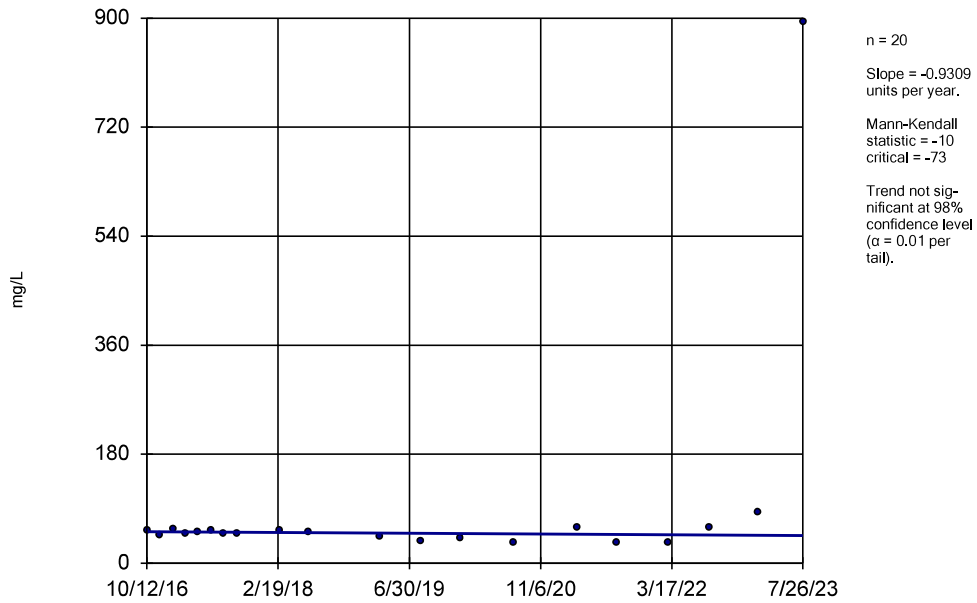
MW-8



Constituent: Selenium [total] Analysis Run 8/18/2023 1:24 PM View: FDU Combined
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

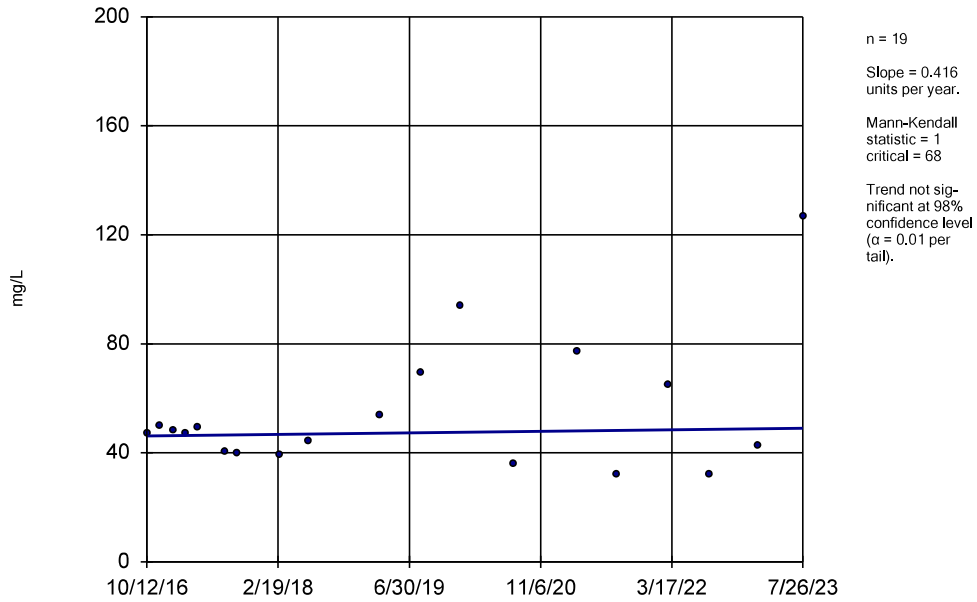
Sen's Slope Estimator

MW-1



Sen's Slope Estimator

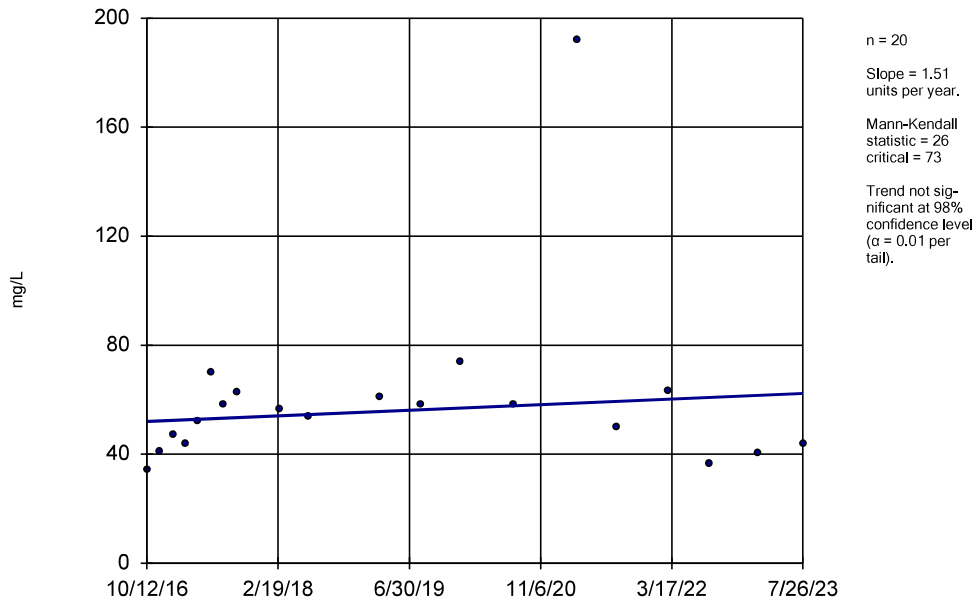
MW-2



Constituent: Sulfate Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-3

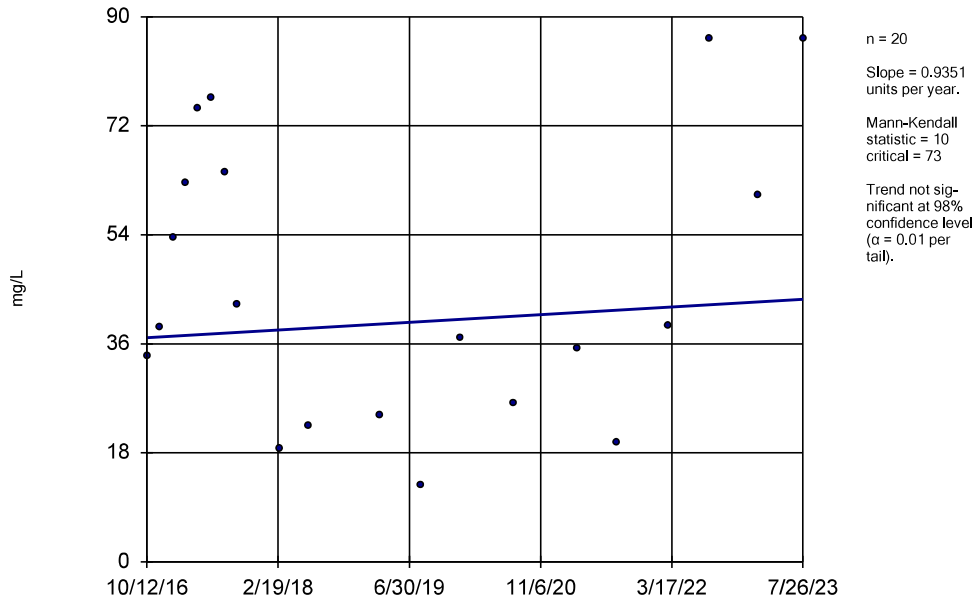


Constituent: Sulfate Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Constituent: Sulfate Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

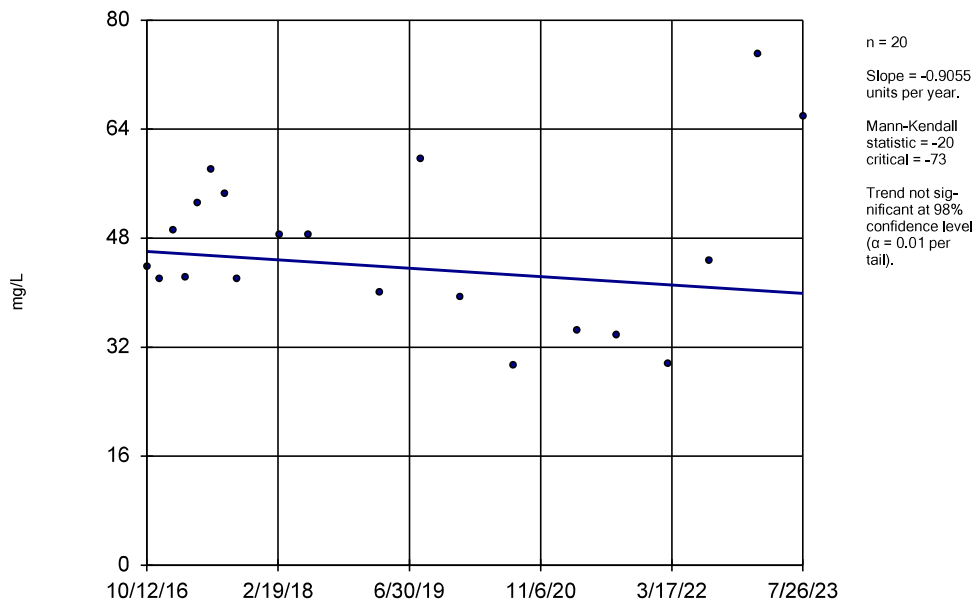
MW-6



Constituent: Sulfate Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

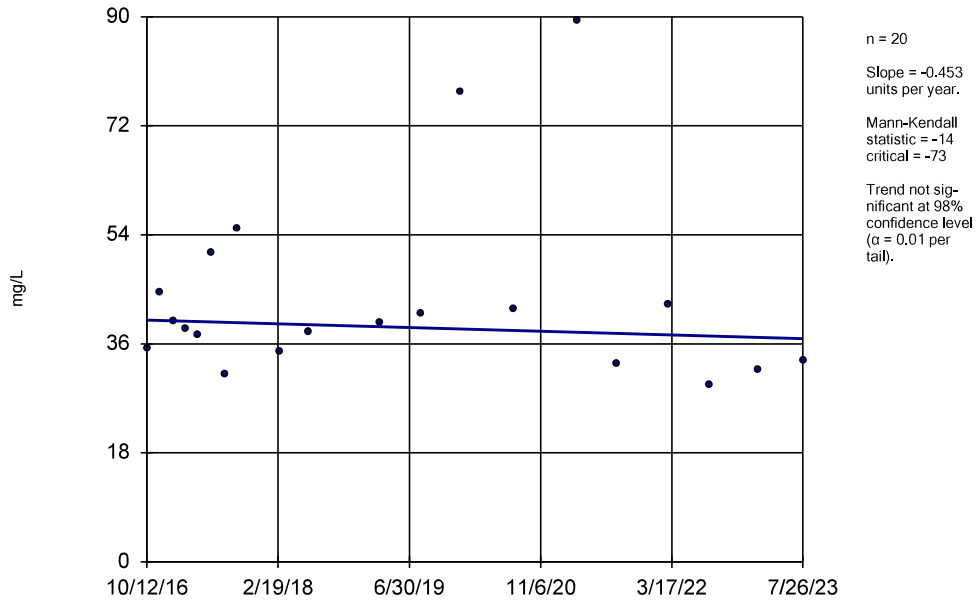
MW-7



Constituent: Sulfate Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

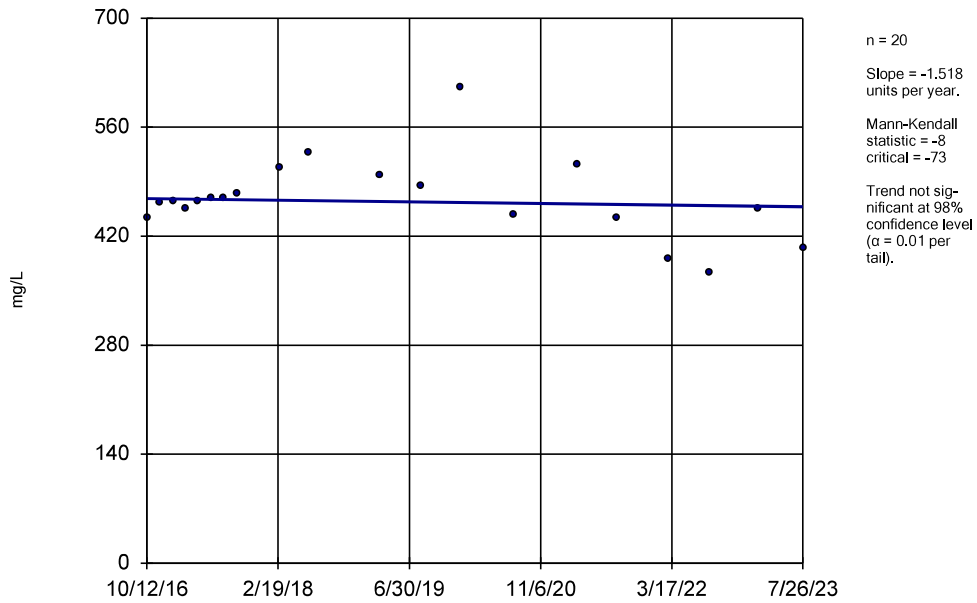
MW-8



Constituent: Sulfate Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

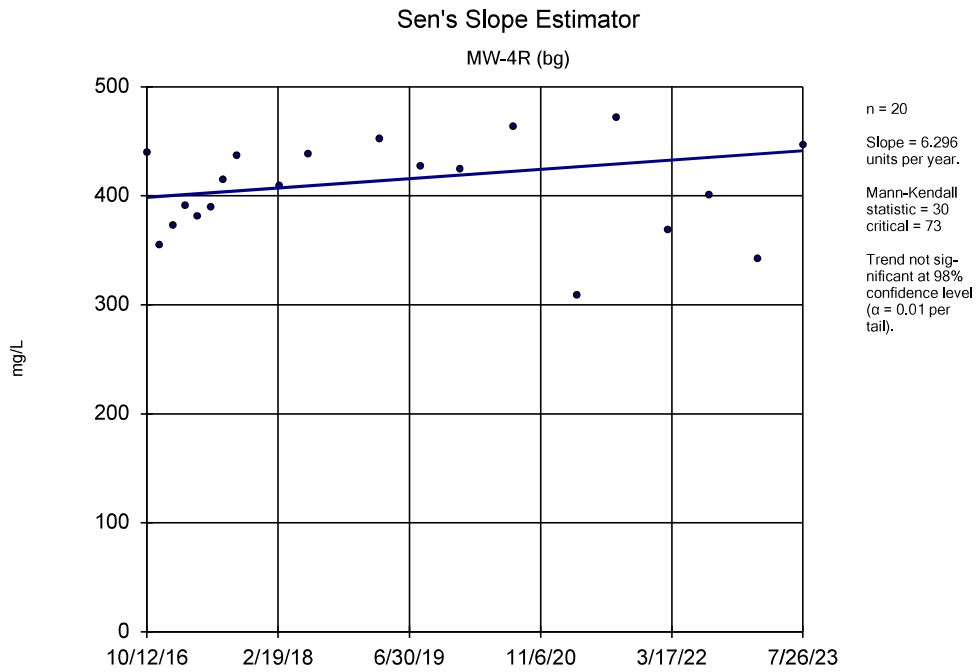
Sen's Slope Estimator

MW-1

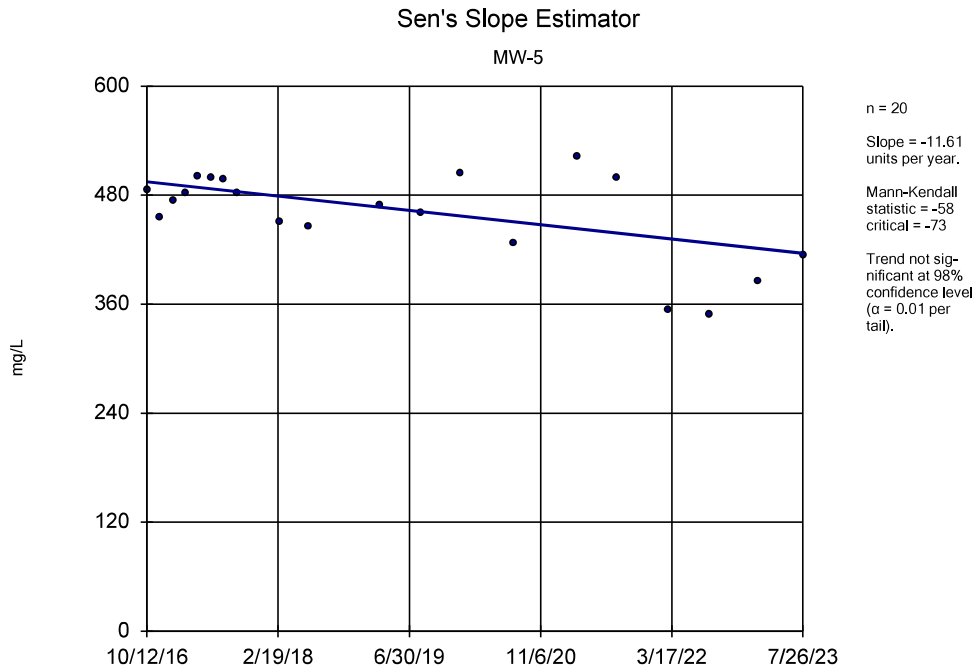


Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



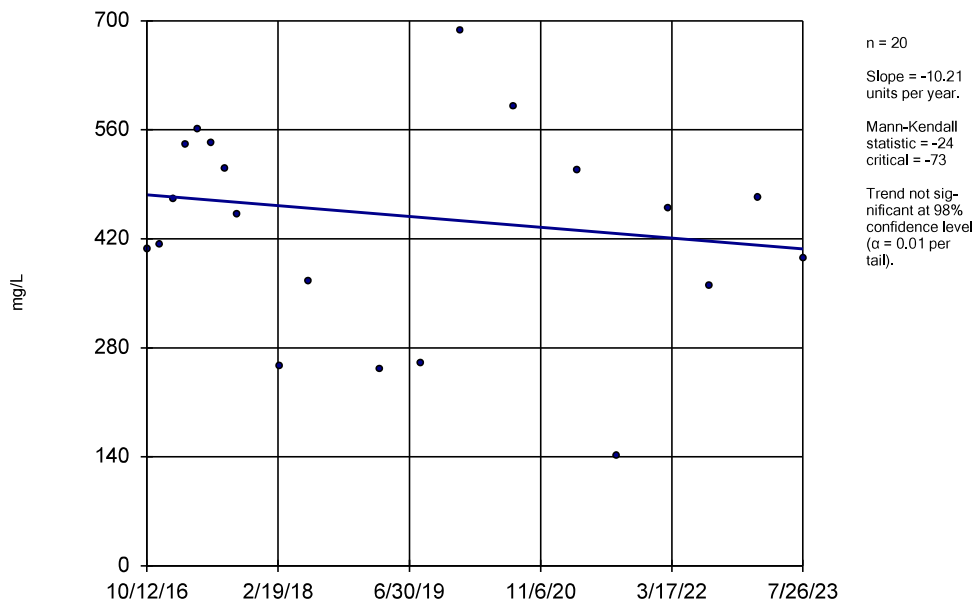
Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Sen's Slope Estimator

MW-6

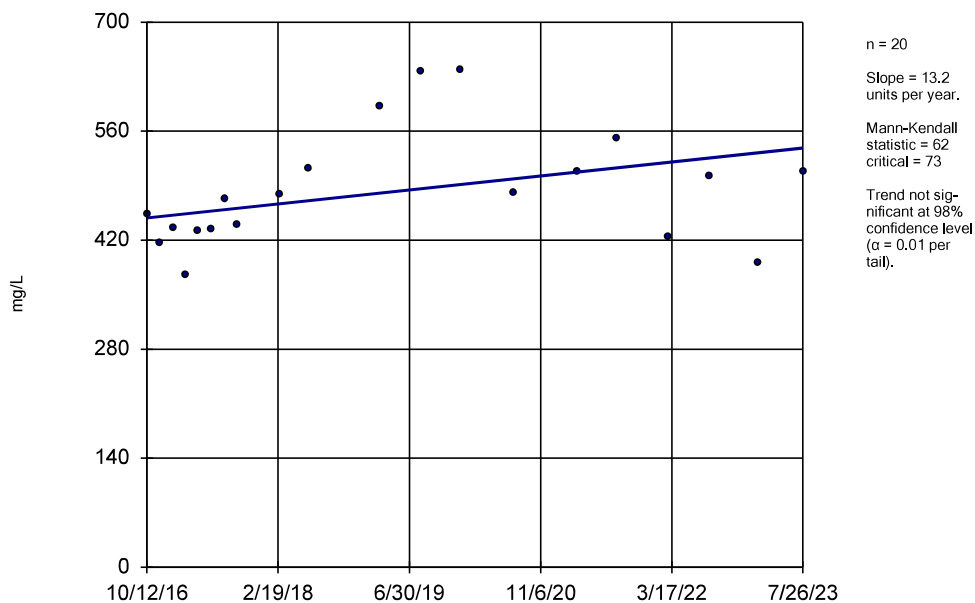


Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:24 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

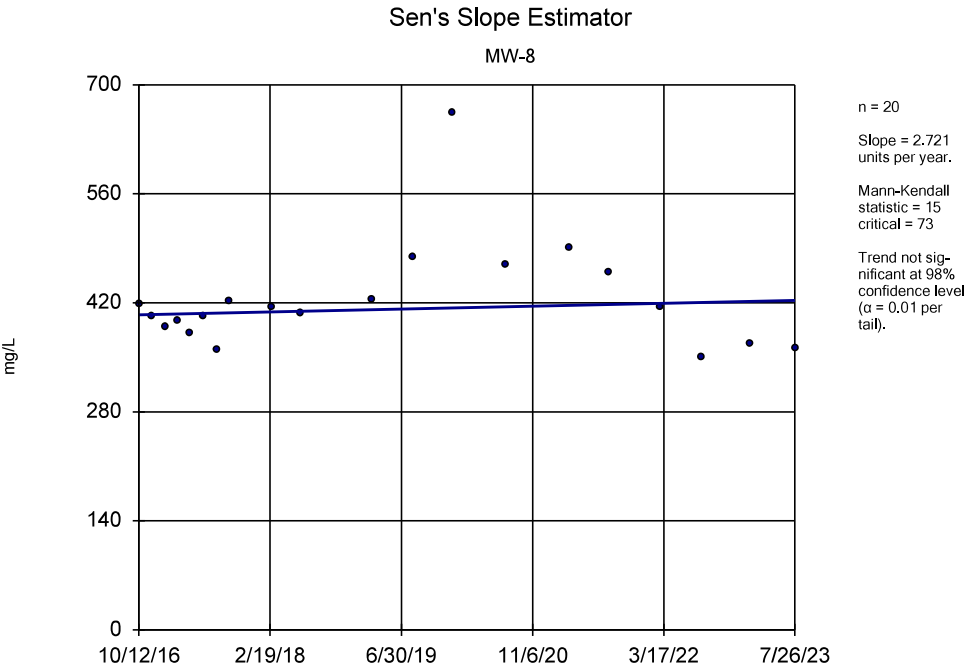
Sen's Slope Estimator

MW-7



Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:24 PM View: FDU Combined

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater



Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:24 PM View: FDU Combined
Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

A.5 Confidence Interval Analysis

Confidence Interval

Fremont Dept. of Utilities

Client: SCS Engineers

Data: Fremont Department of Utilities Groundwater

Printed 8/18/2023, 1:50 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic [total] (ug/L)	MW-1	4.2	3.2	10	No	18	0	No	0.01	NP (normality)
Arsenic [total] (ug/L)	MW-2	4.118	3.705	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-3	3.32	2.966	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-4R (bg)	4.558	3.71	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-5	4.625	4.315	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-6	3.55	2.8	10	No	18	0	No	0.01	NP (normality)
Arsenic [total] (ug/L)	MW-7	3.761	3.426	10	No	18	0	No	0.01	Param.
Arsenic [total] (ug/L)	MW-8	2.68	2.473	10	No	18	0	No	0.01	Param.
Barium [total] (ug/L)	MW-1	138.6	126.7	2000	No	45	0	No	0.01	Param.
Barium [total] (ug/L)	MW-2	102.1	91.93	2000	No	45	0	No	0.01	Param.
Barium [total] (ug/L)	MW-3	158.6	137.2	2000	No	45	0	No	0.01	Param.
Barium [total] (ug/L)	MW-4R (bg)	131.9	117.9	2000	No	20	0	No	0.01	Param.
Barium [total] (ug/L)	MW-5	138.7	129	2000	No	44	0	No	0.01	Param.
Barium [total] (ug/L)	MW-6	143.5	112.7	2000	No	30	0	No	0.01	Param.
Barium [total] (ug/L)	MW-7	129.3	114.2	2000	No	20	0	No	0.01	Param.
Barium [total] (ug/L)	MW-8	159.8	143.4	2000	No	20	0	No	0.01	Param.
Boron (ug/L)	MW-1	144.4	121.4	163.6	No	20	5	x^2	0.01	Param.
Boron (ug/L)	MW-2	138	115	163.6	No	19	5.263	No	0.01	NP (normality)
Boron (ug/L)	MW-4R (bg)	219	97.84	163.6	No	20	30	No	0.01	Param.
Boron (ug/L)	MW-5	137	120	163.6	No	20	0	No	0.01	NP (normality)
Boron (ug/L)	MW-6	135	50	163.6	No	20	50	No	0.01	NP (normality)
Boron (ug/L)	MW-7	170.2	125.5	163.6	No	20	15	x^2	0.01	Param.
Boron (ug/L)	MW-8	142	105	163.6	No	18	5.556	No	0.01	NP (normality)
Calcium (mg/L)	MW-1	106	98.97	86.99	Yes	45	0	No	0.01	Param.
Calcium (mg/L)	MW-2	114.1	100.2	86.99	Yes	45	0	ln(x)	0.01	Param.
Calcium (mg/L)	MW-3	105.3	94.98	86.99	Yes	45	0	No	0.01	Param.
Calcium (mg/L)	MW-4R (bg)	93.03	80.95	86.99	No	20	0	No	0.01	Param.
Calcium (mg/L)	MW-5	104.3	97.64	86.99	Yes	44	0	No	0.01	Param.
Calcium (mg/L)	MW-6	94.32	77.87	86.99	No	31	0	x^2	0.01	Param.
Calcium (mg/L)	MW-7	101.7	90.12	86.99	Yes	20	0	No	0.01	Param.
Calcium (mg/L)	MW-8	97.96	88.41	86.99	Yes	20	0	No	0.01	Param.
Chloride (mg/L)	MW-1	26.7	13.29	250	No	20	0	ln(x)	0.01	Param.
Chloride (mg/L)	MW-2	21.14	14.95	250	No	19	0	x^(1/3)	0.01	Param.
Chloride (mg/L)	MW-3	43.18	30.32	250	No	20	0	sqrt(x)	0.01	Param.
Chloride (mg/L)	MW-4R (bg)	34.41	19.55	250	No	19	0	No	0.01	Param.
Chloride (mg/L)	MW-5	32.44	18.94	250	No	20	0	No	0.01	Param.
Chloride (mg/L)	MW-6	68.76	38.82	250	No	19	0	x^(1/3)	0.01	Param.
Chloride (mg/L)	MW-7	92.8	20.3	250	No	20	0	No	0.01	NP (normality)
Chloride (mg/L)	MW-8	32.57	24.34	250	No	20	0	No	0.01	Param.
Fluoride (mg/L)	MW-1	1.4	1.22	4	No	20	0	No	0.01	NP (normality)
Fluoride (mg/L)	MW-2	1.168	0.9267	4	No	20	0	ln(x)	0.01	Param.
Lithium (ug/L)	MW-1	35.02	31.2	40	No	20	0	No	0.01	Param.
Lithium (ug/L)	MW-2	32.19	27.73	40	No	19	0	ln(x)	0.01	Param.
Lithium (ug/L)	MW-3	29.62	26.57	40	No	20	0	No	0.01	Param.
Lithium (ug/L)	MW-4R (bg)	28.14	23.87	40	No	20	0	No	0.01	Param.
Lithium (ug/L)	MW-5	31.45	26.81	40	No	20	0	No	0.01	Param.
Lithium (ug/L)	MW-6	27.66	20.14	40	No	20	0	No	0.01	Param.
Lithium (ug/L)	MW-7	29.86	26.35	40	No	20	0	No	0.01	Param.
Lithium (ug/L)	MW-8	29.84	26.77	40	No	19	0	No	0.01	Param.
Molybdenum (ug/L)	MW-1	8.459	7.29	100	No	20	0	No	0.01	Param.

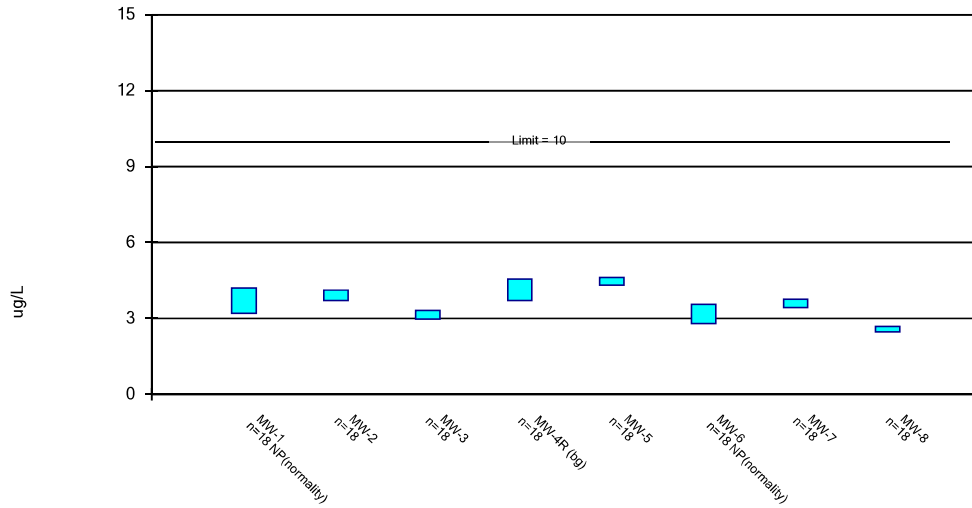
Confidence Interval

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater Printed 8/18/2023, 1:50 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (ug/L)	MW-2	9.65	7.037	100	No	20	0	x^(1/3)	0.01	Param.
Molybdenum (ug/L)	MW-3	13.07	10.47	100	No	20	0	No	0.01	Param.
Molybdenum (ug/L)	MW-4R (bg)	7.489	5.085	100	No	20	0	sqrt(x)	0.01	Param.
Molybdenum (ug/L)	MW-5	6.458	5.079	100	No	20	0	No	0.01	Param.
Molybdenum (ug/L)	MW-6	8.567	6.744	100	No	20	0	No	0.01	Param.
Molybdenum (ug/L)	MW-7	8.706	7.463	100	No	20	0	No	0.01	Param.
Molybdenum (ug/L)	MW-8	8.4	6.65	100	No	19	0	No	0.01	NP (normality)
pH (Std. Units)	MW-1	7.143	6.909	8.5	No	30	0	No	0.005	Param.
pH (Std. Units)	MW-2	7.08	6.8	8.5	No	30	3.333	No	0.01	NP (normality)
pH (Std. Units)	MW-3	7.1	6.9	8.5	No	30	3.333	No	0.01	NP (normality)
pH (Std. Units)	MW-4R (bg)	7.319	6.96	8.5	No	20	0	No	0.005	Param.
pH (Std. Units)	MW-5	7.251	7.036	8.5	No	29	0	No	0.005	Param.
pH (Std. Units)	MW-6	7.107	6.899	8.5	No	28	0	No	0.005	Param.
pH (Std. Units)	MW-7	7.219	6.973	8.5	No	20	0	No	0.005	Param.
pH (Std. Units)	MW-8	7.222	6.939	8.5	No	20	0	No	0.005	Param.
Selenium [total] (ug/L)	MW-3	10.69	8.625	50	No	45	0	sqrt(x)	0.01	Param.
Selenium [total] (ug/L)	MW-4R (bg)	8.355	6.721	50	No	19	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-7	10.51	8.373	50	No	20	0	No	0.01	Param.
Selenium [total] (ug/L)	MW-8	12.1	9.853	50	No	20	0	No	0.01	Param.
Sulfate (mg/L)	MW-1	64	50.8	250	No	45	0	No	0.01	NP (normality)
Sulfate (mg/L)	MW-2	82	49.1	250	No	44	0	No	0.01	NP (normality)
Sulfate (mg/L)	MW-3	74.48	56.1	250	No	45	0	ln(x)	0.01	Param.
Sulfate (mg/L)	MW-4R (bg)	42.52	35.76	250	No	20	0	No	0.01	Param.
Sulfate (mg/L)	MW-5	51.29	43.48	250	No	44	0	No	0.01	Param.
Sulfate (mg/L)	MW-6	59.45	41.58	250	No	31	0	No	0.01	Param.
Sulfate (mg/L)	MW-7	53.37	39.9	250	No	20	0	No	0.01	Param.
Sulfate (mg/L)	MW-8	44.4	33.1	250	No	20	0	No	0.01	NP (normality)
Total Dissolved Solids (mg/L)	MW-1	482.1	440.1	500	No	45	0	ln(x)	0.01	Param.
Total Dissolved Solids (mg/L)	MW-2	486	428	500	No	45	0	No	0.01	NP (normality)
Total Dissolved Solids (mg/L)	MW-3	480.3	428.4	500	No	45	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-4R (bg)	430.9	381.9	500	No	20	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-5	467.4	430	500	No	44	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-6	481.4	385.2	500	No	31	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-7	526.3	441.8	500	No	20	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	MW-8	459	381	500	No	20	0	No	0.01	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

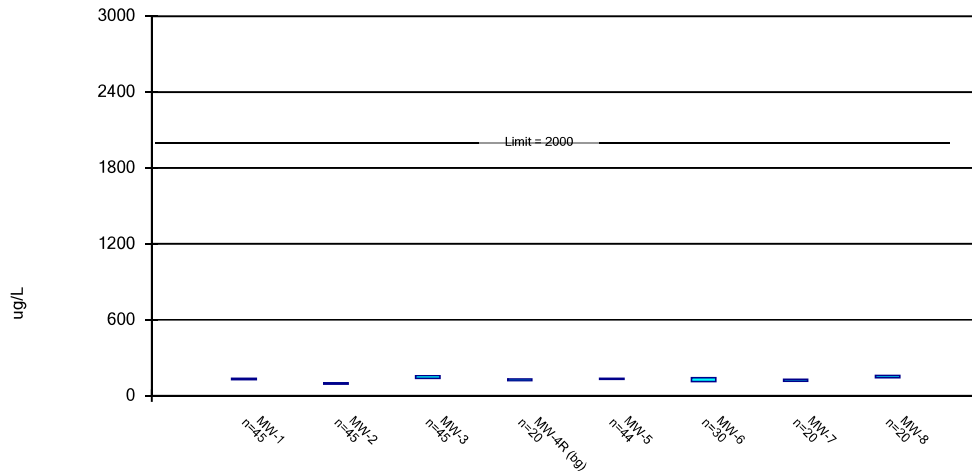


Constituent: Arsenic [total] Analysis Run 8/18/2023 1:41 PM View: 3Q2023 Detections

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

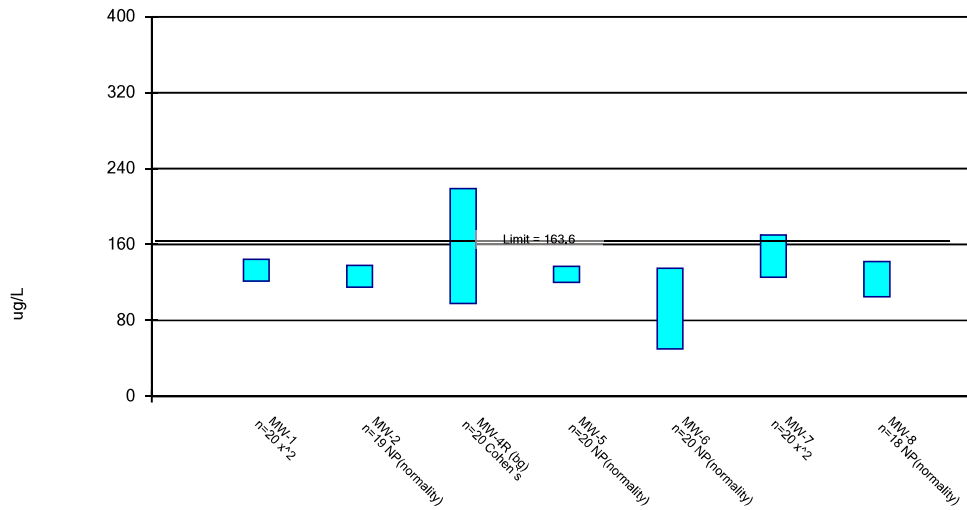


Constituent: Barium [total] Analysis Run 8/18/2023 1:41 PM View: 3Q2023 Detections

Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

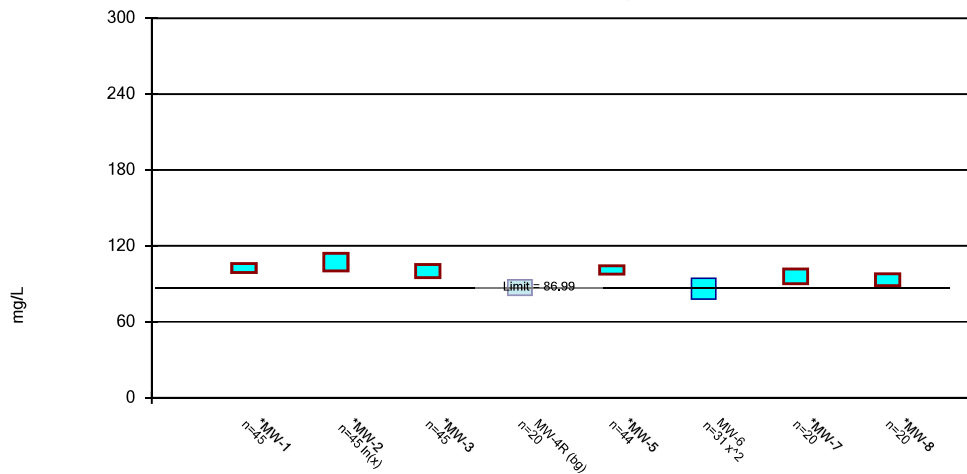
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Boron Analysis Run 8/18/2023 1:41 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

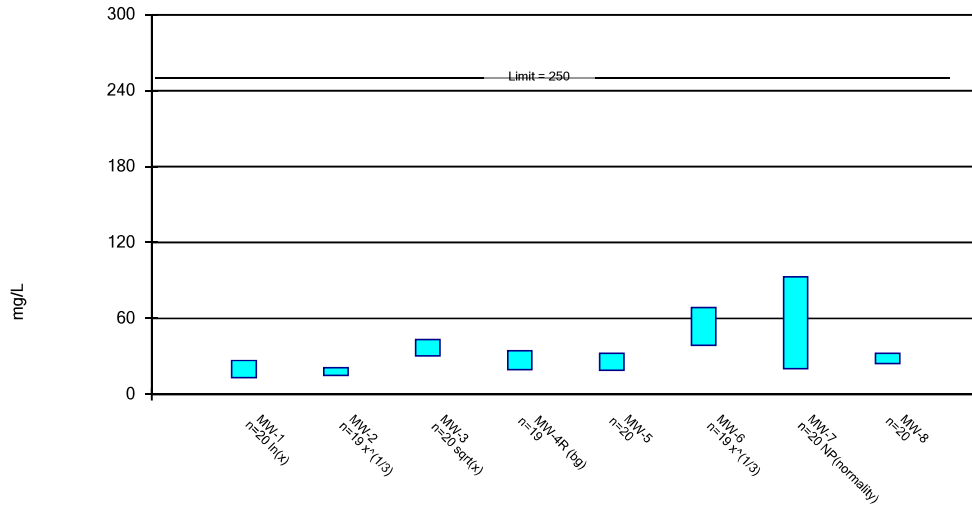
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Calcium Analysis Run 8/18/2023 1:43 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

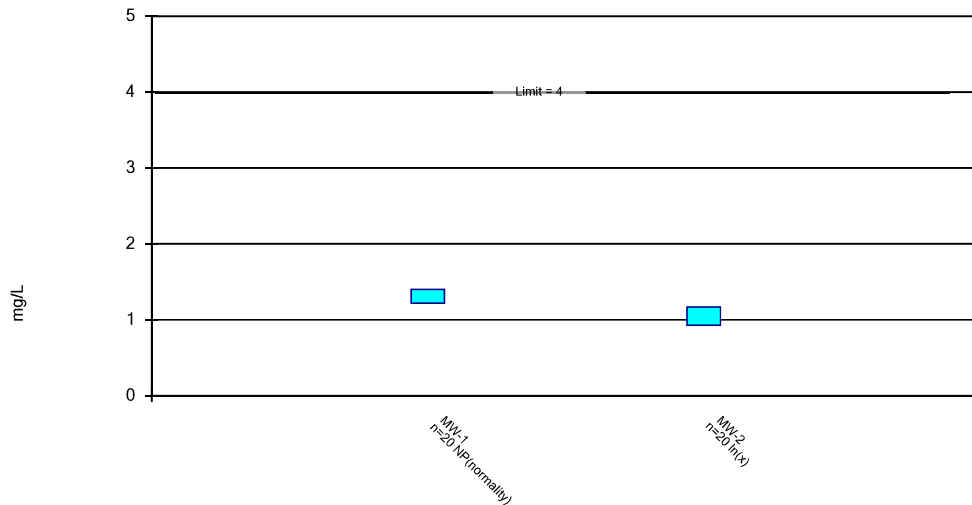
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chloride Analysis Run 8/18/2023 1:43 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

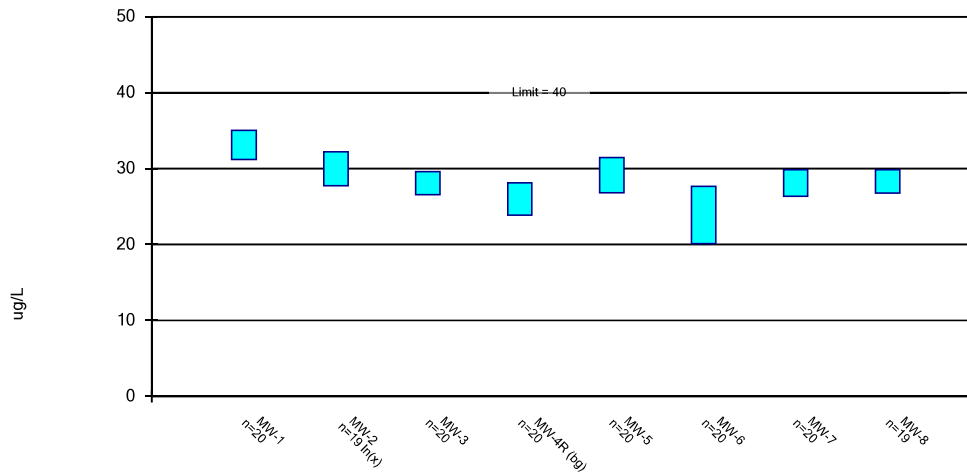
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 8/18/2023 1:44 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

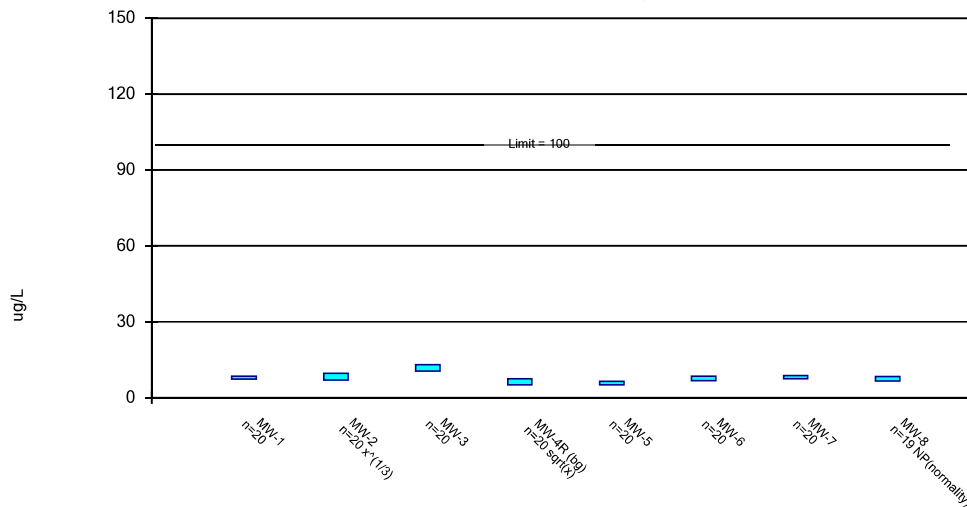
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 8/18/2023 1:44 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

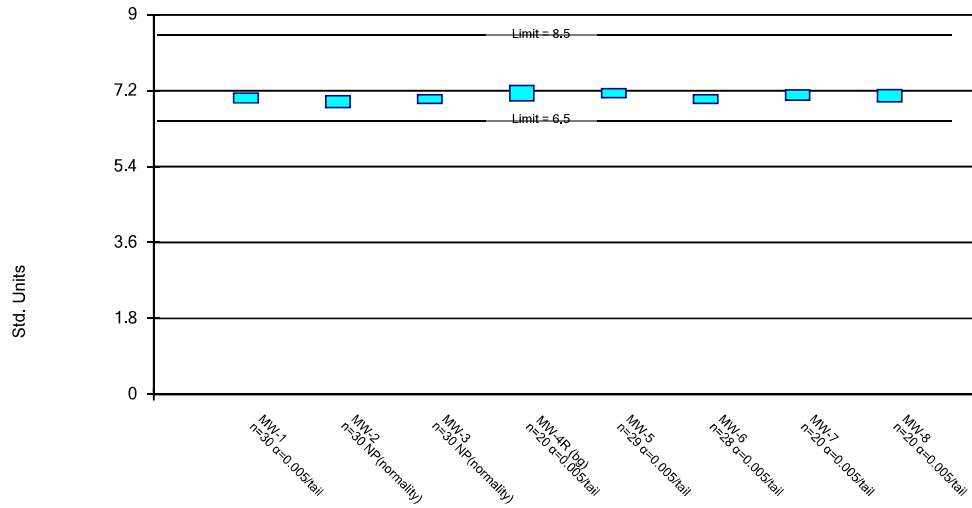
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum Analysis Run 8/18/2023 1:45 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

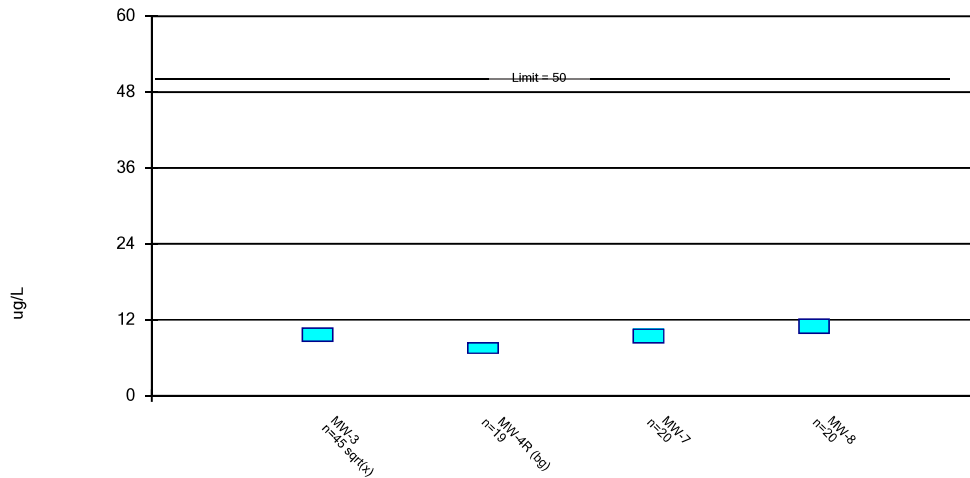
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: pH Analysis Run 8/18/2023 1:45 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric Confidence Interval

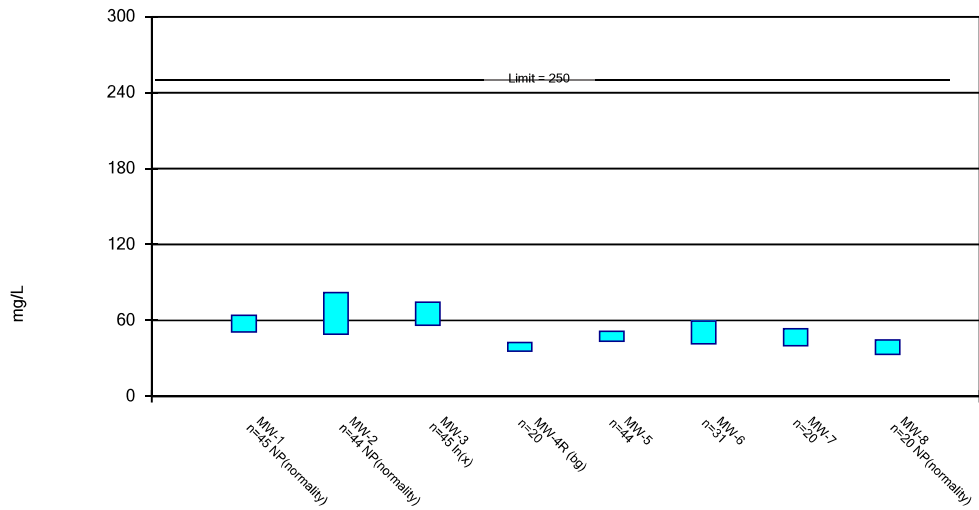
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium [total] Analysis Run 8/18/2023 1:45 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

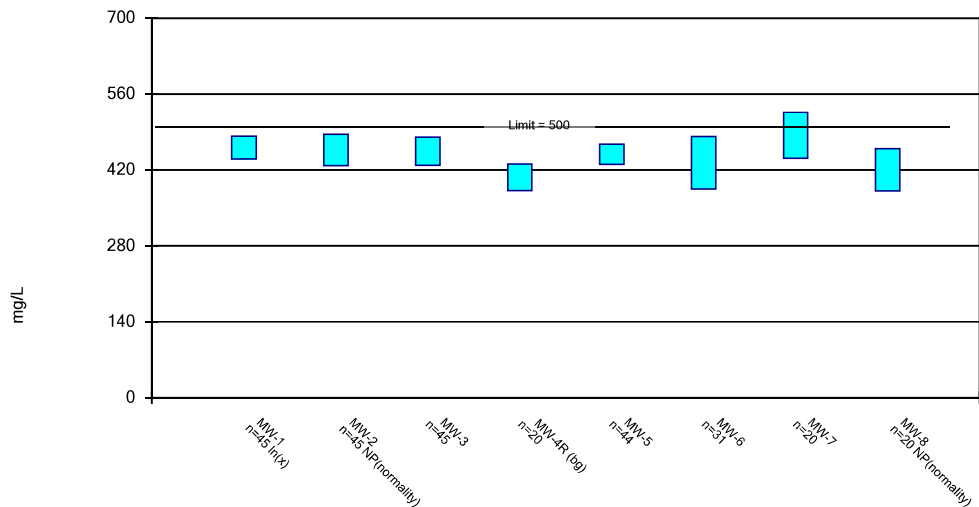
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Sulfate Analysis Run 8/18/2023 1:46 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Total Dissolved Solids Analysis Run 8/18/2023 1:46 PM View: 3Q2023 Detections
 Fremont Dept. of Utilities Client: SCS Engineers Data: Fremont Department of Utilities Groundwater

B Supporting information

B.1 Field Data Sheets

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-1
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 82 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table border="1"><tr><td>Locks</td></tr><tr><td>Yes</td></tr><tr><td>Yes</td></tr></table>	Locks	Yes	Yes
Locks					
Yes					
Yes					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 11:02

Total Depth:	<u>30.00</u>	feet below TOC
Static Water Level:	<u>25.72</u>	feet below TOC
TD - SWL:	<u>4.28</u>	water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 4.28 ft x 1 = mL Min Purge Volume: _____ mL
Initial Parameter Readings: Temp (°C) 21.72 pH 7.33 ORP 112
Sp. Cond. 0.721 Turbidity 0 DO 4.84
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
11:09	900	200	19.92	7.17	128	0.734	0.0	5.69	25.73
11:12	1500	200	21.29	7.08	131	0.736	0.0	5.33	25.74
11:15	2100	200	22.23	7.03	131	0.732	0.0	4.98	25.74

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 11:16
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 22.23 pH 7.03 ORP 131
Sp. Cond. 0.732 Turbidity 0 DO 4.98
Water Level 25.74 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-1N
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 82 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

	Well Pad	Casing	Protective Casing	Reference Mark/Identification	Good	Good	Good	Yes	Locks
									Yes
									Yes

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 11:22
Total Depth: 0.00 feet below TOC
Static Water Level: 26.58 feet below TOC
TD - SWL: -26.58 water column (ft.)

Purging Activities

Purged By: _____ Purge Date: 7/26/2023
Purge Method: _____
Well Diameter: inches
Purge Volume Calculation: 22 mL/ft x -26.58 ft x 1 = mL Min Purge Volume: _____ mL
Initial Parameter Readings: Temp (°C) _____ pH _____ ORP _____
Sp. Cond. _____ Turbidity _____ DO _____
Physical appearance of purge water: _____

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)

Sampling Activities

Sampled By: _____ Sample Date/Time: _____
Sample Method: _____
Sample Parameters: Temp (°C) _____ pH _____ ORP _____
Sp. Cond. _____ Turbidity _____ DO _____
Water Level _____ (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

WL Only

Electronic Form Completed By: S Wilton-Cooper Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-1S
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 82 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table border="1"><tr><td>Locks</td></tr><tr><td>Yes</td></tr><tr><td>Yes</td></tr></table>	Locks	Yes	Yes
Locks					
Yes					
Yes					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Total Depth: 0.00 feet below TOC
Static Water Level: 26.54 feet below TOC
Date/Time Measured: 7/26/2023 11:24 TD - SWL: -26.54 water column (ft.)

Purging Activities

Purged By: _____ Purge Date: 7/26/2023
Purge Method: _____
Well Diameter: inches
Purge Volume Calculation: 22 mL/ft x -26.54 ft x 1 = mL Min Purge Volume: _____ mL
Initial Parameter Readings: Temp (°C) _____ pH _____ ORP _____
Sp. Cond. _____ Turbidity _____ DO _____
Physical appearance of purge water: _____

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)

Sampling Activities

Sampled By: _____ Sample Date/Time: _____
Sample Method: _____
Sample Parameters: Temp (°C) _____ pH _____ ORP _____
Sp. Cond. _____ Turbidity _____ DO _____
Water Level _____ (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

WL Only

Electronic Form Completed By: S Wilton-Cooper Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-2
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 82 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table><thead><tr><th>Locks</th></tr></thead><tbody><tr><td><u>Yes</u></td></tr><tr><td><u>Yes</u></td></tr></tbody></table>	Locks	<u>Yes</u>	<u>Yes</u>
Locks					
<u>Yes</u>					
<u>Yes</u>					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>No</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 11:44
Total Depth: 28.00 feet below TOC
Static Water Level: 22.41 feet below TOC
TD - SWL: 5.59 water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 5.59 ft x 1 = mL Min Purge Volume: mL
Initial Parameter Readings: Temp (°C) 18.66 pH 7.41 ORP 121
Sp. Cond. 0.659 Turbidity 0 DO 10.99
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
11:48	1000	200	17.28	7.30	132	0.675	0.0	10.34	22.41
11:51	1600	200	16.86	7.13	139	0.673	0.0	7.78	22.41
11:54	2200	200	16.66	7.02	142	0.672	0.0	6.57	22.41

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 11:55
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 16.66 pH 7.02 ORP 142
Sp. Cond. 0.672 Turbidity 0 DO 6.57
Water Level 22.41 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)
Updated label with grease marker.

Electronic Form Completed By: S Wilton-Cooper Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-3
Date(s): 7/26/2023

Field Team Members

Name: S Wilton-Cooper Affiliation: SCS Engineers
Name: D Wagner Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 80 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table><thead><tr><th>Locks</th></tr></thead><tbody><tr><td><u>Yes</u></td></tr><tr><td><u>Yes</u></td></tr></tbody></table>	Locks	<u>Yes</u>	<u>Yes</u>
Locks					
<u>Yes</u>					
<u>Yes</u>					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 10:11
Total Depth: 30.00 feet below TOC
Static Water Level: 23.66 feet below TOC
TD - SWL: 6.34 water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 6.34 ft x 1 = mL Min Purge Volume: mL
Initial Parameter Readings: Temp (°C) 21.01 pH 7.69 ORP 106
Sp. Cond. 0.681 Turbidity 0 DO 8.63
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
10:16	500	200	20.30	7.45	119	0.678	0.0	6.78	23.68
10:19	1100	200	20.61	7.28	123	0.673	0.0	5.83	23.65
10:22	1700	200	20.61	7.28	123	0.673	0.0	5.83	23.65

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 10:23
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 20.61 pH 7.28 ORP 123
Sp. Cond. 0.673 Turbidity 0 DO 5.83
Water Level 23.65 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-4R
Date(s): 7/26/2023

Field Team Members

Name: S Wilton-Cooper Affiliation: SCS Engineers
Name: D Wagner Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 80 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table border="1"><tr><td>Locks</td></tr><tr><td>Yes</td></tr><tr><td>Yes</td></tr></table>	Locks	Yes	Yes
Locks					
Yes					
Yes					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 9:22

Total Depth:	<u>31.00</u>	feet below TOC
Static Water Level:	<u>21.63</u>	feet below TOC
TD - SWL:	<u>9.37</u>	water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 9.37 ft x 1 = mL Min Purge Volume: _____ mL
Initial Parameter Readings: Temp (°C) 15.47 pH 9.14 ORP 69
Sp. Cond. 0.789 Turbidity 0 DO 7.16
Physical appearance of purge water: Cloudy

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
9:35	1200	180	15.61	8.20	78	0.783	0.0	6.72	21.63
9:38	1740	180	15.77	8.05	97	0.765	0.0	5.62	21.63
9:41	2280	180	15.82	7.76	105	0.760	0.0	5.26	
9:44	2820								

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 9:44
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 15.82 pH 7.76 ORP 105
Sp. Cond. 0.76 Turbidity 0 DO 5.26
Water Level 21.63 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-5
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 82 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table border="1"><tr><td>Locks</td></tr><tr><td>Yes</td></tr><tr><td>Yes</td></tr></table>	Locks	Yes	Yes
Locks					
Yes					
Yes					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 10:41

Total Depth:	<u>30.00</u>	feet below TOC
Static Water Level:	<u>22.10</u>	feet below TOC
TD - SWL:	<u>7.90</u>	water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 7.9 ft x 1 = mL Min Purge Volume: _____ mL
Initial Parameter Readings: Temp (°C) 19.04 pH 7.3 ORP 120
Sp. Cond. 0.687 Turbidity 0 DO 5.85
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
10:43	1000	200	18.44	7.27	123	0.692	0.0	6.05	22.11
10:46	1600	200	18.38	7.21	125	0.696	0.0	5.79	22.10
10:49	2200	200	18.57	7.17	125	0.692	0.0	5.45	22.11

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 10:50
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 18.57 pH 7.17 ORP 125
Sp. Cond. 0.692 Turbidity 0 DO 5.45
Water Level 22.11 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-6
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 85 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table><thead><tr><th>Locks</th></tr></thead><tbody><tr><td><u>Yes</u></td></tr><tr><td><u>Yes</u></td></tr></tbody></table>	Locks	<u>Yes</u>	<u>Yes</u>
Locks					
<u>Yes</u>					
<u>Yes</u>					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 12:59

Total Depth:	<u>29.00</u>	feet below TOC
Static Water Level:	<u>22.35</u>	feet below TOC
TD - SWL:	<u>6.65</u>	water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 6.65 ft x 1 = mL Min Purge Volume: mL
Initial Parameter Readings: Temp (°C) 23.46 pH 7.21 ORP 130
Sp. Cond. 0.829 Turbidity 9 DO 7.60
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
13:05	800	300	23.46	7.21	130	0.829	9.0	7.60	22.35
13:08	1700	300	20.47	7.10	138	0.718	22.7	8.20	22.34
13:11	2600	300	19.86	7.06	137	0.701	18.4	7.60	22.35

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 13:12
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 19.86 pH 7.06 ORP 137
Sp. Cond. 0.701 Turbidity 18.4 DO 7.6
Water Level 22.35 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Duplicate collected here 2359

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-7
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 85 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table><thead><tr><th>Locks</th></tr></thead><tbody><tr><td><u>Yes</u></td></tr><tr><td><u>Yes</u></td></tr></tbody></table>	Locks	<u>Yes</u>	<u>Yes</u>
Locks					
<u>Yes</u>					
<u>Yes</u>					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 12:38
Total Depth: 29.00 feet below TOC
Static Water Level: 22.47 feet below TOC
TD - SWL: 6.53 water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 6.53 ft x 1 = mL Min Purge Volume: mL
Initial Parameter Readings: Temp (°C) 23.78 pH 6.98 ORP 119
Sp. Cond. 0.664 Turbidity 5.6 DO 6.82
Physical appearance of purge water: Clear

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
12:42	1200	450	17.27	6.96	140	0.826	0.0	8.12	22.53
12:45	2550	450	17.19	6.93	143	0.855	0.0	7.17	22.53
12:48	3900	450	16.91	6.94	144	0.875	0.0	6.46	22.56

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 12:50
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 16.91 pH 6.94 ORP 144
Sp. Cond. 0.875 Turbidity 0 DO 6.46
Water Level 22.56 (feet below TOC)

Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

Field Data Sheet

Project Name: Fremont Department of Utilities
Project Location: Fremont, NE
Project Number: 27222120.00

Monitoring Point: MW-8
Date(s): 7/26/2023

Field Team Members

Name: D Wagner Affiliation: SCS Engineers
Name: S Wilton-Cooper Affiliation: SCS Engineers

Weather Conditions

Mean Temp: 85 °F (Mean) Wind Direction: Northeast
Precipitation: None Sky: Sun

Well Observations

Well Pad	<u>Good</u>	<table><thead><tr><th>Locks</th></tr></thead><tbody><tr><td><u>Yes</u></td></tr><tr><td><u>Yes</u></td></tr></tbody></table>	Locks	<u>Yes</u>	<u>Yes</u>
Locks					
<u>Yes</u>					
<u>Yes</u>					
Casing	<u>Good</u>				
Protective Casing	<u>Good</u>				
Reference Mark/Identification	<u>Yes</u>				

Groundwater Level Measurements

Date/Time Measured: 7/26/2023 12:08
Total Depth: 31.00 feet below TOC
Static Water Level: 22.92 feet below TOC
TD - SWL: 8.08 water column (ft.)

Purging Activities

Purged By: D Wagner Purge Date: 7/26/2023
Purge Method: Dedicated Pump
Well Diameter: 4 inches
Purge Volume Calculation: 22 mL/ft x 8.08 ft x 1 = mL Min Purge Volume: mL
Initial Parameter Readings: Temp (°C) 23.89 pH 7.13 ORP 133
Sp. Cond. 0.659 Turbidity 79.2 DO 6.50
Physical appearance of purge water: Slightly cloudy

Purge Time	Cumulative Purge Vol. (mL)	Purge Rate (mL/m)	Temp (°C)	pH	ORP (mV)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Water Level (ft below TOC)
12:14	700	250	22.65	7.08	138	0.641	84.8	5.90	22.92
12:17	1450	250	22.19	7.02	139	0.633	71.3	8.40	22.92
12:20	2200	250	23.40	6.97	138	0.609	56.1	7.05	22.92

Sampling Activities

Sampled By: D Wagner Sample Date/Time: 7/26/23 12:22
Sample Method: Dedicated Pump
Sample Parameters: Temp (°C) 23.4 pH 6.97 ORP 138
Sp. Cond. 0.609 Turbidity 56.1 DO 7.05
Water Level 22.92 (feet below TOC)

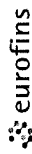
Observations/Comments: (i.e., equipment malfunctions, contamination sources, sampling difficulties; duplicate sample)

Electronic Form Completed By: S Wilton-Cooper

Date: 7/26/2023

B.2 Chain of Custody

Chain of Custody Record

TestAmerica Omaha SC
268

Environment Testing

Client Information		Sampler	Lab PM	Carrier Tracking No(s):		COC No:							
Client Contact		Phone:	Liechti Meredith L	State of Origin:		310-83796-23315 1							
Company			E-Mail: meredith.liechti@et.eurofins.com	Page 1 of 1									
SCS Engineers			PWSID:	Job #:									
Address:		Due Date Requested	Analysis Requested										
City		TAT Requested (days):	Preservation Codes:										
State		Compliance Project: ☐ Yes ☐ No	A - HCL M - Hexane										
Zip		PO #:	B - NaOH N - None										
Phone:		WO #:	C - Zn Acetate O - AsNaO2										
Email:		Project #:	D - Nitric Acid P - Na2O4S										
Project Name:		SSOW#:	E - NaHSO4 R - Na2SO3										
Site:			F - MeOH S - H2SO4										
			G - Amchlor T - TSP Dodecahydrate										
			H - Ascorbic Acid U - Acetone										
			I - Ice V - MCAA										
			J - DI Water W - pH 4-5										
			K - EDTA Y - Trizma										
			L - EDA Z - other (Specify)										
			Other										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, Anal)	Field Filtered Sample (Yes or No)	Form MS/MSD (Yes or No)	9315_Ra226 - Radium-226 (GFPc)	9320_Ra228 - Radium-228 (GFPc)	956A_ORGFM_28D - Chloride, Fluoride, Sulfate	6010D_6020B_7470A	2540C_Calcid_9040C	Total Number of containers	Special Instructions/Note
MW-1	7/26/23	1116	G	Water									
MW-2	7/26/23	1155	G	Water									
MW-3	7/26/23	1023	G	Water									
MW-4R	7-26-23	0944	G	Water									
MW-5	7/26/23	1050	G	Water									
MW-6	Sample Time: 13 12 ON	1222	G	Water									
MW-7	7/26/23	1250	G	Water									
MW-8	7/26/23	1222	G	Water									
DUPLICATE	7/26/23	2359	G	Water									
Possible Hazard Identification													
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological													
Deliverable Requested I II, III IV Other (specify)													
Empty Kit Relinquished by: Date: 7-16-23 Time: 1500 Method of Shipment: 150													
Relinquished by: [Signature] Date/Time: 7/26/23 2:26 Company: SCS													
Relinquished by: [Signature] Date/Time: 7-27-23 0800 Company: ECF													
Relinquished by: [Signature] Date/Time: Date/Time: Date/Time: Company: Company: Company:													
Custody Seals Intact: ☐ Yes ☐ No													
Custody Seal No													
Cooler Temperature(s) °C and Other Remarks.													

B.3 Testing Results

ANALYTICAL REPORT

PREPARED FOR

Attn: Morgan Sykes
SCS Engineers
14755 Grover St
Omaha, Nebraska 68144

Generated 8/17/2023 11:08:34 AM

JOB DESCRIPTION

FDU - City of Fremont

JOB NUMBER

310-261252-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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8/17/2023 11:08:34 AM

Authorized for release by
Meredith Liechti, Service Center Manager
meredith.liechti@et.eurofinsus.com
(319)277-2401



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Case Narrative

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Job ID: 310-261252-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-261252-1

Receipt

The samples were received on 7/27/2023 4:45 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.1°C and 5.4°C

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-3 (310-261252-3), MW-4R (310-261252-4) and MW-5 (310-261252-5). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-6 (310-261252-6), MW-7 (310-261252-7), MW-8 (310-261252-8) and Duplicate (310-261252-9). 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.

Metals

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

General Chemistry

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

Sample Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-261252-1	MW-1	Water	07/26/23 11:16	07/27/23 16:45
310-261252-2	MW-2	Water	07/26/23 11:55	07/27/23 16:45
310-261252-3	MW-3	Water	07/26/23 10:23	07/27/23 16:45
310-261252-4	MW-4R	Water	07/26/23 09:44	07/27/23 16:45
310-261252-5	MW-5	Water	07/26/23 10:50	07/27/23 16:45
310-261252-6	MW-6	Water	07/26/23 13:12	07/27/23 16:45
310-261252-7	MW-7	Water	07/26/23 12:50	07/27/23 16:45
310-261252-8	MW-8	Water	07/26/23 12:22	07/27/23 16:45
310-261252-9	Duplicate	Water	07/26/23 23:59	07/27/23 16:45

Detection Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-1

Lab Sample ID: 310-261252-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	68.1		5.00		mg/L	5		9056A	Total/NA
Fluoride	3.23		1.00		mg/L	5		9056A	Total/NA
Sulfate	893		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.00369		0.00200		mg/L	1		6020B	Total/NA
Barium	0.113		0.00200		mg/L	1		6020B	Total/NA
Boron	0.109		0.100		mg/L	1		6020B	Total/NA
Calcium	89.2		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0289		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00560		0.00200		mg/L	1		6020B	Total/NA
pH	7.12	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	404		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-2

Lab Sample ID: 310-261252-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30.0		5.00		mg/L	5		9056A	Total/NA
Fluoride	1.79		1.00		mg/L	5		9056A	Total/NA
Sulfate	127		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00367		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0948		0.00200		mg/L	1		6020B	Total/NA
Boron	0.115		0.100		mg/L	1		6020B	Total/NA
Calcium	86.4		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0312		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00399		0.00200		mg/L	1		6020B	Total/NA
pH	7.08	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	390		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-3

Lab Sample ID: 310-261252-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	47.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	43.9		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00252		0.00200		mg/L	1		6020B	Total/NA
Barium	0.106		0.00200		mg/L	1		6020B	Total/NA
Calcium	76.2		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0288		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00550		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00535		0.00500		mg/L	1		6020B	Total/NA
pH	7.07	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	440		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-4R

Lab Sample ID: 310-261252-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	58.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	47.4		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00524		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0951		0.00200		mg/L	1		6020B	Total/NA
Boron	0.116		0.100		mg/L	1		6020B	Total/NA
Calcium	88.8		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0286		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00362		0.00200		mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-4R (Continued)

Lab Sample ID: 310-261252-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.00664		0.00500		mg/L	1		6020B	Total/NA
pH	7.18	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	446		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 310-261252-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	50.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	63.6		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00428		0.00200		mg/L	1		6020B	Total/NA
Barium	0.110		0.00200		mg/L	1		6020B	Total/NA
Boron	0.124		0.100		mg/L	1		6020B	Total/NA
Calcium	84.5		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0294		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00385		0.00200		mg/L	1		6020B	Total/NA
pH	7.16	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	414		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-6

Lab Sample ID: 310-261252-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	62.4		5.00		mg/L	5		9056A	Total/NA
Sulfate	86.4		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00323		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0917		0.00200		mg/L	1		6020B	Total/NA
Calcium	69.8		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0174		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00563		0.00200		mg/L	1		6020B	Total/NA
pH	7.09	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	394		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 310-261252-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	92.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	65.9		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00341		0.00200		mg/L	1		6020B	Total/NA
Barium	0.122		0.00200		mg/L	1		6020B	Total/NA
Boron	0.107		0.100		mg/L	1		6020B	Total/NA
Calcium	88.6		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0306		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00494		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00880		0.00500		mg/L	1		6020B	Total/NA
pH	7.02	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	508		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-8

Lab Sample ID: 310-261252-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	35.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	33.1		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00254		0.00200		mg/L	1		6020B	Total/NA
Barium	0.130		0.00200		mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-8 (Continued)

Lab Sample ID: 310-261252-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.105		0.100		mg/L	1		6020B	Total/NA
Calcium	89.7		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0294		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00449		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00813		0.00500		mg/L	1		6020B	Total/NA
pH	7.04	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	362		50.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: Duplicate

Lab Sample ID: 310-261252-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	62.4		5.00		mg/L	5		9056A	Total/NA
Sulfate	85.5		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00247		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0684		0.00200		mg/L	1		6020B	Total/NA
Calcium	54.7		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0191		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00409		0.00200		mg/L	1		6020B	Total/NA
pH	7.09	HF	0.100		SU	1		9040C	Total/NA
Total Dissolved Solids	424		50.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-1

Lab Sample ID: 310-261252-1

Date Collected: 07/26/23 11:16

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.1		5.00		mg/L			08/10/23 23:03	5
Fluoride	3.23		1.00		mg/L			08/10/23 23:03	5
Sulfate	893		10.0		mg/L			08/10/23 10:47	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 09:49	1
Arsenic	0.00369		0.00200		mg/L		07/31/23 08:45	08/11/23 09:49	1
Barium	0.113		0.00200		mg/L		07/31/23 08:45	08/11/23 09:49	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 09:49	1
Boron	0.109		0.100		mg/L		07/31/23 08:45	08/11/23 09:49	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 09:49	1
Calcium	89.2		0.500		mg/L		07/31/23 08:45	08/11/23 09:49	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 09:49	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 09:49	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 09:49	1
Lithium	0.0289		0.0100		mg/L		07/31/23 08:45	08/14/23 16:07	1
Molybdenum	0.00560		0.00200		mg/L		07/31/23 08:45	08/11/23 09:49	1
Selenium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 09:49	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 09:49	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 10:54	08/01/23 13:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	404		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.12	HF	0.100		SU			07/27/23 18:20	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-2

Lab Sample ID: 310-261252-2

Date Collected: 07/26/23 11:55

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.0		5.00		mg/L			08/10/23 23:15	5
Fluoride	1.79		1.00		mg/L			08/10/23 23:15	5
Sulfate	127		5.00		mg/L			08/10/23 23:15	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 09:52	1
Arsenic	0.00367		0.00200		mg/L		07/31/23 08:45	08/11/23 09:52	1
Barium	0.0948		0.00200		mg/L		07/31/23 08:45	08/11/23 09:52	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 09:52	1
Boron	0.115		0.100		mg/L		07/31/23 08:45	08/11/23 09:52	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 09:52	1
Calcium	86.4		0.500		mg/L		07/31/23 08:45	08/11/23 09:52	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 09:52	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 09:52	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 09:52	1
Lithium	0.0312		0.0100		mg/L		07/31/23 08:45	08/14/23 16:09	1
Molybdenum	0.00399		0.00200		mg/L		07/31/23 08:45	08/11/23 09:52	1
Selenium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 09:52	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 09:52	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 10:54	08/01/23 13:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	390		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.08	HF	0.100		SU			07/27/23 18:22	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-3

Lab Sample ID: 310-261252-3

Date Collected: 07/26/23 10:23

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47.6		5.00		mg/L			08/10/23 23:27	5
Fluoride	<1.00		1.00		mg/L			08/10/23 23:27	5
Sulfate	43.9		5.00		mg/L			08/10/23 23:27	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 10:05	1
Arsenic	0.00252		0.00200		mg/L		07/31/23 08:45	08/11/23 10:05	1
Barium	0.106		0.00200		mg/L		07/31/23 08:45	08/11/23 10:05	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:05	1
Boron	<0.100		0.100		mg/L		07/31/23 08:45	08/11/23 10:05	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 10:05	1
Calcium	76.2		0.500		mg/L		07/31/23 08:45	08/11/23 10:05	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:05	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:05	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:05	1
Lithium	0.0288		0.0100		mg/L		07/31/23 08:45	08/14/23 16:12	1
Molybdenum	0.00550		0.00200		mg/L		07/31/23 08:45	08/11/23 10:05	1
Selenium	0.00535		0.00500		mg/L		07/31/23 08:45	08/11/23 10:05	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:05	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 10:54	08/01/23 13:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	440		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.07	HF	0.100		SU			07/27/23 18:23	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-4R

Lab Sample ID: 310-261252-4

Date Collected: 07/26/23 09:44

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58.7		5.00		mg/L			08/10/23 23:39	5
Fluoride	<1.00		1.00		mg/L			08/10/23 23:39	5
Sulfate	47.4		5.00		mg/L			08/10/23 23:39	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 10:27	1
Arsenic	0.00524		0.00200		mg/L		07/31/23 08:45	08/11/23 10:27	1
Barium	0.0951		0.00200		mg/L		07/31/23 08:45	08/11/23 10:27	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/14/23 16:14	1
Boron	0.116		0.100		mg/L		07/31/23 08:45	08/11/23 10:27	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 10:27	1
Calcium	88.8		0.500		mg/L		07/31/23 08:45	08/11/23 10:27	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:27	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:27	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:27	1
Lithium	0.0286		0.0100		mg/L		07/31/23 08:45	08/14/23 16:14	1
Molybdenum	0.00362		0.00200		mg/L		07/31/23 08:45	08/11/23 10:27	1
Selenium	0.00664		0.00500		mg/L		07/31/23 08:45	08/11/23 10:27	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:27	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 10:54	08/01/23 13:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	446		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.18	HF	0.100		SU			07/27/23 18:25	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-5

Lab Sample ID: 310-261252-5

Date Collected: 07/26/23 10:50

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.7		5.00		mg/L			08/10/23 23:51	5
Fluoride	<1.00		1.00		mg/L			08/10/23 23:51	5
Sulfate	63.6		5.00		mg/L			08/10/23 23:51	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 10:31	1
Arsenic	0.00428		0.00200		mg/L		07/31/23 08:45	08/11/23 10:31	1
Barium	0.110		0.00200		mg/L		07/31/23 08:45	08/11/23 10:31	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/14/23 16:16	1
Boron	0.124		0.100		mg/L		07/31/23 08:45	08/11/23 10:31	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 10:31	1
Calcium	84.5		0.500		mg/L		07/31/23 08:45	08/11/23 10:31	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:31	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:31	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:31	1
Lithium	0.0294		0.0100		mg/L		07/31/23 08:45	08/14/23 16:16	1
Molybdenum	0.00385		0.00200		mg/L		07/31/23 08:45	08/11/23 10:31	1
Selenium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:31	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:31	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 10:54	08/01/23 13:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	414		50.0		mg/L			07/27/23 18:49	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.16	HF	0.100		SU			07/27/23 18:24	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-6

Lab Sample ID: 310-261252-6

Date Collected: 07/26/23 13:12

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62.4		5.00		mg/L			08/11/23 13:45	5
Fluoride	<1.00		1.00		mg/L			08/11/23 13:45	5
Sulfate	86.4		5.00		mg/L			08/11/23 13:45	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 10:38	1
Arsenic	0.00323		0.00200		mg/L		07/31/23 08:45	08/11/23 10:38	1
Barium	0.0917		0.00200		mg/L		07/31/23 08:45	08/11/23 10:38	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/14/23 16:20	1
Boron	<0.100		0.100		mg/L		07/31/23 08:45	08/11/23 10:38	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 10:38	1
Calcium	69.8		0.500		mg/L		07/31/23 08:45	08/11/23 10:38	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:38	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:38	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:38	1
Lithium	0.0174		0.0100		mg/L		07/31/23 08:45	08/14/23 16:20	1
Molybdenum	0.00563		0.00200		mg/L		07/31/23 08:45	08/11/23 10:38	1
Selenium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:38	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:38	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 11:03	08/01/23 13:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	394		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.09	HF	0.100		SU			07/27/23 18:27	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-7

Lab Sample ID: 310-261252-7

Date Collected: 07/26/23 12:50

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	92.8		5.00		mg/L			08/11/23 13:59	5
Fluoride	<1.00		1.00		mg/L			08/11/23 13:59	5
Sulfate	65.9		5.00		mg/L			08/11/23 13:59	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 10:41	1
Arsenic	0.00341		0.00200		mg/L		07/31/23 08:45	08/11/23 10:41	1
Barium	0.122		0.00200		mg/L		07/31/23 08:45	08/11/23 10:41	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/16/23 13:01	1
Boron	0.107		0.100		mg/L		07/31/23 08:45	08/11/23 10:41	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 10:41	1
Calcium	88.6		0.500		mg/L		07/31/23 08:45	08/11/23 10:41	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:41	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:41	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:41	1
Lithium	0.0306		0.0100		mg/L		07/31/23 08:45	08/16/23 13:01	1
Molybdenum	0.00494		0.00200		mg/L		07/31/23 08:45	08/11/23 10:41	1
Selenium	0.00880		0.00500		mg/L		07/31/23 08:45	08/11/23 10:41	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:41	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 11:03	08/01/23 13:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	508		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.02	HF	0.100		SU			07/27/23 18:26	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-8

Lab Sample ID: 310-261252-8

Date Collected: 07/26/23 12:22

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	35.8		5.00		mg/L			08/11/23 14:12	5
Fluoride	<1.00		1.00		mg/L			08/11/23 14:12	5
Sulfate	33.1		5.00		mg/L			08/11/23 14:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 10:45	1
Arsenic	0.00254		0.00200		mg/L		07/31/23 08:45	08/11/23 10:45	1
Barium	0.130		0.00200		mg/L		07/31/23 08:45	08/11/23 10:45	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/16/23 13:03	1
Boron	0.105		0.100		mg/L		07/31/23 08:45	08/11/23 10:45	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 10:45	1
Calcium	89.7		0.500		mg/L		07/31/23 08:45	08/11/23 10:45	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 10:45	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:45	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 10:45	1
Lithium	0.0294		0.0100		mg/L		07/31/23 08:45	08/16/23 13:03	1
Molybdenum	0.00449		0.00200		mg/L		07/31/23 08:45	08/11/23 10:45	1
Selenium	0.00813		0.00500		mg/L		07/31/23 08:45	08/11/23 10:45	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 10:45	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 11:03	08/01/23 13:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	362		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.04	HF	0.100		SU			07/27/23 18:26	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: Duplicate

Lab Sample ID: 310-261252-9

Date Collected: 07/26/23 23:59

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62.4		5.00		mg/L			08/11/23 14:51	5
Fluoride	<1.00		1.00		mg/L			08/11/23 14:51	5
Sulfate	85.5		5.00		mg/L			08/11/23 14:51	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 11:00	1
Arsenic	0.00247		0.00200		mg/L		07/31/23 08:45	08/11/23 11:00	1
Barium	0.0684		0.00200		mg/L		07/31/23 08:45	08/11/23 11:00	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/16/23 13:05	1
Boron	<0.100		0.100		mg/L		07/31/23 08:45	08/11/23 11:00	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 11:00	1
Calcium	54.7		0.500		mg/L		07/31/23 08:45	08/11/23 11:00	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 11:00	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 11:00	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 11:00	1
Lithium	0.0191		0.0100		mg/L		07/31/23 08:45	08/16/23 13:05	1
Molybdenum	0.00409		0.00200		mg/L		07/31/23 08:45	08/11/23 11:00	1
Selenium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 11:00	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 11:00	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 11:03	08/01/23 13:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	424		50.0		mg/L			07/28/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9040C)	7.09	HF	0.100		SU			07/27/23 18:29	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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

QC Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-396378/3

Matrix: Water

Analysis Batch: 396378

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/10/23 17:36	1
Fluoride	<0.200		0.200		mg/L			08/10/23 17:36	1
Sulfate	<1.00		1.00		mg/L			08/10/23 17:36	1

Lab Sample ID: LCS 310-396378/4

Matrix: Water

Analysis Batch: 396378

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.484		mg/L		95	90 - 110
Fluoride	2.00	1.928		mg/L		96	90 - 110
Sulfate	10.0	10.27		mg/L		103	90 - 110

Lab Sample ID: MB 310-396659/3

Matrix: Water

Analysis Batch: 396659

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/11/23 12:14	1
Fluoride	<0.200		0.200		mg/L			08/11/23 12:14	1
Sulfate	<1.00		1.00		mg/L			08/11/23 12:14	1

Lab Sample ID: LCS 310-396659/34

Matrix: Water

Analysis Batch: 396659

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.498		mg/L		95	90 - 110
Fluoride	2.00	1.813		mg/L		91	90 - 110
Sulfate	10.0	9.853		mg/L		99	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-395055/1-A

Matrix: Water

Analysis Batch: 396410

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 395055

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 08:09	1
Arsenic	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 08:09	1
Barium	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 08:09	1
Beryllium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 08:09	1
Boron	<0.100		0.100		mg/L		07/31/23 08:45	08/11/23 08:09	1
Cadmium	<0.000200		0.000200		mg/L		07/31/23 08:45	08/11/23 08:09	1
Calcium	<0.500		0.500		mg/L		07/31/23 08:45	08/11/23 08:09	1
Chromium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 08:09	1
Cobalt	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 08:09	1
Lead	<0.000500		0.000500		mg/L		07/31/23 08:45	08/11/23 08:09	1
Lithium	<0.0100		0.0100		mg/L		07/31/23 08:45	08/11/23 08:09	1
Molybdenum	<0.00200		0.00200		mg/L		07/31/23 08:45	08/11/23 08:09	1

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QC Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

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

Lab Sample ID: MB 310-395055/1-A

Matrix: Water

Analysis Batch: 396410

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 395055

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.00500		0.00500		mg/L		07/31/23 08:45	08/11/23 08:09	1
Thallium	<0.00100		0.00100		mg/L		07/31/23 08:45	08/11/23 08:09	1

Lab Sample ID: LCS 310-395055/2-A

Matrix: Water

Analysis Batch: 396410

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 395055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.1892		mg/L		95	80 - 120
Arsenic	0.200	0.1906		mg/L		95	80 - 120
Barium	0.100	0.09429		mg/L		94	80 - 120
Beryllium	0.100	0.1056		mg/L		106	80 - 120
Boron	0.200	0.2138		mg/L		107	80 - 120
Cadmium	0.100	0.09292		mg/L		93	80 - 120
Calcium	2.00	1.916		mg/L		96	80 - 120
Chromium	0.100	0.09547		mg/L		95	80 - 120
Cobalt	0.100	0.09805		mg/L		98	80 - 120
Lead	0.200	0.2011		mg/L		101	80 - 120
Lithium	0.200	0.2210		mg/L		110	80 - 120
Molybdenum	0.200	0.1874		mg/L		94	80 - 120
Selenium	0.400	0.3742		mg/L		94	80 - 120
Thallium	0.200	0.1749		mg/L		87	80 - 120

Lab Sample ID: 310-261252-5 DU

Matrix: Water

Analysis Batch: 396410

Client Sample ID: MW-5

Prep Type: Total/NA

Prep Batch: 395055

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	0.00428		0.004290		mg/L		0.3	20
Barium	0.110		0.1099		mg/L		0.4	20
Beryllium	<0.00100	^+	<0.00100	^+	mg/L		NC	20
Boron	0.124		0.1190		mg/L		4	20
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Calcium	84.5		83.70		mg/L		1	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Molybdenum	0.00385		0.003956		mg/L		3	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

Lab Sample ID: 310-261252-5 DU

Matrix: Water

Analysis Batch: 396575

Client Sample ID: MW-5

Prep Type: Total/NA

Prep Batch: 395055

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Lithium	0.0294		0.03007		mg/L		2	20

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QC Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-395153/1-A
Matrix: Water
Analysis Batch: 395301

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395153

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 10:54	08/01/23 12:27	1

Lab Sample ID: LCS 310-395153/2-A
Matrix: Water
Analysis Batch: 395301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395153

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001635		mg/L		98	80 - 120

Lab Sample ID: MB 310-395158/1-A
Matrix: Water
Analysis Batch: 395301

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395158

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		07/31/23 11:03	08/01/23 13:31	1

Lab Sample ID: LCS 310-395158/2-A
Matrix: Water
Analysis Batch: 395301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395158

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001530		mg/L		92	80 - 120

Method: 9040C - pH

Lab Sample ID: LCS 310-394900/1
Matrix: Water
Analysis Batch: 394900

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.040		SU		101	98 - 102

Lab Sample ID: 310-261252-1 DU
Matrix: Water
Analysis Batch: 394900

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.12	HF	7.140		SU		0.3	20

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

Lab Sample ID: MB 310-394947/1
Matrix: Water
Analysis Batch: 394947

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	<50.0		50.0		mg/L			07/27/23 18:49	1

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

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

Lab Sample ID: LCS 310-394947/2

Matrix: Water

Analysis Batch: 394947

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	1000	968.0		mg/L		97	90 - 110

Lab Sample ID: MB 310-395062/1

Matrix: Water

Analysis Batch: 395062

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	<50.0		50.0		mg/L			07/28/23 18:53	1

Lab Sample ID: LCS 310-395062/2

Matrix: Water

Analysis Batch: 395062

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	1000	946.0		mg/L		95	90 - 110

Lab Sample ID: 310-261252-6 DU

Matrix: Water

Analysis Batch: 395062

Client Sample ID: MW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	394		430.0		mg/L		9	20

QC Association Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

HPLC/IC

Analysis Batch: 396378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	9056A	
310-261252-1	MW-1	Total/NA	Water	9056A	
310-261252-2	MW-2	Total/NA	Water	9056A	
310-261252-3	MW-3	Total/NA	Water	9056A	
310-261252-4	MW-4R	Total/NA	Water	9056A	
310-261252-5	MW-5	Total/NA	Water	9056A	
MB 310-396378/3	Method Blank	Total/NA	Water	9056A	
LCS 310-396378/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 396659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-6	MW-6	Total/NA	Water	9056A	
310-261252-7	MW-7	Total/NA	Water	9056A	
310-261252-8	MW-8	Total/NA	Water	9056A	
310-261252-9	Duplicate	Total/NA	Water	9056A	
MB 310-396659/3	Method Blank	Total/NA	Water	9056A	
LCS 310-396659/34	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 395055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	3005A	
310-261252-2	MW-2	Total/NA	Water	3005A	
310-261252-3	MW-3	Total/NA	Water	3005A	
310-261252-4	MW-4R	Total/NA	Water	3005A	
310-261252-5	MW-5	Total/NA	Water	3005A	
310-261252-6	MW-6	Total/NA	Water	3005A	
310-261252-7	MW-7	Total/NA	Water	3005A	
310-261252-8	MW-8	Total/NA	Water	3005A	
310-261252-9	Duplicate	Total/NA	Water	3005A	
MB 310-395055/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-395055/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-261252-5 DU	MW-5	Total/NA	Water	3005A	

Prep Batch: 395153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	7470A	
310-261252-2	MW-2	Total/NA	Water	7470A	
310-261252-3	MW-3	Total/NA	Water	7470A	
310-261252-4	MW-4R	Total/NA	Water	7470A	
310-261252-5	MW-5	Total/NA	Water	7470A	
MB 310-395153/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-395153/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 395158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-6	MW-6	Total/NA	Water	7470A	
310-261252-7	MW-7	Total/NA	Water	7470A	
310-261252-8	MW-8	Total/NA	Water	7470A	
310-261252-9	Duplicate	Total/NA	Water	7470A	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Metals (Continued)

Prep Batch: 395158 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-395158/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-395158/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 395301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	7470A	395153
310-261252-2	MW-2	Total/NA	Water	7470A	395153
310-261252-3	MW-3	Total/NA	Water	7470A	395153
310-261252-4	MW-4R	Total/NA	Water	7470A	395153
310-261252-5	MW-5	Total/NA	Water	7470A	395153
310-261252-6	MW-6	Total/NA	Water	7470A	395158
310-261252-7	MW-7	Total/NA	Water	7470A	395158
310-261252-8	MW-8	Total/NA	Water	7470A	395158
310-261252-9	Duplicate	Total/NA	Water	7470A	395158
MB 310-395153/1-A	Method Blank	Total/NA	Water	7470A	395153
MB 310-395158/1-A	Method Blank	Total/NA	Water	7470A	395158
LCS 310-395153/2-A	Lab Control Sample	Total/NA	Water	7470A	395153
LCS 310-395158/2-A	Lab Control Sample	Total/NA	Water	7470A	395158

Analysis Batch: 396410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	6020B	395055
310-261252-2	MW-2	Total/NA	Water	6020B	395055
310-261252-3	MW-3	Total/NA	Water	6020B	395055
310-261252-4	MW-4R	Total/NA	Water	6020B	395055
310-261252-5	MW-5	Total/NA	Water	6020B	395055
310-261252-6	MW-6	Total/NA	Water	6020B	395055
310-261252-7	MW-7	Total/NA	Water	6020B	395055
310-261252-8	MW-8	Total/NA	Water	6020B	395055
310-261252-9	Duplicate	Total/NA	Water	6020B	395055
MB 310-395055/1-A	Method Blank	Total/NA	Water	6020B	395055
LCS 310-395055/2-A	Lab Control Sample	Total/NA	Water	6020B	395055
310-261252-5 DU	MW-5	Total/NA	Water	6020B	395055

Analysis Batch: 396575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	6020B	395055
310-261252-2	MW-2	Total/NA	Water	6020B	395055
310-261252-3	MW-3	Total/NA	Water	6020B	395055
310-261252-4	MW-4R	Total/NA	Water	6020B	395055
310-261252-5	MW-5	Total/NA	Water	6020B	395055
310-261252-6	MW-6	Total/NA	Water	6020B	395055
310-261252-5 DU	MW-5	Total/NA	Water	6020B	395055

Analysis Batch: 396842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-7	MW-7	Total/NA	Water	6020B	395055
310-261252-8	MW-8	Total/NA	Water	6020B	395055
310-261252-9	Duplicate	Total/NA	Water	6020B	395055

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

General Chemistry

Analysis Batch: 394900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	9040C	
310-261252-2	MW-2	Total/NA	Water	9040C	
310-261252-3	MW-3	Total/NA	Water	9040C	
310-261252-4	MW-4R	Total/NA	Water	9040C	
310-261252-5	MW-5	Total/NA	Water	9040C	
310-261252-6	MW-6	Total/NA	Water	9040C	
310-261252-7	MW-7	Total/NA	Water	9040C	
310-261252-8	MW-8	Total/NA	Water	9040C	
310-261252-9	Duplicate	Total/NA	Water	9040C	
LCS 310-394900/1	Lab Control Sample	Total/NA	Water	9040C	
310-261252-1 DU	MW-1	Total/NA	Water	9040C	

Analysis Batch: 394947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-5	MW-5	Total/NA	Water	SM 2540C	
MB 310-394947/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-394947/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 395062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	SM 2540C	
310-261252-2	MW-2	Total/NA	Water	SM 2540C	
310-261252-3	MW-3	Total/NA	Water	SM 2540C	
310-261252-4	MW-4R	Total/NA	Water	SM 2540C	
310-261252-6	MW-6	Total/NA	Water	SM 2540C	
310-261252-7	MW-7	Total/NA	Water	SM 2540C	
310-261252-8	MW-8	Total/NA	Water	SM 2540C	
310-261252-9	Duplicate	Total/NA	Water	SM 2540C	
MB 310-395062/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-395062/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-261252-6 DU	MW-6	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-1

Lab Sample ID: 310-261252-1

Date Collected: 07/26/23 11:16

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		10	396378	QTZ5	EET CF	08/10/23 10:47
Total/NA	Analysis	9056A		5	396378	QTZ5	EET CF	08/10/23 23:03
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 09:49
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396575	A6US	EET CF	08/14/23 16:07
Total/NA	Prep	7470A			395153	NFT2	EET CF	07/31/23 10:54
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:16
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:20
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Client Sample ID: MW-2

Lab Sample ID: 310-261252-2

Date Collected: 07/26/23 11:55

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396378	QTZ5	EET CF	08/10/23 23:15
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 09:52
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396575	A6US	EET CF	08/14/23 16:09
Total/NA	Prep	7470A			395153	NFT2	EET CF	07/31/23 10:54
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:18
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:22
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Client Sample ID: MW-3

Lab Sample ID: 310-261252-3

Date Collected: 07/26/23 10:23

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396378	QTZ5	EET CF	08/10/23 23:27
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 10:05
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396575	A6US	EET CF	08/14/23 16:12
Total/NA	Prep	7470A			395153	NFT2	EET CF	07/31/23 10:54
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:20
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:23
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-4R

Lab Sample ID: 310-261252-4

Date Collected: 07/26/23 09:44

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396378	QTZ5	EET CF	08/10/23 23:39
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 10:27
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396575	A6US	EET CF	08/14/23 16:14
Total/NA	Prep	7470A			395153	NFT2	EET CF	07/31/23 10:54
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:22
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:25
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Client Sample ID: MW-5

Lab Sample ID: 310-261252-5

Date Collected: 07/26/23 10:50

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396378	QTZ5	EET CF	08/10/23 23:51
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 10:31
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396575	A6US	EET CF	08/14/23 16:16
Total/NA	Prep	7470A			395153	NFT2	EET CF	07/31/23 10:54
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:24
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:24
Total/NA	Analysis	SM 2540C		1	394947	D7CP	EET CF	07/27/23 18:49

Client Sample ID: MW-6

Lab Sample ID: 310-261252-6

Date Collected: 07/26/23 13:12

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396659	QTZ5	EET CF	08/11/23 13:45
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 10:38
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396575	A6US	EET CF	08/14/23 16:20
Total/NA	Prep	7470A			395158	NFT2	EET CF	07/31/23 11:03
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:35
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:27
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Client Sample ID: MW-7

Date Collected: 07/26/23 12:50

Date Received: 07/27/23 16:45

Lab Sample ID: 310-261252-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396659	QTZ5	EET CF	08/11/23 13:59
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 10:41
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396842	A6US	EET CF	08/16/23 13:01
Total/NA	Prep	7470A			395158	NFT2	EET CF	07/31/23 11:03
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:37
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:26
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Client Sample ID: MW-8

Date Collected: 07/26/23 12:22

Date Received: 07/27/23 16:45

Lab Sample ID: 310-261252-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396659	QTZ5	EET CF	08/11/23 14:12
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 10:45
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396842	A6US	EET CF	08/16/23 13:03
Total/NA	Prep	7470A			395158	NFT2	EET CF	07/31/23 11:03
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:39
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:26
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Client Sample ID: Duplicate

Date Collected: 07/26/23 23:59

Date Received: 07/27/23 16:45

Lab Sample ID: 310-261252-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	396659	QTZ5	EET CF	08/11/23 14:51
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396410	DHM5	EET CF	08/11/23 11:00
Total/NA	Prep	3005A			395055	KCK5	EET CF	07/31/23 08:45
Total/NA	Analysis	6020B		1	396842	A6US	EET CF	08/16/23 13:05
Total/NA	Prep	7470A			395158	NFT2	EET CF	07/31/23 11:03
Total/NA	Analysis	7470A		1	395301	NFT2	EET CF	08/01/23 13:41
Total/NA	Analysis	9040C		1	394900	W9YR	EET CF	07/27/23 18:29
Total/NA	Analysis	SM 2540C		1	395062	D7CP	EET CF	07/28/23 18:53

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Eurofins Cedar Falls

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

Method Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9040C	pH	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF

Protocol References:

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

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

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401



Environment Testing
America



310-261252 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>NE</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>7/27/23</u>	<u>1645</u>	<u>SK</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No	If yes: Cooler ID: _____	
Multiple Coolers?	☒ Yes ☐ No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____	☐ NONE	
Thermometer ID:	<u>T</u>	Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>4.1</u>	Corrected Temp (°C): <u>4.1</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



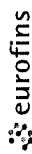
Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>NE</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>7/27/23</u>	<u>1645</u>	<u>SK</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No	If yes: Cooler ID: _____	
Multiple Coolers?	☒ Yes ☐ No	If yes: Cooler # <u>12</u> of <u>2</u>	
Cooler Custody Seals Present?	☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	☒ Wet ice ☐ Blue Ice ☐ Dry ice ☐ Other: _____ ☐ NONE		
Thermometer ID:	<u>T</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>4.15.4</u>	Corrected Temp (°C):	<u>4.15.4</u>
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record

TestAmerica Omaha SC
268

Environment Testing

Client Information		Sampler		Lab PM		Carrier Tracking No(s):		COC No:				
Client Contact		Phone:		Liechti Meredith L		State of Origin:		310-83796-23315 1				
Company		PWSID:		E-Mail: meredith.liechti@et.eurofins.com		Page 1 of 1						
SCS Engineers						Job #:						
Address:		Due Date Requested		Analysis Requested		Preservation Codes:						
14755 Grover St		TAT Requested (days):				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 Other		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (Specify)				
City		Compliance Project: ☐ Yes ☐ No										
Omaha		PO #:										
State Zip		27222120 00										
NE, 68144		WO #:										
Phone:		Project #:										
msykes@scsengineers.com		31014495										
FDDU - City of Fremont		SSOW#:										
Site:												
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, Anal)	Field Filtered Sample (Yes or No)	9315_Ra226 - Radium-226 (GFPc)	9320_Ra228 - Radium-228 (GFPc)	9056A_ORGFM_28D - Chloride, Fluoride, Sulfate	6010D, 6020B, 7470A	2540C, Calcd, 9040C	Total Number of containers	Special Instructions/Note
MW-1	7/26/23	1116	G	Water								
MW-2	7/26/23	1155	G	Water								
MW-3	7/26/23	1023	G	Water								
MW-4R	7-26-23	0944	G	Water								
MW-5	7/26/23	1050	G	Water								
MW-6	Sample Time: 13 12 ON	1222	G	Water								
MW-7	7/26/23	1250	G	Water								
MW-8	7/26/23	1222	G	Water								
DUPLICATE	7/26/23	2359	G	Water								
Possible Hazard Identification												
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological												
Deliverable Requested I, II, III, IV Other (specify)												
Empty Kit Relinquished by: Date: 7-16-23 Time: 1500 Method of Shipment: 1500												
Relinquished by: [Signature] Date/Time: 7/26/23 2:26 Company: SCS												
Relinquished by: [Signature] Date/Time: 7-27-23 0800 Company: ECF												
Relinquished by: [Signature] Date/Time: Date/Time: Date/Time: Company: Company: Company:												
Custody Seals Intact: ☐ Yes ☐ No												
Custody Seal No												
Cooler Temperature(s) °C and Other Remarks:												

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-261252-1

Login Number: 261252

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Morgan Sykes
SCS Engineers
14755 Grover St
Omaha, Nebraska 68144

Generated 8/24/2023 4:36:22 PM

JOB DESCRIPTION

FDU - City of Fremont

JOB NUMBER

310-261252-2

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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8/24/2023 4:36:22 PM

Authorized for release by
Meredith Liechti, Service Center Manager
meredith.liechti@et.eurofinsus.com
(319)277-2401

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Case Narrative

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Job ID: 310-261252-2

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-261252-2

Receipt

The samples were received on 7/27/2023 4:45 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.1°C and 5.4°C

Gas Flow Proportional Counter

Method 9315_Ra226: Radium-226 batch 622353 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-1 (310-261252-1), MW-2 (310-261252-2), MW-3 (310-261252-3), MW-4R (310-261252-4), MW-5 (310-261252-5), MW-6 (310-261252-6), MW-7 (310-261252-7), MW-8 (310-261252-8), Duplicate (310-261252-9), (LCS 160-622353/2-A), (MB 160-622353/1-A), (500-237221-C-10-A) and (500-237221-E-10-A DU)

Method 9320_Ra228: Radium 228 batch 622354 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-1 (310-261252-1), MW-2 (310-261252-2), MW-3 (310-261252-3), MW-4R (310-261252-4), MW-5 (310-261252-5), MW-6 (310-261252-6), MW-7 (310-261252-7), MW-8 (310-261252-8), Duplicate (310-261252-9), (LCS 160-622354/2-A), (MB 160-622354/1-A), (500-237221-C-10-B) and (500-237221-E-10-B DU)

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

Rad

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

Sample Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-261252-1	MW-1	Water	07/26/23 11:16	07/27/23 16:45
310-261252-2	MW-2	Water	07/26/23 11:55	07/27/23 16:45
310-261252-3	MW-3	Water	07/26/23 10:23	07/27/23 16:45
310-261252-4	MW-4R	Water	07/26/23 09:44	07/27/23 16:45
310-261252-5	MW-5	Water	07/26/23 10:50	07/27/23 16:45
310-261252-6	MW-6	Water	07/26/23 13:12	07/27/23 16:45
310-261252-7	MW-7	Water	07/26/23 12:50	07/27/23 16:45
310-261252-8	MW-8	Water	07/26/23 12:22	07/27/23 16:45
310-261252-9	Duplicate	Water	07/26/23 23:59	07/27/23 16:45

Detection Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-1

Lab Sample ID: 310-261252-1

No Detections.

Client Sample ID: MW-2

Lab Sample ID: 310-261252-2

No Detections.

Client Sample ID: MW-3

Lab Sample ID: 310-261252-3

No Detections.

Client Sample ID: MW-4R

Lab Sample ID: 310-261252-4

No Detections.

Client Sample ID: MW-5

Lab Sample ID: 310-261252-5

No Detections.

Client Sample ID: MW-6

Lab Sample ID: 310-261252-6

No Detections.

Client Sample ID: MW-7

Lab Sample ID: 310-261252-7

No Detections.

Client Sample ID: MW-8

Lab Sample ID: 310-261252-8

No Detections.

Client Sample ID: Duplicate

Lab Sample ID: 310-261252-9

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-1

Lab Sample ID: 310-261252-1

Date Collected: 07/26/23 11:16

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.408		0.135	0.139	1.00	0.108	pCi/L	08/01/23 09:50	08/23/23 10:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		30 - 110					08/01/23 09:50	08/23/23 10:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.15		0.533	0.569	1.00	0.540	pCi/L	08/01/23 09:55	08/15/23 13:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		30 - 110					08/01/23 09:55	08/15/23 13:04	1
Y Carrier	80.0		30 - 110					08/01/23 09:55	08/15/23 13:04	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.56		0.550	0.586	5.00	0.540	pCi/L		08/23/23 16:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-2

Lab Sample ID: 310-261252-2

Date Collected: 07/26/23 11:55

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.311		0.122	0.125	1.00	0.122	pCi/L	08/01/23 09:50	08/23/23 10:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.2		30 - 110					08/01/23 09:50	08/23/23 10:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.10		0.496	0.506	1.00	0.669	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.2		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	82.6		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.41		0.511	0.521	5.00	0.669	pCi/L		08/23/23 16:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-3

Lab Sample ID: 310-261252-3

Date Collected: 07/26/23 10:23

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.523		0.134	0.142	1.00	0.0973	pCi/L	08/01/23 09:50	08/23/23 10:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		30 - 110					08/01/23 09:50	08/23/23 10:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.84		0.478	0.507	1.00	0.489	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	82.2		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.36		0.496	0.527	5.00	0.489	pCi/L		08/23/23 16:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-4R

Lab Sample ID: 310-261252-4

Date Collected: 07/26/23 09:44

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.469		0.131	0.138	1.00	0.107	pCi/L	08/01/23 09:50	08/23/23 10:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.5		30 - 110					08/01/23 09:50	08/23/23 10:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.71		0.490	0.515	1.00	0.551	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.5		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	81.1		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.18		0.507	0.533	5.00	0.551	pCi/L		08/23/23 16:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-5

Lab Sample ID: 310-261252-5

Date Collected: 07/26/23 10:50

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.543		0.148	0.155	1.00	0.112	pCi/L	08/01/23 09:50	08/23/23 10:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.4		30 - 110					08/01/23 09:50	08/23/23 10:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.20		0.461	0.474	1.00	0.570	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.4		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	81.9		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.74		0.484	0.499	5.00	0.570	pCi/L		08/23/23 16:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-6

Lab Sample ID: 310-261252-6

Date Collected: 07/26/23 13:12

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.260		0.107	0.109	1.00	0.118	pCi/L	08/01/23 09:50	08/23/23 10:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		30 - 110					08/01/23 09:50	08/23/23 10:19	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.757		0.364	0.371	1.00	0.488	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	81.9		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.02		0.379	0.387	5.00	0.488	pCi/L		08/23/23 16:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-7

Lab Sample ID: 310-261252-7

Date Collected: 07/26/23 12:50

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.472		0.130	0.137	1.00	0.0979	pCi/L	08/01/23 09:50	08/23/23 10:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.2		30 - 110					08/01/23 09:50	08/23/23 10:20	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.22		0.444	0.458	1.00	0.558	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.2		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	83.4		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.69		0.463	0.478	5.00	0.558	pCi/L		08/24/23 14:42	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-8

Lab Sample ID: 310-261252-8

Date Collected: 07/26/23 12:22

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.388		0.121	0.126	1.00	0.110	pCi/L	08/01/23 09:50	08/23/23 10:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		30 - 110					08/01/23 09:50	08/23/23 10:20	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.30		0.423	0.439	1.00	0.478	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	81.1		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.69		0.440	0.457	5.00	0.478	pCi/L		08/24/23 14:42	1

Client Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: Duplicate

Lab Sample ID: 310-261252-9

Date Collected: 07/26/23 23:59

Matrix: Water

Date Received: 07/27/23 16:45

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.325		0.114	0.118	1.00	0.0997	pCi/L	08/01/23 09:50	08/23/23 10:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		30 - 110					08/01/23 09:50	08/23/23 10:20	1

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.705		0.369	0.375	1.00	0.504	pCi/L	08/01/23 09:55	08/15/23 13:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		30 - 110					08/01/23 09:55	08/15/23 13:05	1
Y Carrier	80.7		30 - 110					08/01/23 09:55	08/15/23 13:05	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.03		0.386	0.393	5.00	0.504	pCi/L		08/24/23 14:42	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Qualifiers

Rad

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

Glossary

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

QC Sample Results

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-622353/1-A
Matrix: Water
Analysis Batch: 625261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 622353

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.007754	U	0.0486	0.0486	1.00	0.0989	pCi/L	08/01/23 09:50	08/23/23 10:17	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.7		30 - 110					08/01/23 09:50	08/23/23 10:17	1

Lab Sample ID: LCS 160-622353/2-A
Matrix: Water
Analysis Batch: 625261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 622353

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.951		1.05	1.00	0.103	pCi/L	88	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	93.6		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-622354/1-A
Matrix: Water
Analysis Batch: 624213

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 622354

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1876	U	0.311	0.311	1.00	0.530	pCi/L	08/01/23 09:55	08/15/23 13:04	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.7		30 - 110					08/01/23 09:55	08/15/23 13:04	1
Y Carrier	83.7		30 - 110					08/01/23 09:55	08/15/23 13:04	1

Lab Sample ID: LCS 160-622354/2-A
Matrix: Water
Analysis Batch: 624213

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 622354

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		7.96	8.565		1.18	1.00	0.441	pCi/L	108	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	93.6		30 - 110							
Y Carrier	83.7		30 - 110							

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Rad

Prep Batch: 622353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	PrecSep-21	
310-261252-2	MW-2	Total/NA	Water	PrecSep-21	
310-261252-3	MW-3	Total/NA	Water	PrecSep-21	
310-261252-4	MW-4R	Total/NA	Water	PrecSep-21	
310-261252-5	MW-5	Total/NA	Water	PrecSep-21	
310-261252-6	MW-6	Total/NA	Water	PrecSep-21	
310-261252-7	MW-7	Total/NA	Water	PrecSep-21	
310-261252-8	MW-8	Total/NA	Water	PrecSep-21	
310-261252-9	Duplicate	Total/NA	Water	PrecSep-21	
MB 160-622353/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-622353/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 622354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261252-1	MW-1	Total/NA	Water	PrecSep_0	
310-261252-2	MW-2	Total/NA	Water	PrecSep_0	
310-261252-3	MW-3	Total/NA	Water	PrecSep_0	
310-261252-4	MW-4R	Total/NA	Water	PrecSep_0	
310-261252-5	MW-5	Total/NA	Water	PrecSep_0	
310-261252-6	MW-6	Total/NA	Water	PrecSep_0	
310-261252-7	MW-7	Total/NA	Water	PrecSep_0	
310-261252-8	MW-8	Total/NA	Water	PrecSep_0	
310-261252-9	Duplicate	Total/NA	Water	PrecSep_0	
MB 160-622354/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-622354/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-1

Lab Sample ID: 310-261252-1

Date Collected: 07/26/23 11:16

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:19
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:04
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/23/23 16:36

Client Sample ID: MW-2

Lab Sample ID: 310-261252-2

Date Collected: 07/26/23 11:55

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:19
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/23/23 16:36

Client Sample ID: MW-3

Lab Sample ID: 310-261252-3

Date Collected: 07/26/23 10:23

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:19
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/23/23 16:36

Client Sample ID: MW-4R

Lab Sample ID: 310-261252-4

Date Collected: 07/26/23 09:44

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:19
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/23/23 16:36

Lab Chronicle

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: MW-5

Lab Sample ID: 310-261252-5

Date Collected: 07/26/23 10:50

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:19
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/23/23 16:36

Client Sample ID: MW-6

Lab Sample ID: 310-261252-6

Date Collected: 07/26/23 13:12

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:19
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/23/23 16:36

Client Sample ID: MW-7

Lab Sample ID: 310-261252-7

Date Collected: 07/26/23 12:50

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:20
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/24/23 14:42

Client Sample ID: MW-8

Lab Sample ID: 310-261252-8

Date Collected: 07/26/23 12:22

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:20
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/24/23 14:42

Lab Chronicle

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Client Sample ID: Duplicate

Lab Sample ID: 310-261252-9

Date Collected: 07/26/23 23:59

Matrix: Water

Date Received: 07/27/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			622353	KAC	EET SL	08/01/23 09:50
Total/NA	Analysis	9315		1	625261	FLC	EET SL	08/23/23 10:20
Total/NA	Prep	PrecSep_0			622354	KAC	EET SL	08/01/23 09:55
Total/NA	Analysis	9320		1	624213	FLC	EET SL	08/15/23 13:05
Total/NA	Analysis	Ra226_Ra228		1	625293	SCB	EET SL	08/24/23 14:42

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Laboratory: Eurofins St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

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

Protocol References:

None = None

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

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

Laboratory References:

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



Environment Testing
America



310-261252 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>NE</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>7/27/23</u>	<u>1645</u>	<u>SK</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes: Cooler ID: _____			
Multiple Coolers? ☒ Yes ☐ No If yes: Cooler # <u>1</u> of <u>2</u>			
Cooler Custody Seals Present? ☐ Yes ☒ No If yes: Cooler custody seals intact? ☐ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes: Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes: Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>4.1</u>		Corrected Temp (°C): <u>4.1</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1		CONTAINER 2
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No			
a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



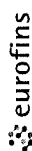
Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>NE</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>7/27/23</u>	<u>1645</u>	<u>SK</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No	If yes: Cooler ID: _____	
Multiple Coolers?	☒ Yes ☐ No	If yes: Cooler # <u>12</u> of <u>2</u>	
Cooler Custody Seals Present?	☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue Ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>4.15.4</u>		Corrected Temp (°C): <u>4.15.4</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record

TestAmerica Omaha SC
268

Client Information		Sampler		Lab PM		Carrier Tracking No(s)		COC No:	
Client Contact Morgan Sykes		Phone:		Liechti Meredith L		State of Origin:		310-83796-23315 1	
Company SCS Engineers		PWSID:		E-Mail: meredith.liechti@et.eurofins.com		Page 1 of 1		Job #:	
Address: 14755 Grover St		Due Date Requested		Analysis Requested		Preservation Codes:		Total Number of Containers	
City Omaha		TAT Requested (days):		9315_Ra226 - Radium-226 (GFPc)		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 Other		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (Specify)	
State Zip NE, 68144		Compliance Project: ☐ Yes ☐ No		920_Ra228 - Radium-228 (GFPc)		D N D N			
Phone:		PO #: 27222120 00		9056A_ORGFM_28D - Chloride, Fluoride, Sulfate		6010D, 6020B, 7470A			
Email: msykes@scsengineers.com		WO #:		Field Filtered Sample (Yes or No)		2540C, Calcd, 9040C			
Project Name: FDU - City of Fremont		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=water/oil)	
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=water/oil)	
Sample Identification									Special Instructions/Note
MW-1		7/26/23	1116	6	Water				
MW-2		7/26/23	1155	6	Water				
MW-3		7/26/23	1023	6	Water				
MW-4R		7-26-23	0944	6	Water				
MW-5		7/26/23	1050	6	Water				
MW-6	Sample Time: 13 12 ON	7/26/23	1222	6	Water				
MW-7		7/26/23	1250	6	Water				
MW-8		7/26/23	1222	6	Water				
DUPLICATE		7/26/23	2359	6	Water				
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological									
Deliverable Requested I, II, III, IV Other (specify)									
Empty Kit Relinquished by: Date: 7-16-23 Time: 1500 Method of Shipment: 150									
Relinquished by: [Signature] Date/Time: 7/26/23 2:26 Company: SCS									
Relinquished by: [Signature] Date/Time: 7-27-23 0800 Company: ECF									
Relinquished by: [Signature] Date/Time: Date/Time: Date/Time: Company: Company: Company:									
Custody Seals Intact: ☐ Yes ☐ No									
Custody Seal No									
Cooler Temperature(s) °C and Other Remarks:									

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-261252-2

Login Number: 261252

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-261252-2

Login Number: 261252

List Number: 2

Creator: Pinette, Meadow L

List Source: Eurofins St. Louis

List Creation: 07/31/23 01:39 PM

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

Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: FDU - City of Fremont

Job ID: 310-261252-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
310-261252-1	MW-1	87.3	
310-261252-2	MW-2	89.2	
310-261252-3	MW-3	91.2	
310-261252-4	MW-4R	89.5	
310-261252-5	MW-5	78.4	
310-261252-6	MW-6	91.7	
310-261252-7	MW-7	90.2	
310-261252-8	MW-8	91.2	
310-261252-9	Duplicate	84.6	
LCS 160-622353/2-A	Lab Control Sample	93.6	
MB 160-622353/1-A	Method Blank	90.7	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-261252-1	MW-1	87.3	80.0
310-261252-2	MW-2	89.2	82.6
310-261252-3	MW-3	91.2	82.2
310-261252-4	MW-4R	89.5	81.1
310-261252-5	MW-5	78.4	81.9
310-261252-6	MW-6	91.7	81.9
310-261252-7	MW-7	90.2	83.4
310-261252-8	MW-8	91.2	81.1
310-261252-9	Duplicate	84.6	80.7
LCS 160-622354/2-A	Lab Control Sample	93.6	83.7
MB 160-622354/1-A	Method Blank	90.7	83.7
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			



04/01/2024

Eurofins Cedar Falls