

2022 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CCR LANDFILL SIBLEY GENERATING STATION SIBLEY, MISSOURI

Presented To:
Evergy Missouri West, Inc.

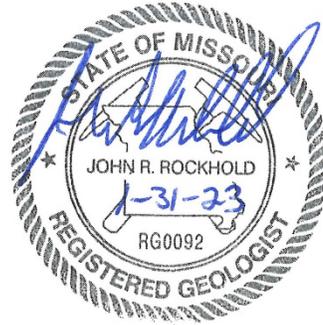
SCS ENGINEERS

27213169.22 | January 2023

8575 W 110th Street, Suite 100
Overland Park, Kansas 66210
913-681-0030

CERTIFICATIONS

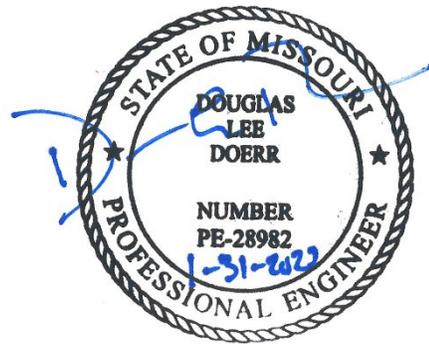
I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2022 Annual Groundwater Monitoring and Corrective Action Report for the CCR Landfill at the Sibley Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



John R. Rockhold, R.G.

SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify that the 2022 Annual Groundwater Monitoring and Corrective Action Report for the CCR Landfill at the Sibley Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



Douglas L. Doerr, P.E.

SCS Engineers

2022 Groundwater Monitoring and Corrective Action Report

Revision Number	Revision Date	Revision Sections	Summary of Revisions
0	January 31, 2023	NA	Original

Table of Contents

Section	Page
CERTIFICATIONS	i
1 INTRODUCTION	1
1.1 § 257.90(e)(6) Summary.....	1
1.1.1 § 257.90(e)(6)(i) Initial Monitoring Program	1
1.1.2 § 257.90(e)(6)(ii) Final Monitoring Program	1
1.1.3 § 257.90(e)(6)(iii) Statistically Significant Increases.....	1
1.1.4 § 257.90(e)(6)(iv) Statistically Significant Levels	2
1.1.5 § 257.90(e)(6)(v) Selection of Remedy	2
1.1.6 § 257.90(e)(6)(vi) Remedial Activities.....	2
2 § 257.90(e) ANNUAL REPORT REQUIREMENTS	3
2.1 § 257.90(e)(1) Site Map.....	3
2.2 § 257.90(e)(2) Monitoring System Changes.....	3
2.3 § 257.90(e)(3) Summary of Sampling Events.....	3
2.4 § 257.90(e)(4) Monitoring Transition Narrative.....	4
2.5 § 257.90(e)(5) Other Requirements.....	4
2.5.1 § 257.90(e) Program Status	4
2.5.2 § 257.94(d)(3) Demonstration for Alternative Detection Monitoring Frequency...5	5
2.5.3 § 257.94(e)(2) Detection Monitoring Alternate Source Demonstration.....	5
2.5.4 § 257.95(c)(3) Demonstration for Alternative Assessment Monitoring Frequency	5
2.5.5 § 257.95(d)(3) Assessment Monitoring Concentrations and Groundwater Protection Standards	6
2.5.6 § 257.95(g)(3)(ii) Assessment Monitoring Alternate Source Demonstration	6
2.5.7 § 257.96(a) Demonstration for Additional Time for Assessment of Corrective Measures	6
2.6 § 257.90(e)(6) Overview Summary.....	7
3 SUPPLEMENTAL INFORMATION AND DATA	7
4 GENERAL COMMENTS	8

Appendices

Appendix A Figures

Figure 1: Site Map

Figure 2: Potentiometric Surface Map (May 2022)

Figure 3: Potentiometric Surface Map (November 2022)

Appendix B Tables

Table 1: Appendix III Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

Appendix C Alternative Source Demonstrations

- C.1 CCR Groundwater Monitoring Alternative Source Demonstration Report November 2021 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (May 2022).

2022 Groundwater Monitoring and Corrective Action Report

- C.2 CCR Groundwater Monitoring Alternative Source Demonstration Report May 2022
Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (December 2022).

Appendix D Laboratory Analytical Reports

Appendix E Statistical Analyses

- E.1 Spring 2021 Semiannual Detection Monitoring Statistical Analyses, Revision 1
- E.2 Fall 2021 Semiannual Detection Monitoring Statistical Analyses
- E.3 Spring 2022 Semiannual Detection Monitoring Statistical Analyses

1 INTRODUCTION

This 2022 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” (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 for Evergy Missouri West, Inc. (Evergy) to fulfill the requirements of 40 CFR 257.90 (e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2022 Annual Groundwater Monitoring and Corrective Action Report for the CCR Landfill at the Sibley Generating Station.

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, 2022), the CCR Landfill was operating under a detection monitoring program in compliance with § 257.94.

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, 2022), the CCR Landfill was operating under a detection monitoring program in compliance with § 257.94.

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

Monitoring Event	Monitoring Well	Constituent	ASD
Fall 2021	MW-505	Total Dissolved Solids	Successful
Fall 2021	MW-506	Chloride	Successful
Fall 2021	MW-506	Sulfate	Successful
Fall 2021	MW-512	Chloride	Successful
Fall 2021	MW-512	Sulfate	Successful

Monitoring Event	Monitoring Well	Constituent	ASD
Fall 2021	MW-512	Total Dissolved Solids	Successful
Spring 2022	MW-506	Chloride	Successful
Spring 2022	MW-506	Sulfate	Successful

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

Not applicable because an assessment monitoring program was not initiated.

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;

Not applicable because there was no assessment monitoring conducted.

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

Not applicable because there was no assessment of corrective measures initiated for the CCR Unit.

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

Not applicable because there was no assessment of corrective measures initiated for the CCR Unit.

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

Not applicable because there was no assessment of corrective measures initiated for the CCR Unit.

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 because 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 because corrective measures are not required.

2 § 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 map with an aerial image showing the CCR Landfill and all background (or upgradient) and downgradient monitoring wells with identification numbers for the CCR Landfill groundwater monitoring program is provided as **Figure 1** in **Appendix A**.

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 CCR groundwater monitoring program for the CCR Landfill in 2022.

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;

Only detection monitoring was required to be conducted during the reporting period (2022). Samples collected in 2022 were collected and analyzed for Appendix III detection monitoring constituents. Results of the sampling events are provided in **Appendix B, Table 1** (Appendix III Detection Monitoring Results), and **Table 2** (Detection Monitoring Field Measurements). These tables include Fall 2021 semiannual detection monitoring event verification sample data collected and analyzed in 2022; Spring 2022 semiannual detection monitoring data, and verification sample data; and, the initial Fall 2022 semiannual detection monitoring data. The

dates of sample collection and the monitoring program requiring the sample are also provided in these tables.

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); and

There was no transition between monitoring programs in 2022. Only detection monitoring was conducted in 2022.

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.

A summary of potentially required information and the corresponding section of the Rule is provided in the following sections. In addition, the information, if applicable, is provided.

2.5.1 § 257.90(e) Program Status

Status of Groundwater Monitoring and Corrective Action Program.

The groundwater monitoring and corrective action program is in detection monitoring.

Summary of Key Actions Completed.

- a. completion of the Fall 2021 verification sampling and analyses per the certified statistical method,
- b. completion of the statistical evaluation of the Fall 2021 semiannual detection monitoring sampling and analysis event per the certified statistical method,
- c. completion of the 2021 Annual Groundwater Monitoring and Corrective Action Report,
- d. completion of a successful alternative source demonstration for the Fall 2021 semiannual detection monitoring sampling and analysis event,
- e. completion of the Spring 2022 semiannual detection monitoring sampling and analysis event with subsequent verification sampling per the certified statistical method,
- f. completion of the statistical evaluation of the Spring 2022 semiannual detection monitoring sampling and analysis event per the certified statistical method,
- g. initiation of the Fall 2022 semiannual detection monitoring sampling and analysis event, and
- h. completion of a successful alternative source demonstration for the Spring 2022 semiannual detection monitoring sampling and analysis event.

Description of Any Problems Encountered.

No noteworthy problems were encountered.

Discussion of Actions to Resolve the Problems.

Not applicable because no noteworthy problems were encountered.

Projection of Key Activities for the Upcoming Year (2023).

Completion of verification sampling and data analysis, and the statistical evaluation of Fall 2022 detection monitoring sampling and analysis event; and, if required, alternative source demonstration(s). Semiannual Spring and Fall 2023 groundwater sampling and analysis. Completion of the statistical evaluation of the Spring 2023 detection monitoring sampling and analysis event; and, if required, alternative source demonstration(s).

2.5.2 § 257.94(d)(3) Demonstration for Alternative Detection Monitoring Frequency

The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable because no alternative monitoring frequency for detection monitoring and certification was pursued.

2.5.3 § 257.94(e)(2) Detection Monitoring Alternate Source Demonstration

Demonstration that a source other than the CCR unit caused the statistically significant increase (SSI) over background levels for a constituent or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. In addition, certification of the demonstration is to be included in the annual report.

The following demonstration reports are included in **Appendix C**:

- C.1 CCR Groundwater Monitoring Alternative Source Demonstration Report November 2021 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (May 2022).
- C.2 CCR Groundwater Monitoring Alternative Source Demonstration Report May 2022 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (December 2022).

2.5.4 § 257.95(c)(3) Demonstration for Alternative Assessment Monitoring Frequency

The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority

stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable because there was no assessment monitoring conducted.

2.5.5 § 257.95(d)(3) Assessment Monitoring Concentrations and Groundwater Protection Standards

Include the concentrations of Appendix III and detected Appendix IV constituents from the assessment monitoring, the established background concentrations, and the established groundwater protection standards.

Not applicable because there was no assessment monitoring conducted.

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

Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents in appendices III and IV to this part are at or below background as specified in paragraph (e) of this section. 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 or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

Not applicable because there was no assessment monitoring conducted.

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

Within 90 days of finding that any constituent listed in appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. 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 no 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 or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

Not applicable because there was no assessment monitoring conducted.

2.6 § 257.90(e)(6) OVERVIEW 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.

§ 257.90(e)(6) is addressed in Section 1.1 of this report.

3 SUPPLEMENTAL INFORMATION AND DATA

In addition to the requirements listed in 40 CFR 257.90(e), supplemental information has been included in this section in recognition of comments received by Evergy from the USEPA on January 11, 2022. The USEPA indicated in their comments that the GWMCA Report contain the following:

- Results of laboratory analysis of groundwater or other environmental media samples for 40 CFR 257 Appendix III and Appendix IV constituents or other constituents, such as those supporting characterization of site conditions that may ultimately affect a remedy.
- Required statistical analysis performed on laboratory analysis results; and
- Calculated groundwater flow rate and direction.

This information is not specifically referred to in 40 CFR 257.90(e) for inclusion in the GWMCA Reports; however, it is routinely collected, determined and maintained in Evergy's files and is being provided with in this GWMCA report. This supplemental information and data are provided as specified below:

- **Laboratory Analytical Reports (Appendix D):**

Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. The laboratory data packages for the following sampling events are provided:

- February 2022 – First verification sampling for the Fall 2021 detection monitoring event.
- March 2022 – Second verification sampling for the Fall 2021 detection monitoring event.
- May 2022 – Spring 2022 semiannual detection monitoring sampling event.
- July 2022 – First verification sampling for the Spring 2022 detection monitoring sampling event.
- August 2022 - Second verification sampling for Spring 2022 detection monitoring sampling event.
- November 2022 - Fall 2022 semiannual detection monitoring sampling event.

- **Statistical Analyses (Appendix E):**

Includes summary of statistical results, prediction limit plots, prediction limit background data, detection sample results, first and second verification re-sample results (when applicable), extra sample results for pH (collected as part of the approved sampling procedures), input parameters, and a Prediction Limit summary table. Statistical analyses completed in 2022 included the following:

- Spring 2021 semiannual detection monitoring statistical analyses, revision 1.
- Fall 2021 semiannual detection monitoring statistical analyses.
- Spring 2022 semiannual detection monitoring statistical analyses.
- Groundwater Potentiometric Surface Maps (**Appendix A**):

Includes revised groundwater potentiometric surface maps with the measured groundwater elevations at each well and the generalized groundwater flow direction and the calculated groundwater flow rate. Maps for the following sampling events are provided:

 - Figure 2 - Spring 2022 semiannual detection monitoring sampling event.
 - Figure 3 - Fall 2022 semiannual detection monitoring sampling event.

4 GENERAL COMMENTS

This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. The information contained in this report is a reflection of the conditions encountered at the Sibley Generating Station at the time of fieldwork. This report includes a review and compilation of the required information and does not reflect any variations of the subsurface, which may occur between sampling locations. Actual subsurface conditions may vary and the extent of such variations may not become evident without further investigation.

Conclusions drawn by others from the result of this work should recognize the limitation of the methods used. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering and geological practices, within the constraints of the client's directives. It is intended for the exclusive use of Evergy Missouri West, Inc., for specific application to the Sibley Generating Station CCR Landfill. No warranties, express or implied, are intended or made.

APPENDIX A

FIGURES

Figure 1: Site Map

Figure 2: Potentiometric Surface Map (May 2022)

Figure 3: Potentiometric Surface Map (November 2022)

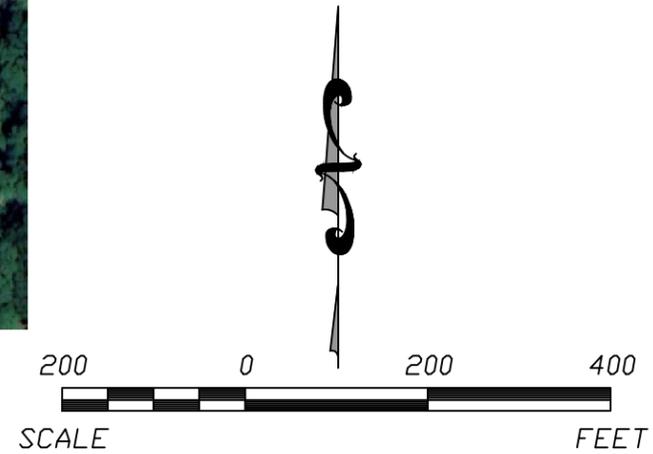


LEGEND:

- 601 GROUNDWATER MONITORING SYSTEM WELLS
- UTILITY WASTE LANDFILL UNIT BOUNDARY
- 516 LANDFILL EXPANSION WELLS

NOTES:

1. HORIZONTAL & VERTICAL DATUM:
URS PLANS FOR CONSTRUCTION,
KCP&L SIBLEY GENERATING STATION,
DESIGN FILE 16530511.00001, DATED
JANUARY 2010.
2. GOOGLE EARTH IMAGE DATED JULY 2022.
3. BOUNDARY AND MONITORING WELL WELL
LOCATIONS SHOWN ARE APPROXIMATE.



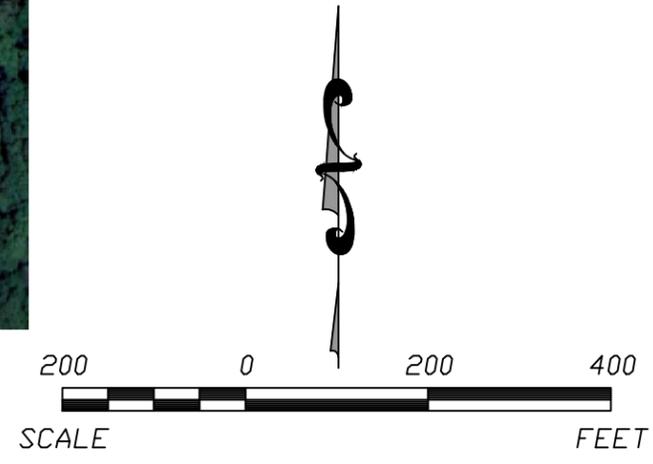
<p>SCS ENGINEERS 8875 W. 110th St. Ste. 100 Overland Park, Kansas 66210 PH: (913) 681-0630 FAX: (913) 681-0012</p>		<p>DATE: 1/25/23</p>
<p>PROJ. NO. 27713167.20</p>	<p>DRN. BY: MBJ</p>	<p>C/A RW BY: JRR</p>
<p>CHK. BY: TOW</p>	<p>CHK. BY: JRR</p>	<p>PROJ. MGR: JRF</p>
<p>CADD FILE: FIGURE 1A_V7.dwg</p>		
<p>CLIENT EVERGY MISSOURI WEST, INC. SIBLEY GENERATING STATION SIBLEY, MISSOURI</p>		
<p>SHEET TITLE CCR LANDFILL GROUNDWATER MONITORING SYSTEM</p>		
<p>PROJECT TITLE 2022 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT</p>		
REV.	DATE	

N:\KCP\Projects\Groundwater\DWG\Sibley\2022\GW\Figure 1A v6.dwg Jan 25, 2023 - 10:05am Layout Name: CCR By: awyly



- LEGEND:**
- 760 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
 - 601 (734.55) GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
 - UTILITY WASTE LANDFILL UNIT BOUNDARY
 - ← 12 FT/YR GROUNDWATER FLOW DIRECTION AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)
 - BTP BELOW TOP OF PUMP
 - 516 (792.19) LANDFILL EXPANSION WELLS (GROUNDWATER ELEVATION)

- NOTES:**
1. HORIZONTAL & VERTICAL DATUM: URS PLANS FOR CONSTRUCTION, KCP&L SIBLEY GENERATING STATION, DESIGN FILE 16530511.00001, DATED JANUARY 2010.
 2. GOOGLE EARTH IMAGE DATED JULY 2022.
 3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.
 4. WATER LEVEL MEASUREMENTS COMPLETED ON MAY 12, 2022.

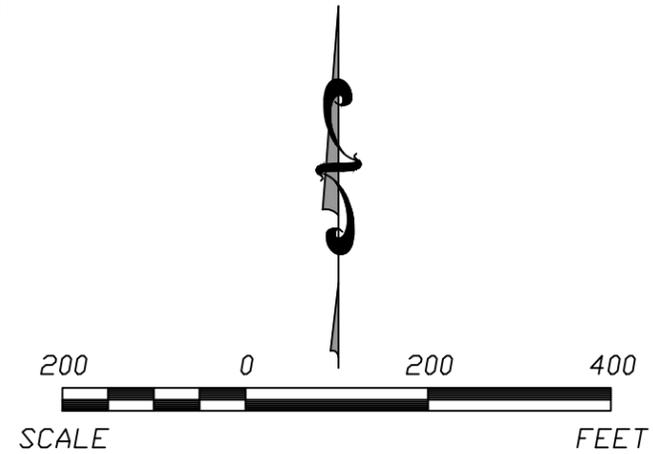


	REV.	DATE	
			POTENTIOMETRIC SURFACE MAP (MAY 2022) CCR LANDFILL
SHEET TITLE		PROJECT TITLE	
EVERGY MISSOURI WEST, INC. SIBLEY GENERATING STATION SIBLEY, MISSOURI		2022 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT	
CLIENT			
SCS ENGINEERS 8875 W. 110th St. Ste. 100 Overland Park, Kansas 66210 PH: (913) 681-0030 FAX: (913) 681-0012 PROJ. NO. 27713167.20 DESK. BY: TOW DWN. BY: MBJ O/A. RW. BY: JRR CHK. BY: JRR PROJ. MGR. JRF			
CADD FILE:			
DATE: 1/25/23			
FIGURE NO. 2			



- LEGEND:**
- 760 - GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
 - 601 (734.55) GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
 - UTILITY WASTE LANDFILL UNIT BOUNDARY
 - ← 12 FT/YR GROUNDWATER FLOW DIRECTION AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)
 - BTP BELOW TOP OF PUMP
 - 516 (785.93) LANDFILL EXPANSION WELLS (GROUNDWATER ELEVATION)

- NOTES:**
1. HORIZONTAL & VERTICAL DATUM: URS PLANS FOR CONSTRUCTION, KCP&L SIBLEY GENERATING STATION, DESIGN FILE 16530511.00001, DATED JANUARY 2010.
 2. GOOGLE EARTH IMAGE DATED JULY 2022.
 3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.
 4. WATER LEVEL MEASUREMENTS COMPLETED ON NOVEMBER 10 & 11, 2022.



	REV.	DATE			
SHEET TITLE			POTENTIOMETRIC SURFACE MAP (NOVEMBER 2022) CCR LANDFILL		
CLIENT			EVERGY MISSOURI WEST, INC. SIBLEY GENERATING STATION SIBLEY, MISSOURI		
PROJECT TITLE			2022 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT		
<p>SCS ENGINEERS 8875 W. 110th St. Ste. 100 Overland Park, Kansas 66210 PH: (913) 681-0630 FAX: (913) 681-0012</p> <p> PROJ. NO. 27713167.20 DESK BY: ALR DWN. BY: ALR CHK. BY: JRR O/A RW BY: JRR PROJ. MGR: JRF </p>					
CADD FILE: FIGURE 1A V5.DWG					
DATE: 1/25/23					
FIGURE NO. 3					

APPENDIX B

TABLES

Table 1: Appendix III Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

Table 1
CCR Landfill
Appendix III Detection Monitoring Results
Energy Sibley Generating Station

Well Number	Sample Date	Appendix III Constituents						Total Dissolved Solids (mg/L)
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	
MW-504	5/12/2022	<0.200	28.7	<1.00	0.168	6.43	29.1	171
MW-504	11/10/2022	<0.200	34.6	<1.00	<0.150	6.58	27.4	168
MW-505	2/1/2022	---	---	---	---	**6.72	---	*182
MW-505	3/2/2022	---	---	---	---	**7.01	---	*185
MW-505	5/12/2022	<0.200	28.9	1.20	0.162	6.58	27.2	182
MW-505	7/15/2022	---	---	---	---	*7.15	*14.0	*180
MW-505	11/10/2022	<0.200	32.9	1.17	<0.150	6.77	23.8	183
MW-506	2/1/2022	---	---	*7.96	---	**7.09	*92.9	---
MW-506	3/2/2022	---	---	*8.10	---	**7.11	*92.9	---
MW-506	5/12/2022	<0.200	89.4	8.39	0.284	7.35	99.0	463
MW-506	7/15/2022	---	---	*8.50	---	**7.31	*102	---
MW-506	8/18/2022	---	---	*12.5	---	**7.57	*95.5	---
MW-506	11/10/2022	<0.200	96.2	9.81	0.229	6.44	96.8	446
MW-510	2/1/2022	---	---	---	---	**7.03	*14.4	---
MW-510	5/12/2022	<0.200	111	3.35	0.285	6.83	15.0	475
MW-510	11/10/2022	<0.200	120	3.99	0.229	7.08	19.7	468
MW-512	2/1/2022	---	*110	*9.14	---	**7.00	*104	*516
MW-512	3/2/2022	---	---	*6.61	---	**6.83	*86.8	*513
MW-512	5/12/2022	<0.200	111	8.66	0.264	6.89	112	548
MW-512	7/15/2022	---	---	*3.71	---	**7.78	*11.7	*394
MW-512	11/10/2022	<0.200	118	9.69	0.195	6.97	115	510
MW-601	5/12/2022	<0.200	100	3.64	0.237	6.84	13.1	394
MW-601	11/10/2022	<0.200	97.4	4.03	0.189	7.02	14.2	383

* Verification Sample obtained per certified statistical method and Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009.

**Extra Sample for Quality Control Validation or per Standard Sampling Procedure

mg/L - milligrams per liter

S.U. - Standard Units

--- Not Sampled

Table 2
CCR Landfill
Detection Monitoring Field Measurements
Evergy Sibley Generating Station

Well Number	Sample Date	pH (S.U.)	Specific Conductivity (µS)	Temperature (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Water Level (ft btoc)	Groundwater Elevation (ft NGVD)
MW-504	5/12/2022	6.43	678	22.35	0.0	54	0.00	21.70	794.62
MW-504	11/10/2022	6.58	276	15.23	0.0	79	2.02	21.64	794.68
MW-505	2/1/2022	**6.72	280	12.14	0.0	151	3.45	28.86	786.11
MW-505	3/2/2022	**7.01	307	15.69	0.0	124	3.90	28.78	786.19
MW-505	5/12/2022	6.58	300	17.35	0.0	186	3.32	24.75	790.22
MW-505	7/15/2022	*7.15	256	25.02	0.0	158	8.33	25.38	789.59
MW-505	11/10/2022	6.77	299	13.95	0.0	147	3.20	27.36	787.61
MW-506	2/1/2022	**7.09	736	11.22	0.0	142	4.40	BTP	NA
MW-506	3/2/2022	**7.11	861	17.28	8.0	127	4.09	BTP	NA
MW-506	5/12/2022	7.35	1410	23.45	0.0	17	3.25	BTP	NA
MW-506	7/15/2022	**7.31	1410	27.45	0.0	13	3.25	BTP	NA
MW-506	8/18/2022	**7.57	786	19.32	0.0	12	4.54	BTP	NA
MW-506	11/10/2022	6.44	750	16.40	4.5	149	5.36	BTP	NA
MW-510	5/12/2022	6.83	889	18.10	0.0	168	3.73	39.36	746.43
MW-510	11/10/2022	7.08	866	16.96	0.0	147	3.77	45.37	740.42
MW-512	2/1/2022	**7.00	854	10.66	0.0	-25	4.20	31.18	738.95
MW-512	3/2/2022	**6.83	975	13.80	18.4	121	2.83	31.44	738.69
MW-512	5/12/2022	6.89	889	19.27	0.0	166	0.00	27.84	742.29
MW-512	7/15/2022	**7.78	651	27.85	0.0	141	5.15	44.38	725.75
MW-512	11/10/2022	6.97	877	14.30	0.0	165	0.00	32.25	737.88
MW-601	5/12/2022	6.84	1260	20.68	0.0	-37	0.00	45.59	735.31
MW-601	11/10/2022	7.02	717	16.27	8.5	18	0.92	46.83	734.07

* Verification Sample obtained per certified statistical method and Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009.

**Extra Sample for Quality Control Validation or per Standard Sampling Procedure

S.U. - Standard Units

µS - microsiemens

°C - Degrees Celsius

ft btoc - Feet Below Top of Casing

ft NGVD - National Geodetic Vertical Datum (NAVD 88)

NTU - Nephelometric Turbidity Unit

BTP - Below Top of Pump

APPENDIX C

ALTERNATIVE SOURCE DEMONSTRATIONS

- C.1 Groundwater Monitoring Alternative Source Demonstration Report November 2021
Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (May 2022)
- C.2 Groundwater Monitoring Alternative Source Demonstration Report May 2022
Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station
(December 2022)

APPENDIX C.1

Groundwater Monitoring Alternative Source Demonstration Report November 2021
Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (May 2022)

CCR GROUNDWATER MONITORING
ALTERNATIVE SOURCE DEMONSTRATION REPORT
NOVEMBER 2021 GROUNDWATER MONITORING EVENT

CCR LANDFILL

Sibley Generating Station
Evergy Missouri West, Inc.
Sibley, Missouri

SCS ENGINEERS

May 2022
File No. 27213169.22

8575 W. 110th Suite 100
Overland Park, KS 66210
913-749-0700

CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Sibley Generating Station. The Alternative Source Demonstration was prepared by me or under my direct supervision in accordance with generally accepted hydrogeological practices and the local standard of care.



John R. Rockhold, R.G.

SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Sibley Generating Station. The Alternative Source Demonstration was prepared by me or under my direct supervision in accordance with generally accepted engineering practices and the local standard of care.



Douglas L. Doerr, P.E.

SCS Engineers

Table of Contents

Section	Page
CERTIFICATIONS.....	i
1 Regulatory Framework	1
2 Statistical Results.....	1
3 Alternative Source Demonstration.....	2
3.1 Time Series Plots	2
3.2 Trend Analysis	3
3.3 Piper Diagram Plots	4
3.4 Stiff Diagrams	5
3.5 Box and Whiskers Plots	5
3.6 Binary Plots.....	6
4 Conclusion	6
5 General Comments	7

Appendices

Appendix A	Figure 1
Appendix B	Time Series Plots
Appendix C	Trend Analysis
Appendix D	Piper Diagram Plots and Analytical Results
Appendix E	Stiff Diagrams and Analytical Results
Appendix F	Box and Whiskers Plots
Appendix G	Binary Plots

1 REGULATORY FRAMEWORK

Certain owners or operators of Coal Combustion Residuals (CCR) units are required to complete groundwater monitoring activities to evaluate whether a release from the unit has occurred. Included in the activities is the completion of a statistical analysis of the groundwater quality data as prescribed in § 257.93(h) of the CCR Final Rule. If the initial analysis indicates a statistically significant increase (SSI) over background levels, the owner or operator may perform an alternative source demonstration (ASD). In accordance with § 257.94(e)(2), the owner or operator of the CCR unit may demonstrate that a source other than the CCR unit caused the SSI over background levels for a constituent, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a SSI over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under § 257.94. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under § 257.95. 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.

2 STATISTICAL RESULTS

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Sibley Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated October 12, 2017. Detection monitoring groundwater samples were collected on November 15, 2021. Review and validation of the results from the November 2021 Detection Monitoring Event was completed on January 7, 2022, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on February 1, 2022 and March 2, 2022.

The completed statistical evaluation identified one Appendix III constituent above its prediction limit established for upgradient monitoring well MW-505, two Appendix III constituents above their respective prediction limits established for monitoring well MW-506, and three Appendix III constituents above their respective prediction limits established for monitoring well MW-512.

Monitoring Well Constituent	*UPL	Observation November 15, 2021	1st Verification February 1, 2022	2nd Verification March 2, 2022
MW-505				
Total Dissolved Solids	180.3	181	182	185
MW-506				
Chloride	7.578	7.78	7.96	8.10
Sulfate	76.83	89.8	92.9	92.9
MW-512				
Chloride	5.094	9.69	9.14	6.61

Monitoring Well Constituent	*UPL	Observation November 15, 2021	1st Verification February 1, 2022	2nd Verification March 2, 2022
Total Dissolved Solids	466.4	527	516	513
Sulfate	44.8	93.1	104	86.8

*UPL – Upper Prediction Limit

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified six SSIs above the background prediction limits. These include total dissolved solids (TDS) at upgradient monitoring well MW-505, chloride and sulfate at monitoring well MW-506, and chloride, TDS, and sulfate at monitoring well MW-512.

3 ALTERNATIVE SOURCE DEMONSTRATION

An Alternative Source Demonstration (ASD) is a means to provide supporting lines of evidence that something other than a release from a regulated CCR unit caused an SSI. For the above-identified SSIs for the CCR Landfill at the Sibley Generating Station, there are multiple lines of supporting evidence to indicate the above SSIs were not caused by a release from the CCR Landfill. Select multiple lines of supporting evidence are described as follows.

3.1 TIME SERIES PLOTS

Time series plots provide a graphical method to view changes in data at a particular well (monitoring point) or wells over time. Time series plots display the variability in concentration levels over time and can be used to indicate possible outliers or data errors (i.e. “spikes”). More than one well can be compared on the same plot to look for differences between wells. Non-detect data is plotted as censored data at one-half of the laboratory reporting limit. Time series plots can also be used to examine the data for trends.

The time series plot for chloride in monitoring wells MW-506 and MW-512 were compared to time series plots for chloride in several upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. Side-gradient and up-gradient monitoring wells are considered to represent natural groundwater since they could not have been impacted by the landfill due to the direction of groundwater travel in relation to the location of the landfill. The comparisons indicate the chloride concentrations increased in non-CCR monitoring system gradient/side-gradient wells MW-515 and MW-516 and the concentrations in MW-506 and MW-512 are near the concentration levels for natural groundwater as represented by the upgradient/side-gradient monitoring wells in the vicinity of the CCR Landfill and that natural groundwater chloride concentrations can fluctuate naturally within upgradient/side-gradient wells such as MW-515 and MW-516.

The time series plots for TDS in upgradient monitoring well MW-505 and MW-512 were compared to time series plots for TDS in several upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. TDS comparisons indicate the concentrations in both MW-505 and MW-512 are within or near the range of concentration levels for natural groundwater in the vicinity of the CCR Landfill.

Time series plots for sulfate in monitoring wells MW-506 and MW-512 were compared to time series plots for sulfate in several upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. Sulfate comparisons indicate the concentrations in MW-506 and MW-512 are within or very near the range of concentration levels for upgradient/side-gradient groundwater in the vicinity of the CCR Landfill; specifically MW-515. Additionally, there has been increasing concentrations of sulfate in upgradient well MW-504 and large variations of concentrations in MW-515, both of which represent natural groundwater conditions.

Figure 1 in Appendix A shows these upgradient and side-gradient non-CCR monitoring system wells and their relationships to groundwater flow near and beneath the CCR Landfill. Because the non-CCR monitoring system wells are located in a nearby area where they could not be impacted by the landfill due to their upgradient and side-gradient locations, and exhibit variability that includes concentrations within the range or similar to those seen in MW-505, MW-506 and MW-512, the observed concentrations are within the range of expected natural spatial variation within and between wells. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels, or that the SSIs could have resulted from natural variation in groundwater quality. Time series plots are provided in **Appendix B**.

3.2 TREND ANALYSIS

Trend analysis was performed to evaluate for statistically significant trends utilizing Sen's Slope/Mann-Kendall Statistical Analysis. Sen's Slope/Mann-Kendall statistical analysis is used to determine if the data exhibits an SSI or statistically significant decreasing (SSD) trend. A trend is the general increase or decrease in observed values of a variable 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 detection 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 are missing.

The Sen's Slope/Mann-Kendall Statistical Analysis was performed at the 98 percent confidence level utilizing the statistical program Sanitas™. Chloride data from December 2015 through the most recent data for upgradient and side-gradient non-CCR monitoring system well MW-516 and downgradient wells MW-506 and MW-512 were used to perform trend analysis. The trend analysis for chloride indicates upgradient/side-gradient well MW-516 has a positive slope (i.e. increasing trend but not statistically significant) and concentrations near that of MW-506 and MW-512. Since this upgradient/side-gradient well shows a positive concentration slope and a concentration range similar to MW-506 and MW-512 and represents natural conditions, it is also likely the downgradient wells increased similarly due to natural conditions.

TDS data from December 2015 through the most recent data for upgradient and side-gradient non-CCR monitoring system wells MW-504, MW-505 and MW-515 and downgradient well MW-512 were used to perform trend analysis. The trend analysis for TDS indicates upgradient well MW-505 and downgradient well MW-512 both have increasing trends and upgradient well MW-504 and upgradient/side-gradient

non-CCR well MW-515 both have positive slopes (i.e. increasing trend but not statistically significant). This indicates that natural groundwater has increasing trends or positive concentration slopes. Additionally, the concentration range for MW-512 is within the total range for MW-515. Since these upgradient and side-gradient wells show an increasing trend or positive concentration slope, it is also likely that downgradient wells increased similarly due to natural conditions.

Sulfate data from December 2015 through the most recent data for upgradient wells MW-504 and MW-505 and downgradient wells MW-506 and MW-512 were used to perform trend analysis. The trend analysis for sulfate indicates upgradient well MW-504 and downgradient wells MW-506 and MW-512 have increasing trends. Since an upgradient well has an increasing trend due to natural conditions not due to the unit, it is also likely the downgradient wells increased similarly due to natural conditions.

These trend analyses demonstrate that a source other than the CCR Landfill caused the SSIs over the background level for calcium, chloride, TDS and sulfate or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Trend analyses are provided in **Appendix C**.

3.3 PIPER DIAGRAM PLOTS

Piper diagrams are a form of tri-linear diagram, and a widely accepted method to provide a visual representation of the ion concentration of groundwater. Piper diagrams portray water compositions and facilitate the interpretation and presentation of chemical analyses. They may be used to visually compare the chemical composition of water quality across wells, and aid in determining whether the waters are similar or dis-similar, and can over time indicate whether the waters are mixing.

A piper diagram has two triangular plots on the right and left side of a 4-sided center field. The three major cations are plotted in the left triangle and anions in the right. Each of the three cation/anion variables, in milliequivalents, is divided by the sum of the three values, to produce a percent of total cation/anions. These percentages determine the location of the associated symbol. The data points in the center field are located by extending the points in the lower triangles to the point of intersection. In order for a piper diagram to be produced, the selected data file must contain the following constituents: Sodium (Na), Potassium (K), Calcium (Ca), Magnesium (Mg), Chloride (Cl), Sulfate (SO₄), Carbonate (CO₃), and Bicarbonate (HCO₃).

A Piper diagram generated for upgradient wells MW-504 and MW-505, downgradient wells MW-506 and MW-512, and landfill leachate is provided in **Appendix D** along with analytical results. The Piper diagram indicates the groundwater from these four wells have similar geochemical characteristics and do not exhibit the same geochemical characteristics as the leachate. The groundwater and the leachate plot in different hydrochemical facies indicating there is no mixing of the two types of water (groundwater and leachate) and that both upgradient and downgradient groundwater characteristics are different from the leachate. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels in MW-505, MW-506, and MW-512, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

3.4 STIFF DIAGRAMS

Stiff diagrams are a graphical method commonly used to portray water compositions and facilitate the interpretation and presentation of chemical analysis. They visually compare the chemical composition of water quality across wells, and aid in determining whether the waters are similar or dis-similar, and can over time indicate whether the waters are mixing.

Stiff diagrams are calculated in terms of milliequivalents and take into account ionic charge and the formula weight for major ions, specifically Sodium (Na) plus Potassium (K), Calcium (Ca), Magnesium (Mg), Chloride (Cl), Sulfate (SO₄), Carbonate (CO₃), and Bicarbonate (HCO₃). The milliequivalents per liter of the cation and anions are plotted across from each other along a central vertical line and the distance from the center line is the value for each constituent.

Stiff diagrams were prepared for MW-505, MW-506 and MW-512 alongside Stiff diagrams calculated for leachate and are provided in **Appendix E**. The Stiff diagrams indicate the groundwater from these three wells have similar geochemical characteristics and do not exhibit the same geochemical characteristics as the leachate. The groundwater and the leachate stiff diagram shapes are dis-similar indicating there is no mixing of the two types of water (groundwater and leachate) and that both upgradient and downgradient groundwater characteristics are different from the leachate. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels in MW-505, MW-506, and MW-512, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

3.5 BOX AND WHISKERS PLOTS

A commonly accepted method to demonstrate and visualize the distribution of data in a given data set is to construct box and whiskers plots. The basic box plotted graphically locates the median, 25th and 75th percentiles of the data set; the "whiskers" extend to the minimum and maximum values of the data set. The range between the ends of a box plot represents the Interquartile Range, which can be used as an estimate of spread or variability. The mean is denoted by a "+".

When comparing multiple wells or well groups, box plots for each well can be lined up on the same axis to roughly compare the variability in each well. This may be used as an exploratory screening for the test of homogeneity of variance across multiple wells.

The box and whiskers plot for chloride in monitoring wells MW-506 and MW-512 were compared to box and whisker plots for chloride in several upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. Chloride comparisons indicate the concentrations in MW-506 and MW-512 are generally within expected concentration levels for natural groundwater in the vicinity of the CCR Landfill.

The box and whiskers plot for TDS in monitoring wells MW-505 and MW-512 were compared to box and whisker plots for TDS in several upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. TDS comparisons indicate the concentrations in MW-505 and MW-512 are generally within expected concentration levels for natural groundwater in the vicinity of the CCR Landfill.

The box and whiskers plot for sulfate in monitoring wells MW-506 and MW-512 were compared to box and whisker plots for sulfate in upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. Sulfate comparisons indicate the concentrations in MW-506 and MW-512 are generally within the range of concentration levels for natural groundwater as represented by upgradient and side-gradient monitoring wells in the vicinity of the CCR Landfill; specifically MW-515.

Figure 1 in Appendix A shows these upgradient and non-CCR monitoring system wells and their relationships to groundwater flow near and beneath the CCR Landfill. Because the non-CCR monitoring system wells are located in a nearby area where they could not be impacted by the landfill due to their upgradient and side-gradient locations, and exhibit natural variability that includes concentrations similar to those seen in MW-505, MW-506 and MW-512, the observed concentrations are within the range of expected natural spatial variation within and between wells. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots are provided in **Appendix F**.

3.6 BINARY PLOTS

Binary plots are another way to visualize data and allow evaluation of mixing of various waters. Binary plots for the monitoring wells and leachate were prepared for pairs of highly mobile constituents. These include chloride - sulfate, boron - sulfate, and boron - chloride. The chloride – sulfate plot identifies the mixing zone between the mean concentrations for upgradient groundwater (MW-504 and MW-505) and leachate. If leachate were mixing with upgradient groundwater, the data for the downgradient wells would fall within the mixing zone on the plot; however, the data for the downgradient wells falls below the mixing zone. The boron – sulfate and boron - chloride plots identify the mixing line between the mean concentrations for upgradient groundwater (MW-504 and MW-505) and leachate. If leachate were mixing with upgradient groundwater, the sulfate – boron and chloride – boron data for MW-506 and MW-512 would fall on the mixing line and the boron concentrations would range from 0.20 mg/L to 1.65 mg/L based on the sulfate mixing line and approximately 0.83 mg/L to 4.6 mg/L based on the chloride mixing line. However, the boron in downgradient wells was not detected at a concentration above the reporting limit of 0.2 mg/L. Therefore, because boron is present in the leachate but is not present in the downgradient wells, leachate is not mixing with groundwater.

These binary plots demonstrate that leachate is not mixing with upgradient groundwater and that a source other than the CCR Landfill caused the SSI over the background level for sulfate or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Binary plots are provided in **Appendix G**.

4 CONCLUSION

Our opinion is that a sufficient body of evidence is available and presented above to demonstrate that a source other than the CCR Landfill caused the SSIs over the background level, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Based

on the successful ASD, the owner or operator of the CCR Landfill may continue with the detection monitoring program under § 257.94.

5 GENERAL COMMENTS

This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering and geological practices, within the constraints of the client's directives. It is intended for the exclusive use of Evergy Missouri West, Inc. for specific application to the Sibley Generating Station. No warranties, express or implied, are intended or made.

The signatures of the certifying registered geologist and professional engineer on this document represents that to the best of their knowledge, information, and belief in the exercise of their professional judgement in accordance with the standard of practice, it is their professional opinions that the aforementioned information is accurate as of the date of such signature. Any opinion or decisions by them are made on the basis of their experience, qualifications, and professional judgement and are not to be construed as warranties or guaranties. In addition, opinions relating to regulatory, environmental, geologic, geochemical and geotechnical conditions interpretations or other estimates are based on available data, and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

Appendix A

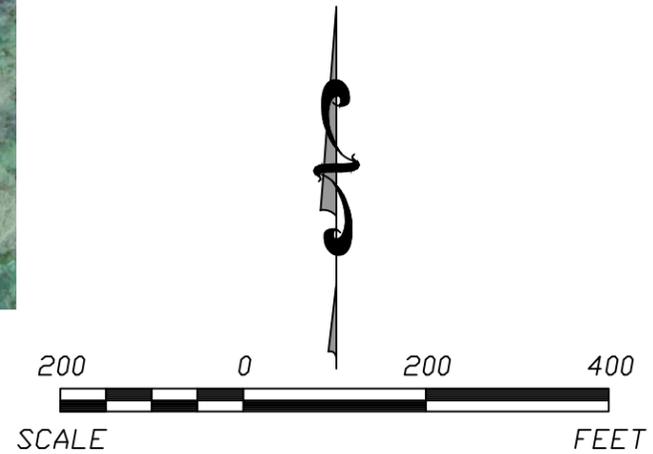
Figure 1

N:\KCP\Projects\Groundwater\DWG\Sibley\2021\GWN\November 2021\Fig 2 - November 2021.dwg Dec 15, 2021 - 7:25pm Layout Name: Fig 2 By: 4415air



- LEGEND:**
- 760 - GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
 - 601 (738.07) GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
 - CCR LANDFILL UNIT BOUNDARY
 - ← GROUNDWATER FLOW DIRECTION
 - BTP BELOW TOP OF PUMP

- NOTES:**
- HORIZONTAL & VERTICAL DATUM: URS PLANS FOR CONSTRUCTION, KCP&L SIBLEY GENERATING STATION, DESIGN FILE 16530511.00001, DATED JANUARY 2010
 - GOOGLE EARTH AERIAL IMAGE. APRIL 2020.
 - BOUNDARY AND MONITORING WELL LOCATIONS SHOWN ARE APPROXIMATE.

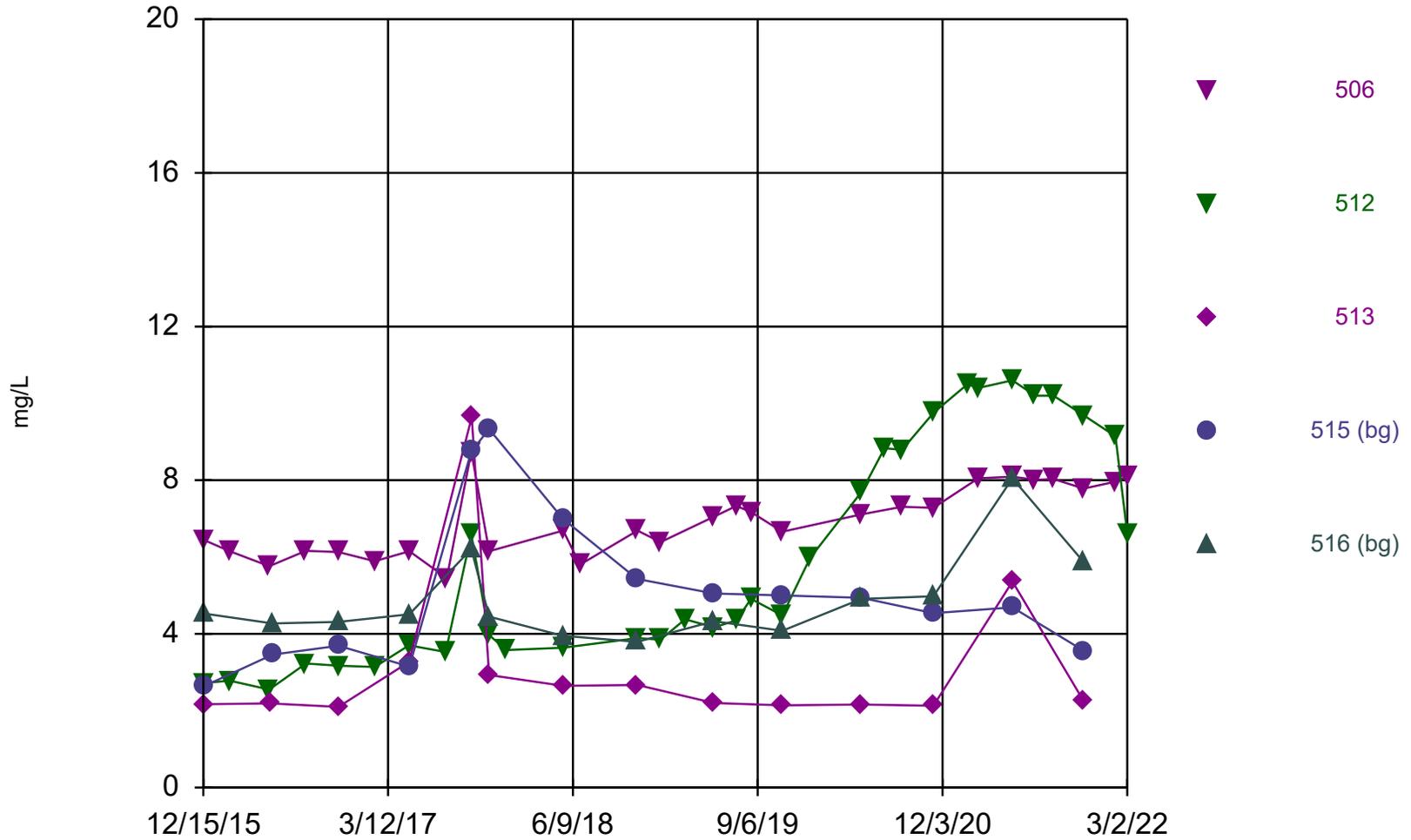


REV.	DATE		
SHEET TITLE		POTENTIOMETRIC SURFACE MAP (NOVEMBER 2021)	
PROJECT TITLE		ALTERNATIVE SOURCE DEMONSTRATION (NOV 2021)	
CLIENT			
EVERGY MISSOURI WEST, INC. SIBLEY GENERATING STATION SIBLEY, MISSOURI			
SCS ENGINEERS 8875 W. 110th St. Ste. 100 Overland Park, Kansas 66210 PH: (913) 681-0030 FAX: (913) 681-0012			
PROJ. NO.	DWG. BY:	CHK. BY:	DATE:
277313167.20	ALR	JRR	12/15/21
CADD FILE: FIG 2 - NOVEMBER 2021.DWG			
DATE: 12/15/21			
FIGURE NO. 1			

Appendix B

Time Series Plots

Time Series



Constituent: Chloride Analysis Run 5/16/2022 12:15 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

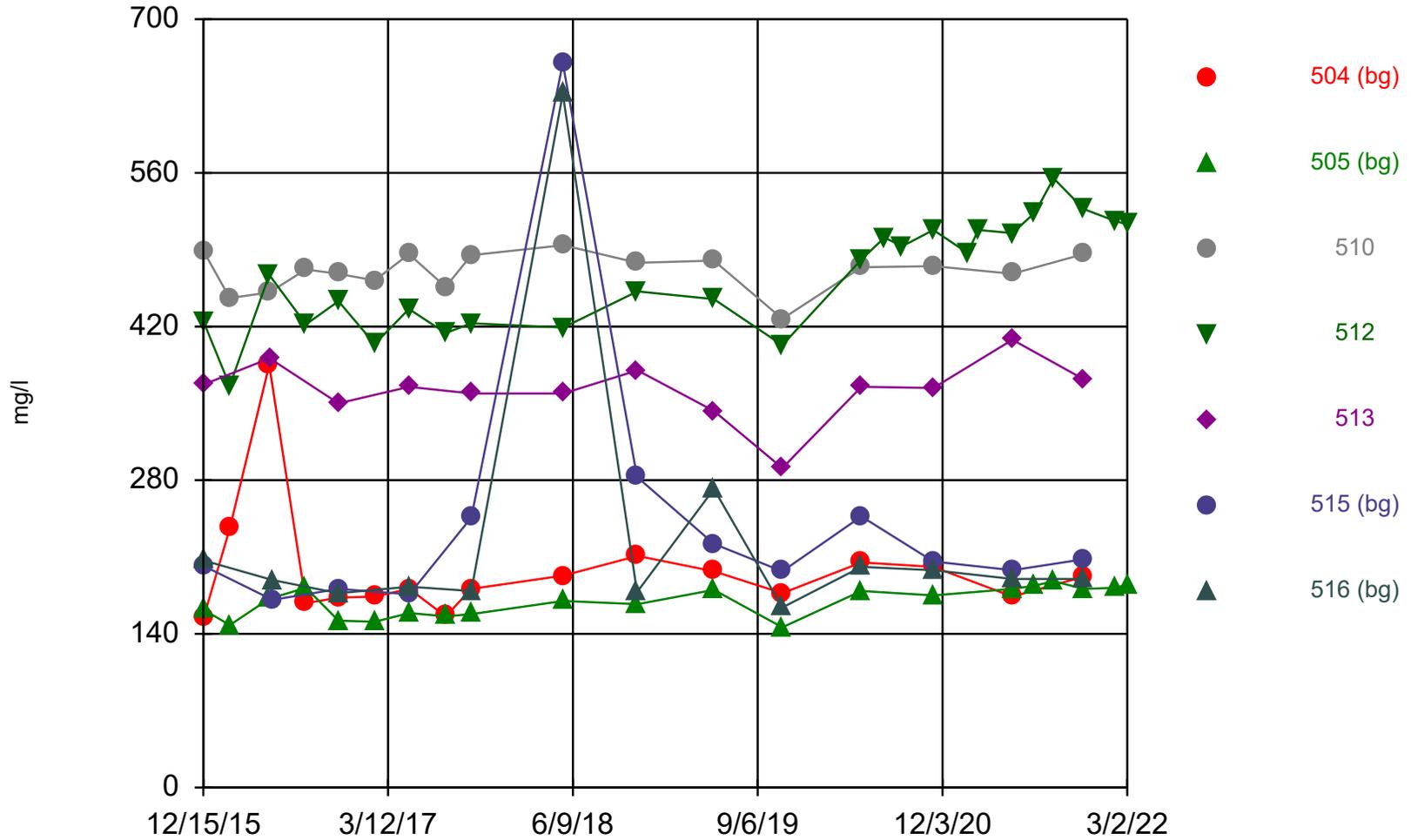
Time Series

Constituent: Chloride (mg/L) Analysis Run 5/16/2022 12:16 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	512	513	515 (bg)	516 (bg)
12/15/2015	6.45	2.72	2.17	2.63	4.53
2/18/2016	6.15	2.78			
5/25/2016	5.76	2.55			
5/26/2016			2.19		
6/2/2016				3.46	4.27
8/23/2016	6.16	3.23			
11/11/2016	6.13	3.17	2.1	3.69	4.31
2/8/2017	5.89	3.14			
5/3/2017		3.7	3.27		
5/4/2017	6.15			3.15	4.51
8/1/2017		3.53			
8/4/2017	5.45				
10/3/2017	8.74	6.59		8.75	6.21
10/4/2017			9.64		
11/16/2017	6.15	3.97	2.93	9.33	4.45
12/28/2017		3.58			
5/16/2018				7	3.95
5/17/2018	6.69	3.64	2.65		
6/27/2018	5.8				
11/14/2018				5.43	3.79
11/15/2018	6.69	3.89	2.67		
1/11/2019	6.39	3.85			
3/12/2019		4.38			
5/22/2019	7.05	4.17	2.2	5.05	4.33
7/16/2019	7.33	4.35			
8/21/2019	7.17	4.91			
11/6/2019	6.66	4.48	2.14	5	4.08
1/13/2020		5.97			
5/18/2020	7.11	7.69	2.16	4.94	4.91
7/14/2020		8.83			
8/26/2020	7.31	8.79			
11/11/2020	7.28	9.75	2.13	4.54	4.98
2/3/2021		10.5			
3/1/2021	8.05	10.4			
5/24/2021	8.09	10.6	5.36	4.69	8.05
7/19/2021	8.01	10.2			
9/2/2021	8.03	10.2			
11/15/2021	7.78	9.69	2.25	3.56	5.87
2/1/2022	7.96	9.14			
3/2/2022	8.1	6.61			

Time Series



Constituent: Dissolved Solids Analysis Run 5/16/2022 11:31 AM View: LF III
Sibley Client: SCS Engineers Data: Sibley

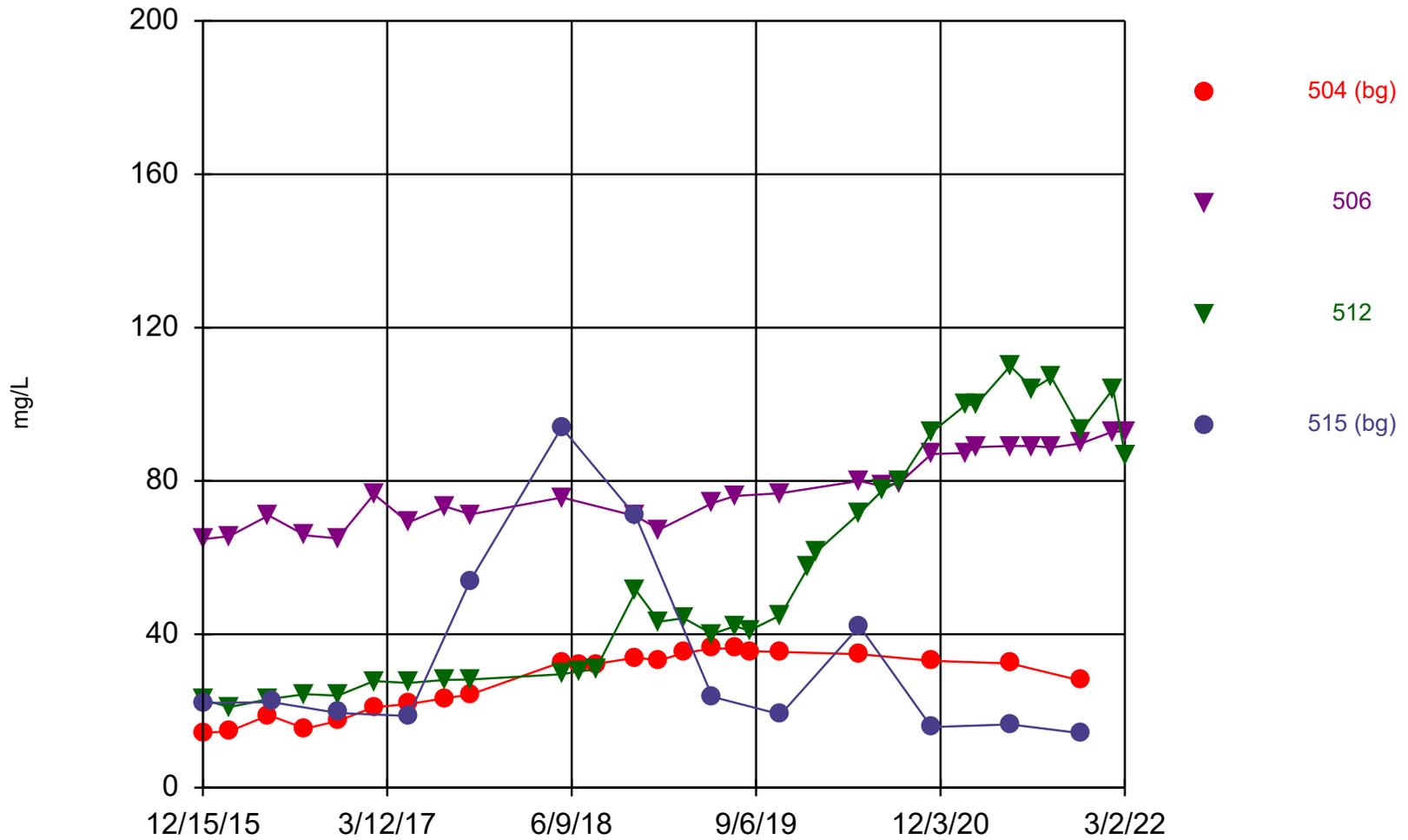
Time Series

Constituent: Dissolved Solids (mg/l) Analysis Run 5/16/2022 11:32 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504 (bg)	505 (bg)	510	512	513	515 (bg)	516 (bg)
12/15/2015			489	425	367	202	207
12/16/2015	155	162					
2/18/2016	236	148	446	366			
5/25/2016	385	172	451	467			
5/26/2016					391		
6/2/2016						171	189
8/23/2016	168	182	472	422			
11/10/2016			468				
11/11/2016	173	152		443	350	181	177
2/8/2017	174	151	462	404			
5/3/2017			486	436	365		
5/4/2017	181	159				176	183
8/1/2017	156	156	456	414			
10/3/2017	181	158	485	423		246	179
10/4/2017					359		
5/16/2018						660	632
5/17/2018	193	170	494	419	359		
11/14/2018						283	178
11/15/2018	211	167	478	452	380		
5/22/2019	197	180	480	445	343	222	272
11/6/2019	177	146	427	403	291	197	164
5/18/2020	205	179	474	481	365	247	201
7/14/2020				501			
8/26/2020				493			
11/11/2020	201	175	475	508	364	206	198
2/3/2021				487			
3/1/2021				508			
5/24/2021	174	181	468	505	408	198	190
7/19/2021		184		524			
9/2/2021		188		555			
11/15/2021	192	181	486	527	372	208	190
2/1/2022		182		516			
3/2/2022		185		513			

Time Series



Constituent: Sulfate Analysis Run 5/16/2022 11:36 AM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Time Series

Constituent: Sulfate (mg/L) Analysis Run 5/16/2022 11:37 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

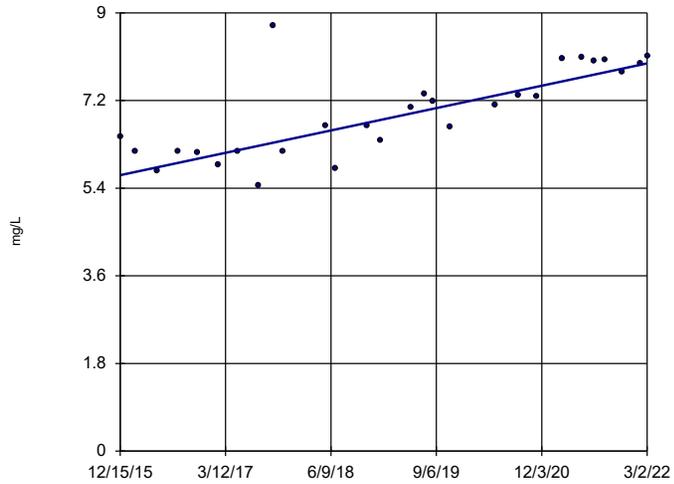
	504 (bg)	506	512	515 (bg)
12/15/2015		64.8	23	22.1
12/16/2015	14.3			
2/18/2016	14.7	65.6	21	
5/25/2016	18.9	71	23.1	
6/2/2016				22.3
8/23/2016	15.4	65.8	24.4	
11/11/2016	17.4	65	24	19.5
2/8/2017	21	76.5	27.8	
5/3/2017			27.3	
5/4/2017	21.8	69.2		18.7
8/1/2017	23.3		28.1	
8/4/2017		73.3		
10/3/2017	24.3	71.3	28.2	54
5/16/2018				93.9
5/17/2018	32.8	75.7	29.6	
6/27/2018	31.8		30.3	
8/8/2018	32.3		30.9	
11/14/2018				70.8
11/15/2018	33.9	70.8	51.4	
1/11/2019	33.2	67.3	43.3	
3/12/2019	35.1		44.2	
5/22/2019	36.3	74.2	40.1	23.7
7/16/2019	36.3	76.1	42.1	
8/21/2019	35.6		41	
11/6/2019	35.4	76.8	45	19.1
1/13/2020			57.5	
2/3/2020			61.6	
5/18/2020	34.8	80	71.6	42.1
7/14/2020		78.6	77.6	
8/26/2020		79.6	80.1	
11/11/2020	33.1	87	92.6	15.8
2/3/2021		87.3	99.8	
3/1/2021		88.8	99.9	
5/24/2021	32.4	89.1	110	16.5
7/19/2021		89.1	104	
9/2/2021		88.7	107	
11/15/2021	27.9	89.8	93.1	14.2
2/1/2022		92.9	104	
3/2/2022		92.9	86.8	

Appendix C

Trend Analysis

Sen's Slope Estimator

506

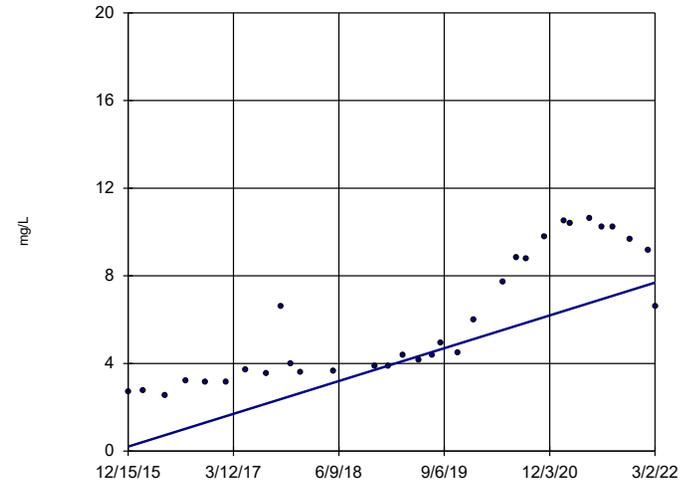


n = 28
Slope = 0.3692
units per year.
Mann-Kendall
statistic = 224
critical = 119
Increasing trend
significant at 98%
confidence level
($\alpha = 0.01$ per
tail).

Constituent: Chloride Analysis Run 5/16/2022 2:13 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

512

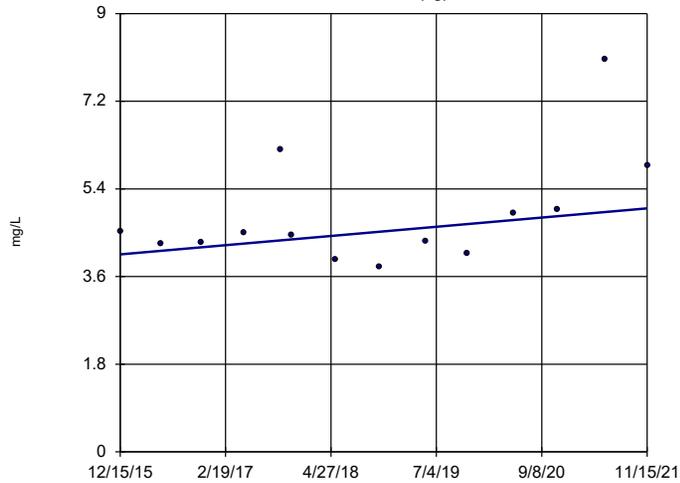


n = 32
Slope = 1.204
units per year.
Mann-Kendall
statistic = 377
critical = 145
Increasing trend
significant at 98%
confidence level
($\alpha = 0.01$ per
tail).

Constituent: Chloride Analysis Run 5/16/2022 2:13 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

516 (bg)



n = 14
Slope = 0.1597
units per year.
Mann-Kendall
statistic = 23
critical = 44
Trend not sig-
nificant at 98%
confidence level
($\alpha = 0.01$ per
tail).

Constituent: Chloride Analysis Run 5/16/2022 2:13 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

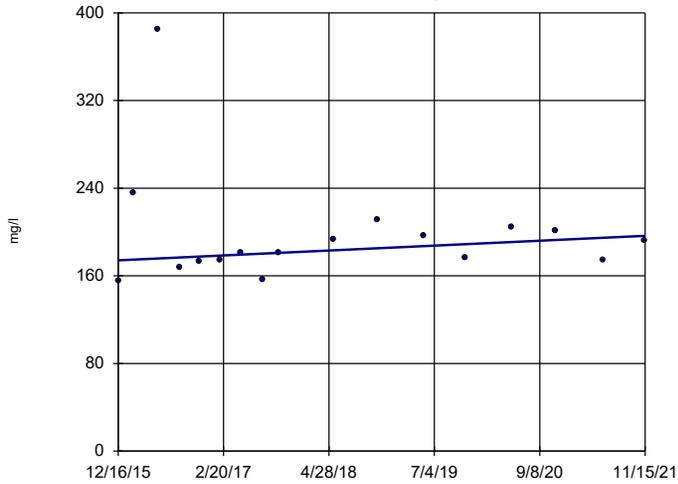
Trend Test

Sibley Client: SCS Engineers Data: Sibley Printed 5/16/2022, 2:14 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>
Chloride (mg/L)	506	0.3692	224	119	Yes	28	0	n/a	n/a	0.02	NP
Chloride (mg/L)	512	1.204	377	145	Yes	32	0	n/a	n/a	0.02	NP
Chloride (mg/L)	516 (bg)	0.1597	23	44	No	14	0	n/a	n/a	0.02	NP

Sen's Slope Estimator

504 (bg)

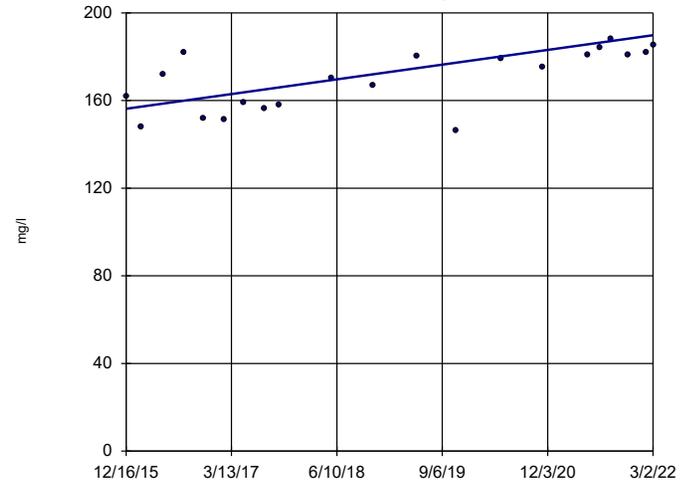


n = 17
 Slope = 3.782 units per year.
 Mann-Kendall statistic = 26
 critical = 58
 Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Dissolved Solids Analysis Run 5/16/2022 1:42 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

505 (bg)

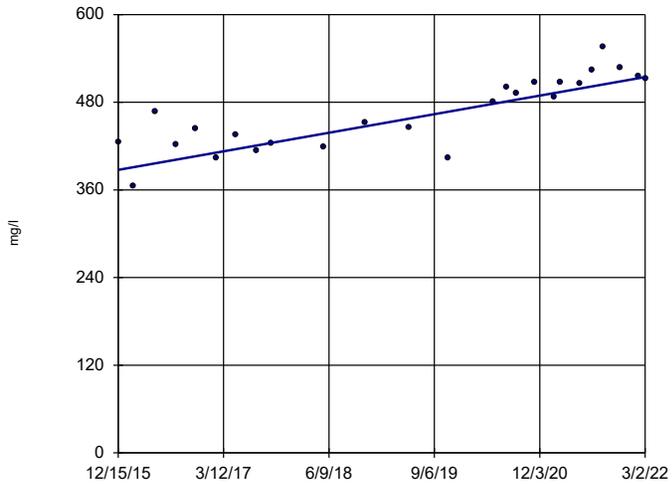


n = 21
 Slope = 5.402 units per year.
 Mann-Kendall statistic = 110
 critical = 78
 Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Dissolved Solids Analysis Run 5/16/2022 1:42 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

512

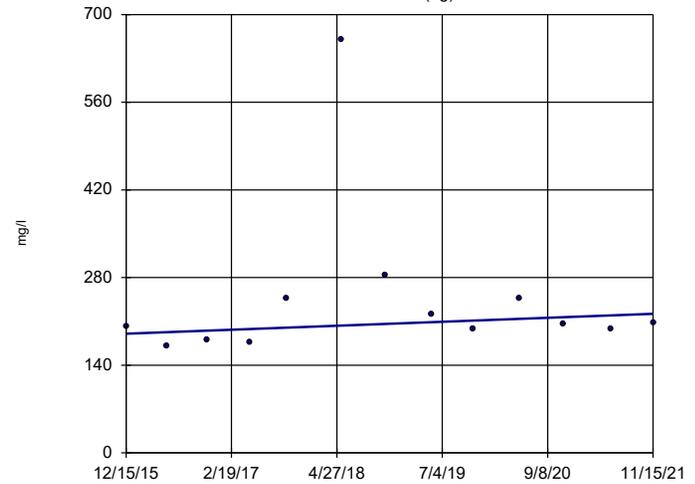


n = 25
 Slope = 20.44 units per year.
 Mann-Kendall statistic = 193
 critical = 101
 Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Dissolved Solids Analysis Run 5/16/2022 1:42 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

515 (bg)



n = 13
 Slope = 5.372 units per year.
 Mann-Kendall statistic = 14
 critical = 39
 Trend not significant at 98% confidence level (α = 0.01 per tail).

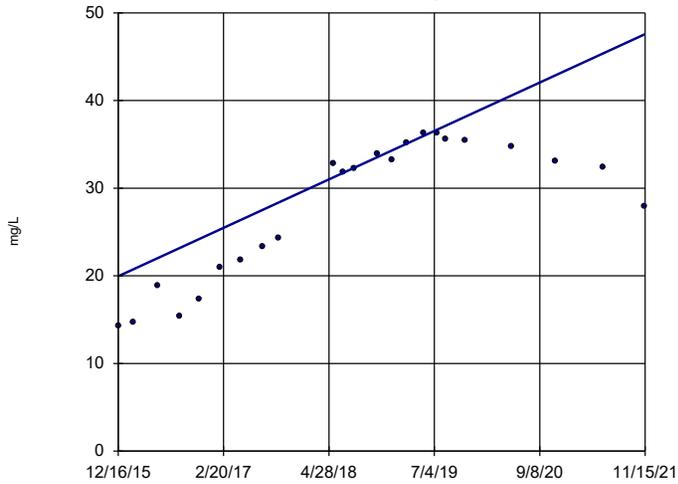
Constituent: Dissolved Solids Analysis Run 5/16/2022 1:42 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Trend Test

Sibley Client: SCS Engineers Data: Sibley Printed 5/16/2022, 1:44 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>
Dissolved Solids (mg/l)	504 (bg)	3.782	26	58	No	17	0	n/a	n/a	0.02	NP
Dissolved Solids (mg/l)	505 (bg)	5.402	110	78	Yes	21	0	n/a	n/a	0.02	NP
Dissolved Solids (mg/l)	512	20.44	193	101	Yes	25	0	n/a	n/a	0.02	NP
Dissolved Solids (mg/l)	515 (bg)	5.372	14	39	No	13	0	n/a	n/a	0.02	NP

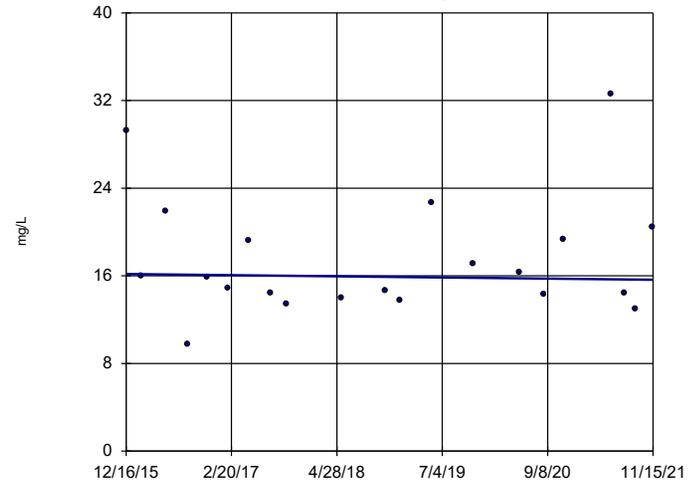
Sen's Slope Estimator 504 (bg)



n = 23
 Slope = 4.669
 units per year.
 Mann-Kendall
 statistic = 160
 critical = 89
 Increasing trend
 significant at 98%
 confidence level
 ($\alpha = 0.01$ per
 tail).

Constituent: Sulfate Analysis Run 5/16/2022 1:45 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

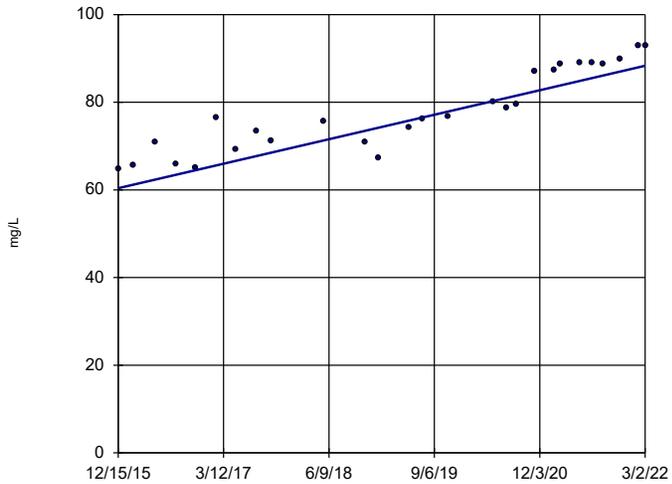
Sen's Slope Estimator 505 (bg)



n = 21
 Slope = -0.08841
 units per year.
 Mann-Kendall
 statistic = -5
 critical = -78
 Trend not sig-
 nificant at 98%
 confidence level
 ($\alpha = 0.01$ per
 tail).

Constituent: Sulfate Analysis Run 5/16/2022 1:45 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

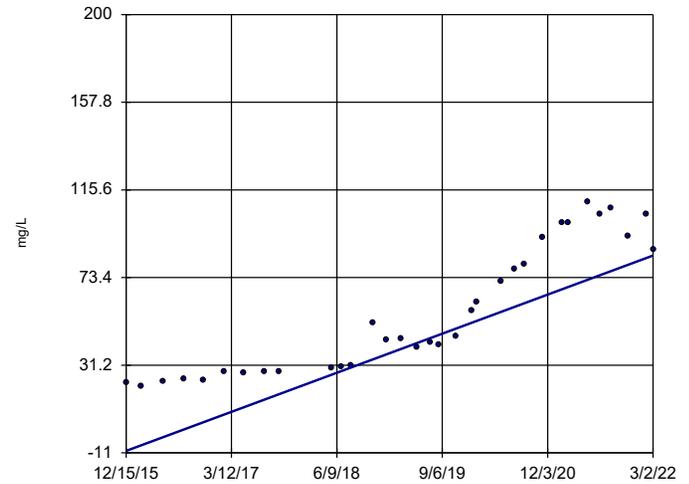
Sen's Slope Estimator 506



n = 27
 Slope = 4.492
 units per year.
 Mann-Kendall
 statistic = 289
 critical = 112
 Increasing trend
 significant at 98%
 confidence level
 ($\alpha = 0.01$ per
 tail).

Constituent: Sulfate Analysis Run 5/16/2022 1:45 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator 512



n = 33
 Slope = 15.13
 units per year.
 Mann-Kendall
 statistic = 461
 critical = 151
 Increasing trend
 significant at 98%
 confidence level
 ($\alpha = 0.01$ per
 tail).

Constituent: Sulfate Analysis Run 5/16/2022 1:45 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Trend Test

Sibley Client: SCS Engineers Data: Sibley Printed 5/16/2022, 1:46 PM

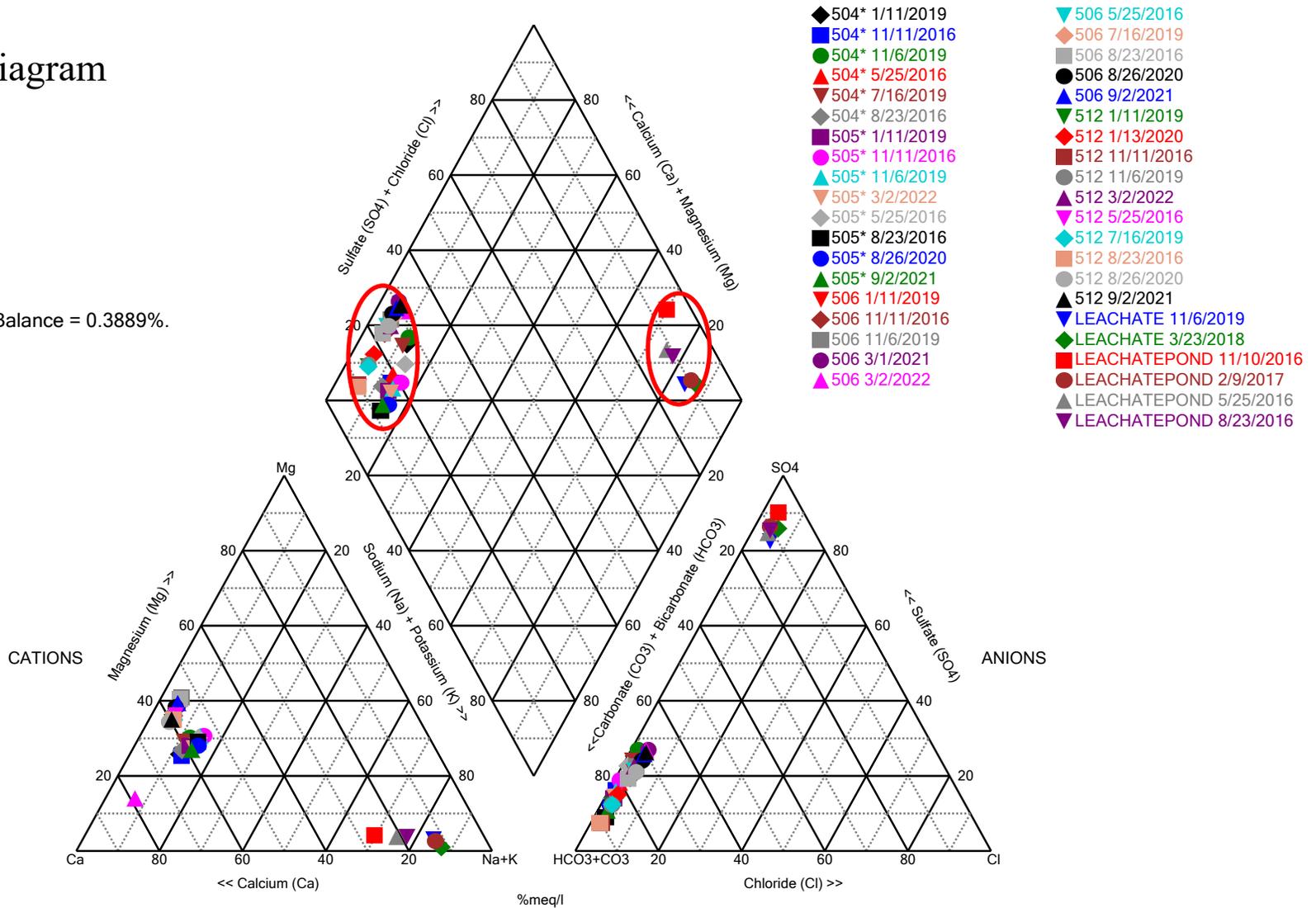
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Sulfate (mg/L)	504 (bg)	4.669	160	89	Yes	23	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	505 (bg)	-0.08841	-5	-78	No	21	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	506	4.492	289	112	Yes	27	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	512	15.13	461	151	Yes	33	0	n/a	n/a	0.02	NP

Appendix D

Piper Diagram Plots and Analytical Results

Piper Diagram

Cation-Anion Balance = 0.3889%.



Analysis Run 5/16/2022 2:52 PM View: Pipers ASD

Sibley Client: SCS Engineers Data: Sibley

Piper Diagram

Analysis Run 5/16/2022 2:53 PM View: Pipers ASD

Sibley Client: SCS Engineers Data: Sibley

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3	CO3
504* 5/25/2016	6.54	1.27	30.2	8.36	0.5	18.9	89	10
504* 8/23/2016	6.61	1.15	32.2	8.56	0.5	15.4	99.5	10
504* 11/11/2016	8.17	1.3	36.9	8.97	0.5	17.4	94.7	10
504* 1/11/2019	7.64	1.9	39.3	9.85	0.5	33.2	103	10
504* 7/16/2019	7.92	1.49	40.6	11.8	0.5	36.3	124	10
504* 11/6/2019	7.31	1.33	34.1	10.7	0.5	35.4	101	10
505* 5/25/2016	6.93	0.5	24.6	8.05	0.5	21.9	75.3	10
505* 8/23/2016	7.28	0.5	25.7	7.97	1.19	9.73	101	10
505* 11/11/2016	6.91	0.5	21.6	7.39	0.5	15.9	68.5	10
505* 1/11/2019	7.54	0.5	29.5	8.42	1	13.8	87.5	10
505* 11/6/2019	8.24	0.5	28.2	9.54	0.5	17.1	93.6	10
505* 8/26/2020	8.95	1	30.3	8.95	1.03	14.3	110	10
505* 9/2/2021	8.97	1	34.1	9.34	1.23	13	118	10
505* 3/2/2022	9	1	32.8	9.32	1.18	16.8	107	10
506 5/25/2016	8.51	2.19	98.3	43.6	5.76	71	304	10
506 8/23/2016	8.28	1.79	97.2	42.8	6.16	65.8	326	10
506 11/11/2016	8.44	2.37	96.5	41.2	6.13	65	312	10
506 1/11/2019	8.21	1.85	93	39.7	6.39	67.3	292	10
506 7/16/2019	8.24	1.89	95.3	40.7	7.33	76.1	291	10
506 11/6/2019	8.1	1.88	93.7	42.2	6.66	76.8	306	10
506 8/26/2020	8.15	1	93.9	38.2	7.31	79.6	289	10
506 3/1/2021	8.14	1	93	38.8	8.05	88.8	277	10
506 9/2/2021	8.43	1	91.1	38.3	8.03	88.7	296	10
506 3/2/2022	9.44	1	94.6	10	8.1	92.9	293	10
512 5/25/2016	10	2.24	98.9	36.8	2.55	23.1	356	10
512 8/23/2016	10.3	2.13	103	36.9	3.23	24.4	384	10
512 11/11/2016	9.96	2.16	100	35.6	3.17	24	352	10
512 1/11/2019	10.6	2.25	110	37.8	3.85	43.3	366	10
512 7/16/2019	10.4	2.33	108	38.6	4.35	42.1	363	10
512 11/6/2019	10	2.21	105	39.4	4.48	45	377	10
512 1/13/2020	9.87	2.18	103	38.4	5.97	57.5	391	10
512 8/26/2020	10.4	2.13	114	38.9	8.79	80.1	349	10
512 9/2/2021	10.3	2.16	114	39.9	10.2	107	349	10
512 3/2/2022	11.3	2.4	118	41.6	6.61	86.8	355	10
LEACHATEPOND 5/25/2016	499	58.6	129	12.9	44.1	1440	10	119
LEACHATEPOND 8/23/2016	479	56.8	108	12.8	42.8	1320	10	104
LEACHATEPOND 11/10/2016	651	75.3	224	22.5	50.4	1820	30.5	68.3
LEACHATEPOND 2/9/2017	678	66.2	89.4	10.8	64.5	2200	38.9	146
LEACHATE 3/23/2018	741	70.3	88.5	4.66	79.1	1690	10	108
LEACHATE 11/6/2019	732	76.4	101	13.5	74.3	1630	53.3	125

Appendix E

Stiff Diagrams and Analytical Results

Stiff Diagram

Analysis Run 5/16/2022 2:57 PM View: Pipers ASD

Sibley Client: SCS Engineers Data: Sibley

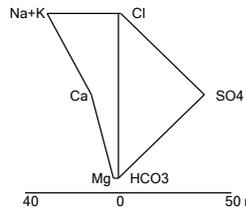
Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3
505* 5/25/2016	6.93	0.5	24.6	8.05	0.5	21.9	75.3
505* 8/23/2016	7.28	0.5	25.7	7.97	1.19	9.73	101
505* 11/11/2016	6.91	0.5	21.6	7.39	0.5	15.9	68.5
505* 11/15/2018	8.45	0	30.8	9.26	0.5	14.6	0
505* 1/11/2019	7.54	0.5	29.5	8.42	1	13.8	87.5
505* 5/22/2019	9.18	0	26.4	10	0.5	22.7	0
505* 11/6/2019	8.24	0.5	28.2	9.54	0.5	17.1	93.6
505* 5/18/2020	7.6	0	30.5	9.19	1.06	16.3	0
505* 8/26/2020	8.95	1	30.3	8.95	1.03	14.3	110
505* 11/11/2020	7.71	0	29.1	9.27	0.5	19.3	0
505* 5/24/2021	7.69	0	34.4	10.4	1.11	32.6	0
505* 9/2/2021	8.97	1	34.1	9.34	1.23	13	118
505* 11/15/2021	7.49	0	27.7	9.36	1.13	20.4	0
505* 3/2/2022	9	1	32.8	9.32	1.18	16.8	107
LEACHATEPOND 5/25/2016	499	58.6	129	12.9	44.1	1440	10
LEACHATEPOND 8/23/2016	479	56.8	108	12.8	42.8	1320	10
LEACHATEPOND 11/10/2016	651	75.3	224	22.5	50.4	1820	30.5
LEACHATEPOND 2/9/2017	678	66.2	89.4	10.8	64.5	2200	38.9
LEACHATE 3/23/2018	741	70.3	88.5	4.66	79.1	1690	10
LEACHATE 11/6/2019	732	76.4	101	13.5	74.3	1630	53.3
505* 3/12/2019	n/a	n/a	24.9	0	0	0	0
505* 7/14/2020	n/a	n/a	32.4	0	0	0	0
505* 7/19/2021	n/a	n/a	34.8	0	0	14.4	0

Stiff Diagram

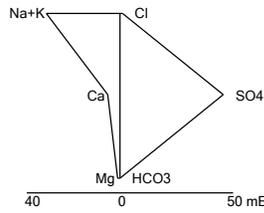
Analysis Run 5/16/2022 3:11 PM View: Pipers ASD

Sibley Client: SCS Engineers Data: Sibley

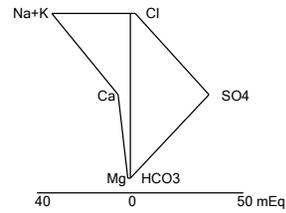
Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3
506 5/25/2016	8.51	2.19	98.3	43.6	5.76	71	304
506 8/23/2016	8.28	1.79	97.2	42.8	6.16	65.8	326
506 11/15/2018	8.54	0	93.4	41.6	6.69	70.8	0
506 1/11/2019	8.21	1.85	93	39.7	6.39	67.3	292
506 7/16/2019	8.24	1.89	95.3	40.7	7.33	76.1	291
506 11/6/2019	8.1	1.88	93.7	42.2	6.66	76.8	306
506 5/18/2020	7.93	0	92.7	39	7.11	80	0
506 8/26/2020	8.15	1	93.9	38.2	7.31	79.6	289
506 11/11/2020	8.38	0	93.4	40.1	7.28	87	0
506 3/1/2021	8.14	1	93	38.8	8.05	88.8	277
506 9/2/2021	8.43	1	91.1	38.3	8.03	88.7	296
506 3/2/2022	9.44	1	94.6	10	8.1	92.9	293
LEACHATEPOND 5/25/2016	499	58.6	129	12.9	44.1	1440	10
LEACHATEPOND 8/23/2016	479	56.8	108	12.8	42.8	1320	10
LEACHATEPOND 11/10/2016	651	75.3	224	22.5	50.4	1820	30.5
LEACHATEPOND 2/9/2017	678	66.2	89.4	10.8	64.5	2200	38.9
LEACHATE 3/23/2018	741	70.3	88.5	4.66	79.1	1690	10
LEACHATE 11/6/2019	732	76.4	101	13.5	74.3	1630	53.3



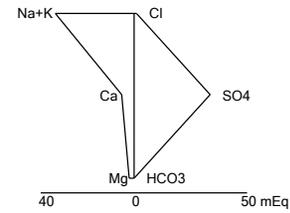
LEACHATEPOND 11/10/2016



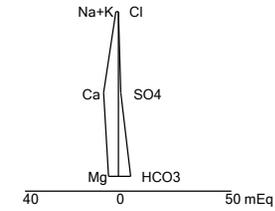
LEACHATEPOND 2/9/2017



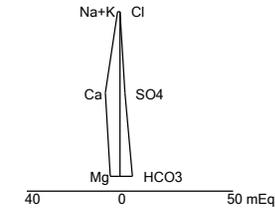
LEACHATE 3/23/2018



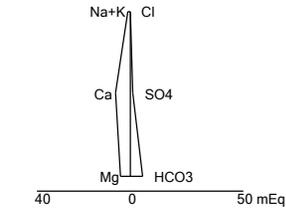
LEACHATE 11/6/2019



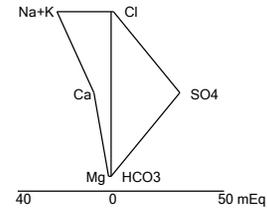
512 3/1/2021



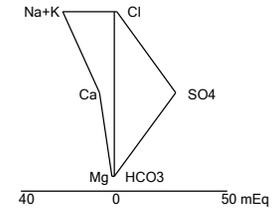
512 9/2/2021



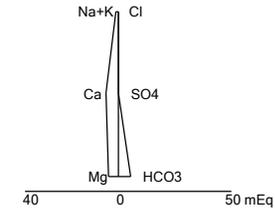
512 3/2/2022



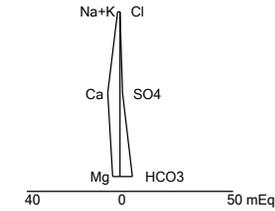
LEACHATEPOND 5/25/2016



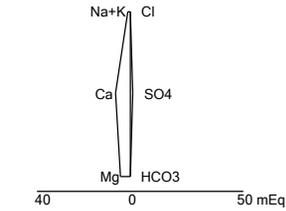
LEACHATEPOND 8/23/2016



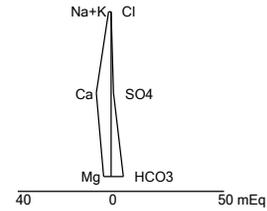
512 11/6/2019



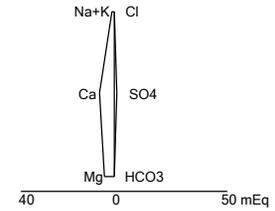
512 1/13/2020



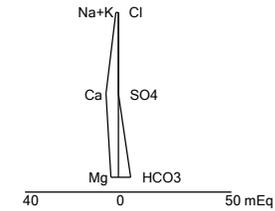
512 5/18/2020



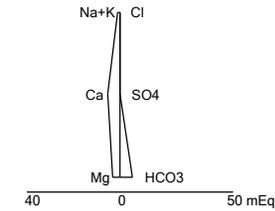
512 8/26/2020



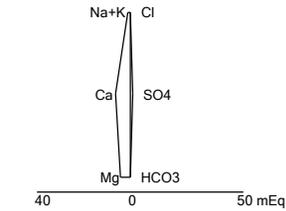
512 11/11/2020



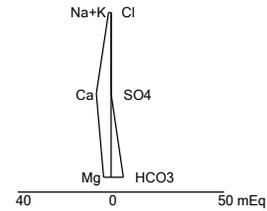
512 5/25/2016



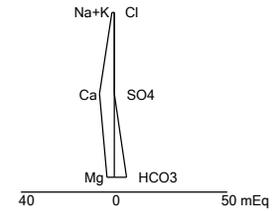
512 8/23/2016



512 11/15/2018



512 1/11/2019



512 7/16/2019

Stiff Diagram Analysis Run 5/16/2022 3:08 PM View: Pipers ASD

Sibley Client: SCS Engineers Data: Sibley

Stiff Diagram

Analysis Run 5/16/2022 3:10 PM View: Pipers ASD

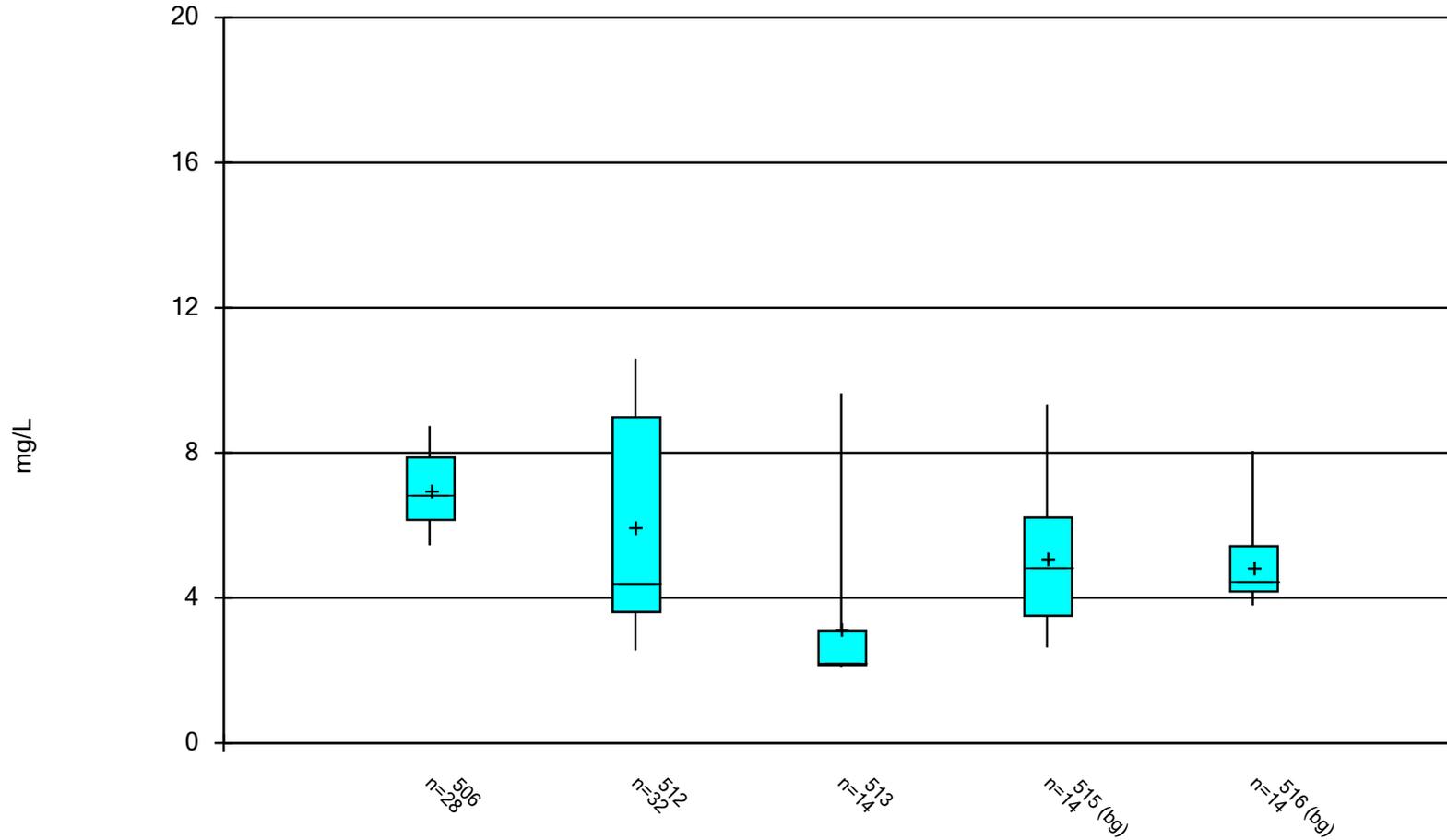
Sibley Client: SCS Engineers Data: Sibley

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3
512 5/25/2016	10	2.24	98.9	36.8	2.55	23.1	356
512 8/23/2016	10.3	2.13	103	36.9	3.23	24.4	384
512 11/15/2018	11.7	0	110	40.2	3.89	51.4	0
512 1/11/2019	10.6	2.25	110	37.8	3.85	43.3	366
512 7/16/2019	10.4	2.33	108	38.6	4.35	42.1	363
512 11/6/2019	10	2.21	105	39.4	4.48	45	377
512 1/13/2020	9.87	2.18	103	38.4	5.97	57.5	391
512 5/18/2020	10	0	110	39.2	7.69	71.6	0
512 8/26/2020	10.4	2.13	114	38.9	8.79	80.1	349
512 11/11/2020	10.4	0	115	41.6	9.75	92.6	0
512 3/1/2021	10	2.13	117	40.8	10.4	99.9	340
512 9/2/2021	10.3	2.16	114	39.9	10.2	107	349
512 3/2/2022	11.3	2.4	118	41.6	6.61	86.8	355
LEACHATEPOND 5/25/2016	499	58.6	129	12.9	44.1	1440	10
LEACHATEPOND 8/23/2016	479	56.8	108	12.8	42.8	1320	10
LEACHATEPOND 11/10/2016	651	75.3	224	22.5	50.4	1820	30.5
LEACHATEPOND 2/9/2017	678	66.2	89.4	10.8	64.5	2200	38.9
LEACHATE 3/23/2018	741	70.3	88.5	4.66	79.1	1690	10
LEACHATE 11/6/2019	732	76.4	101	13.5	74.3	1630	53.3

Appendix F

Box and Whiskers Plots

Box & Whiskers Plot



Constituent: Chloride Analysis Run 5/16/2022 4:05 PM View: LF III

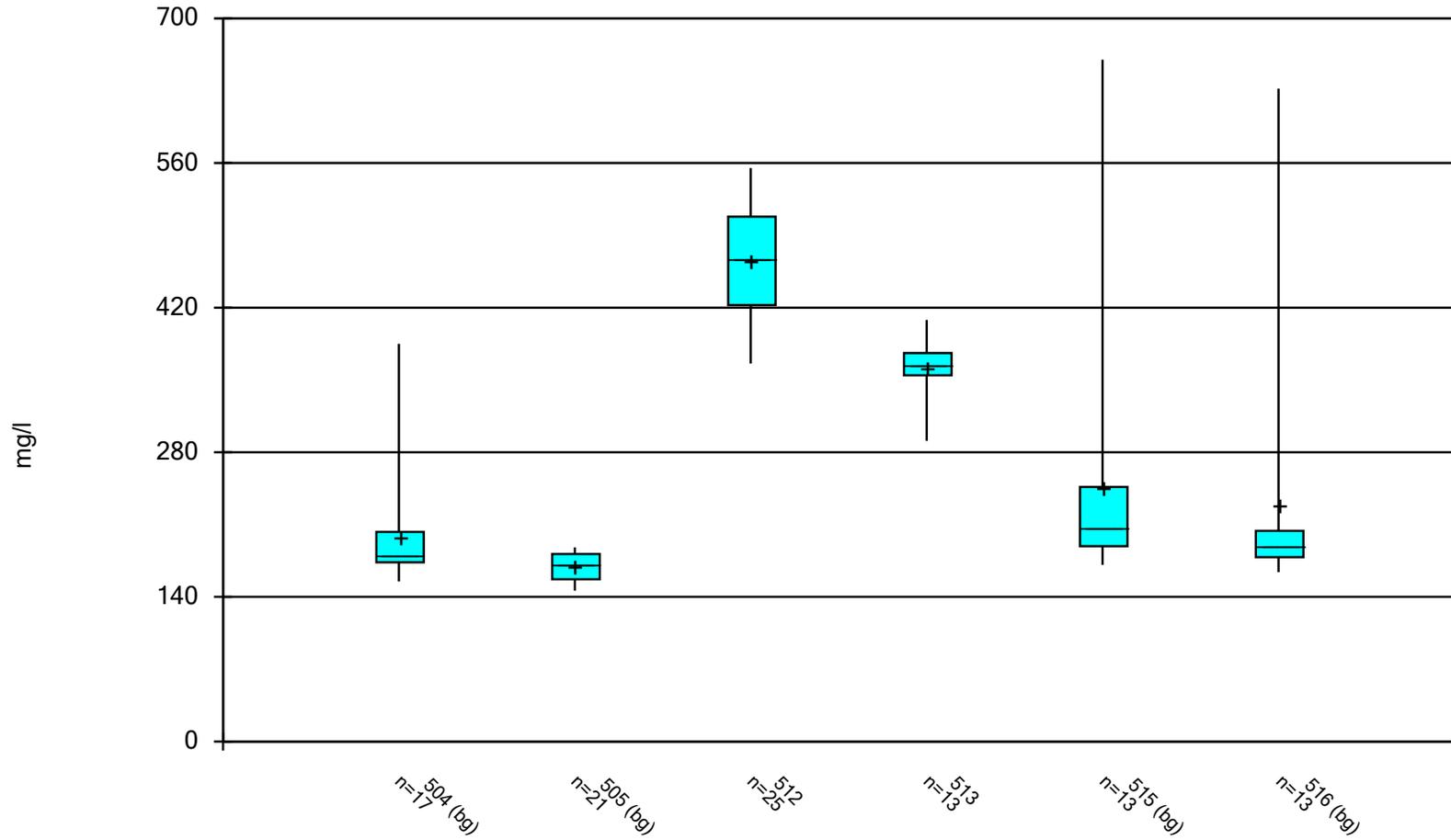
Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Sibley Client: SCS Engineers Data: Sibley Printed 5/16/2022, 4:06 PM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Chloride (mg/L)	506	28	6.948	0.8947	0.1691	6.87	5.45	8.74	0
Chloride (mg/L)	512	32	5.969	2.885	0.51	4.43	2.55	10.6	0
Chloride (mg/L)	513	14	3.133	2.062	0.5511	2.225	2.1	9.64	0
Chloride (mg/L)	515 (bg)	14	5.087	2.008	0.5366	4.815	2.63	9.33	0
Chloride (mg/L)	516 (bg)	14	4.874	1.142	0.3051	4.48	3.79	8.05	0

Box & Whiskers Plot



Constituent: Dissolved Solids Analysis Run 5/16/2022 4:09 PM View: LF III

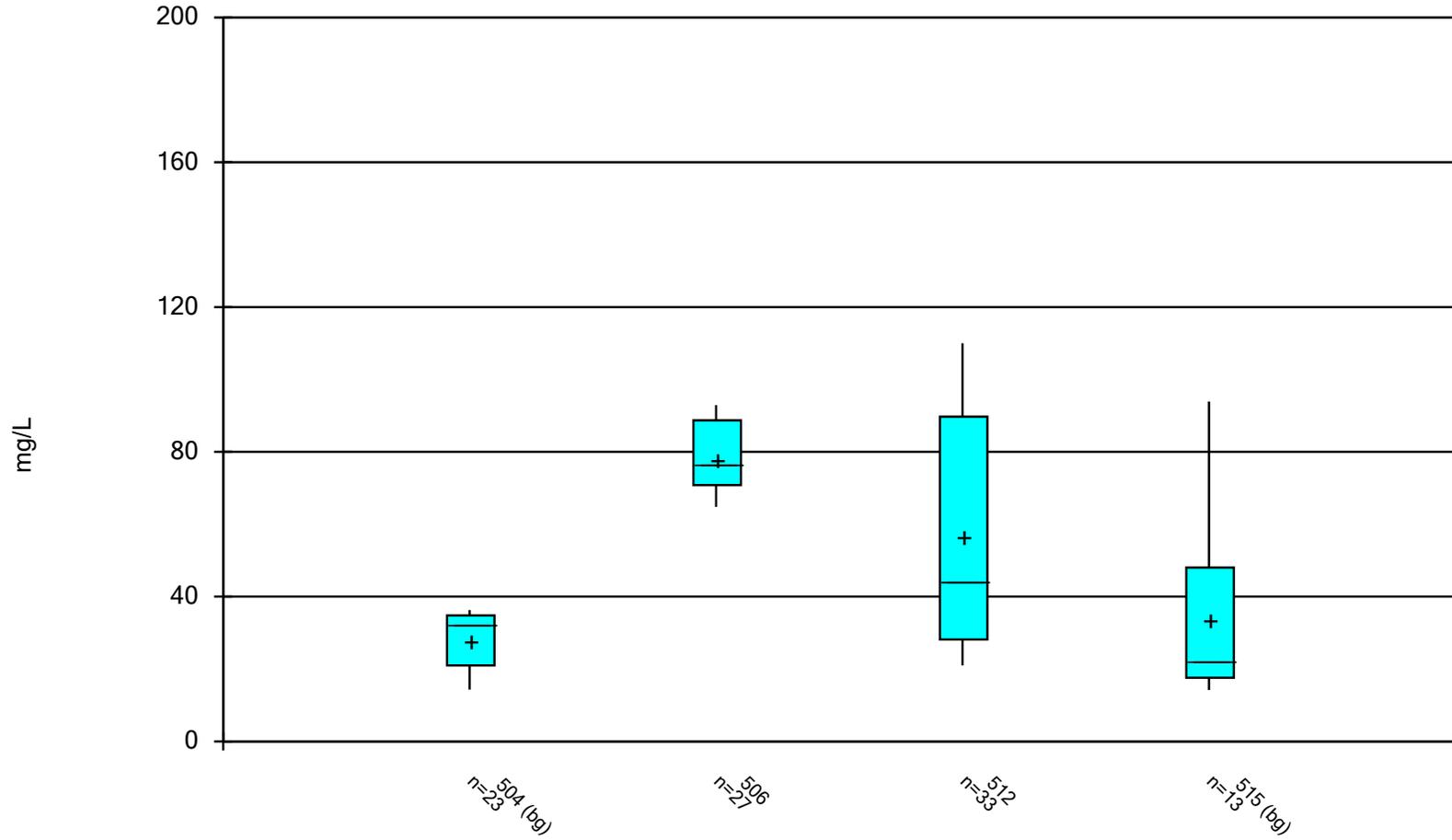
Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Sibley Client: SCS Engineers Data: Sibley Printed 5/16/2022, 4:10 PM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Dissolved Solids (mg/l)	504 (bg)	17	197.6	52.45	12.72	181	155	385	0
Dissolved Solids (mg/l)	505 (bg)	21	169.4	13.71	2.991	172	146	188	0
Dissolved Solids (mg/l)	512	25	465.5	49.01	9.801	467	366	555	0
Dissolved Solids (mg/l)	513	13	362.6	27.37	7.59	365	291	408	0
Dissolved Solids (mg/l)	515 (bg)	13	245.9	128.4	35.61	206	171	660	0
Dissolved Solids (mg/l)	516 (bg)	13	227.7	124.2	34.46	190	164	632	0

Box & Whiskers Plot



Constituent: Sulfate Analysis Run 5/16/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

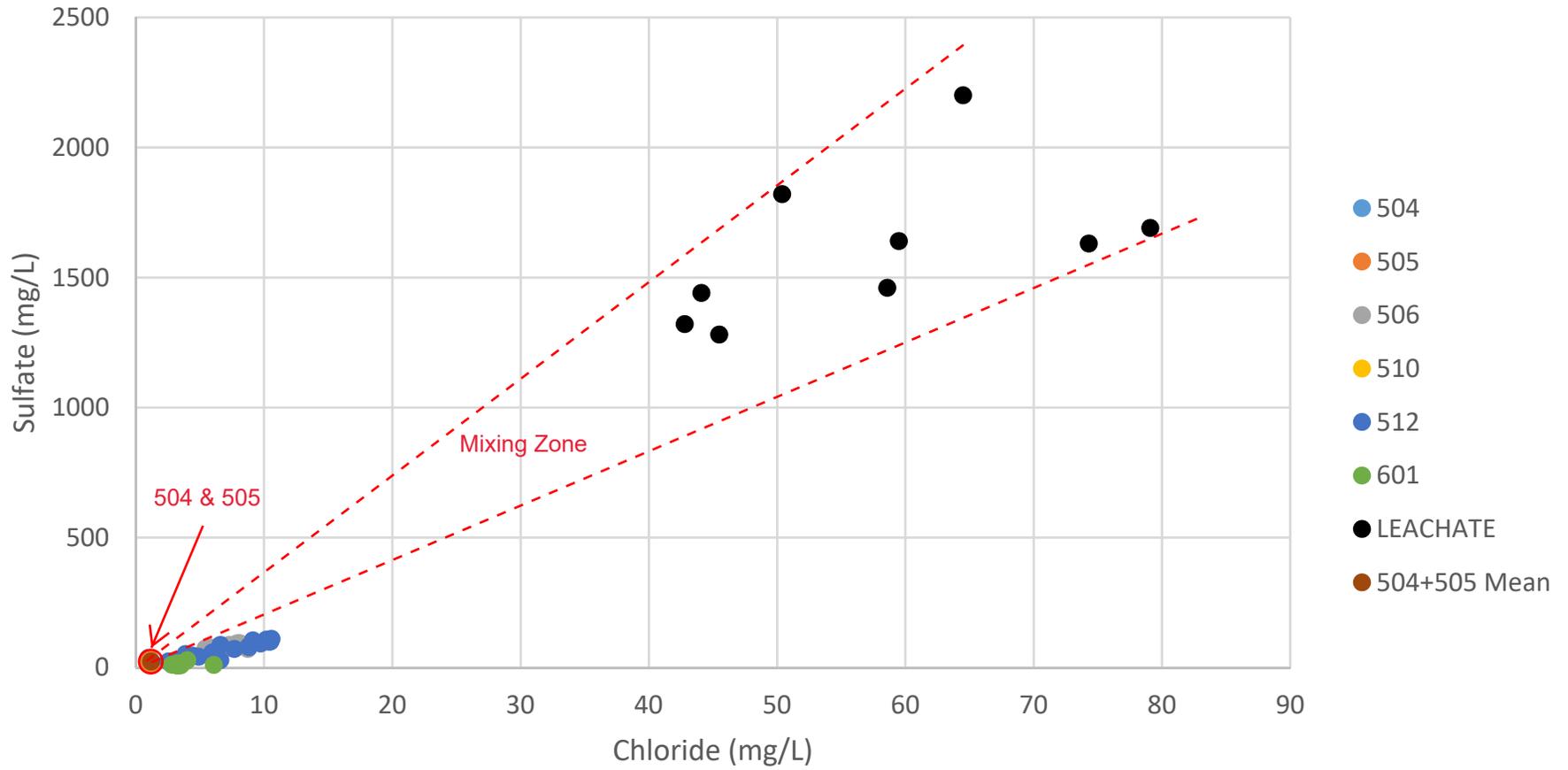
Sibley Client: SCS Engineers Data: Sibley Printed 5/16/2022, 4:13 PM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Sulfate (mg/L)	504 (bg)	23	27.91	7.838	1.634	32.3	14.3	36.3	0
Sulfate (mg/L)	506	27	78.04	9.339	1.797	76.5	64.8	92.9	0
Sulfate (mg/L)	512	33	56.68	30.94	5.386	44.2	21	110	0
Sulfate (mg/L)	515 (bg)	13	33.28	24.97	6.925	22.1	14.2	93.9	0

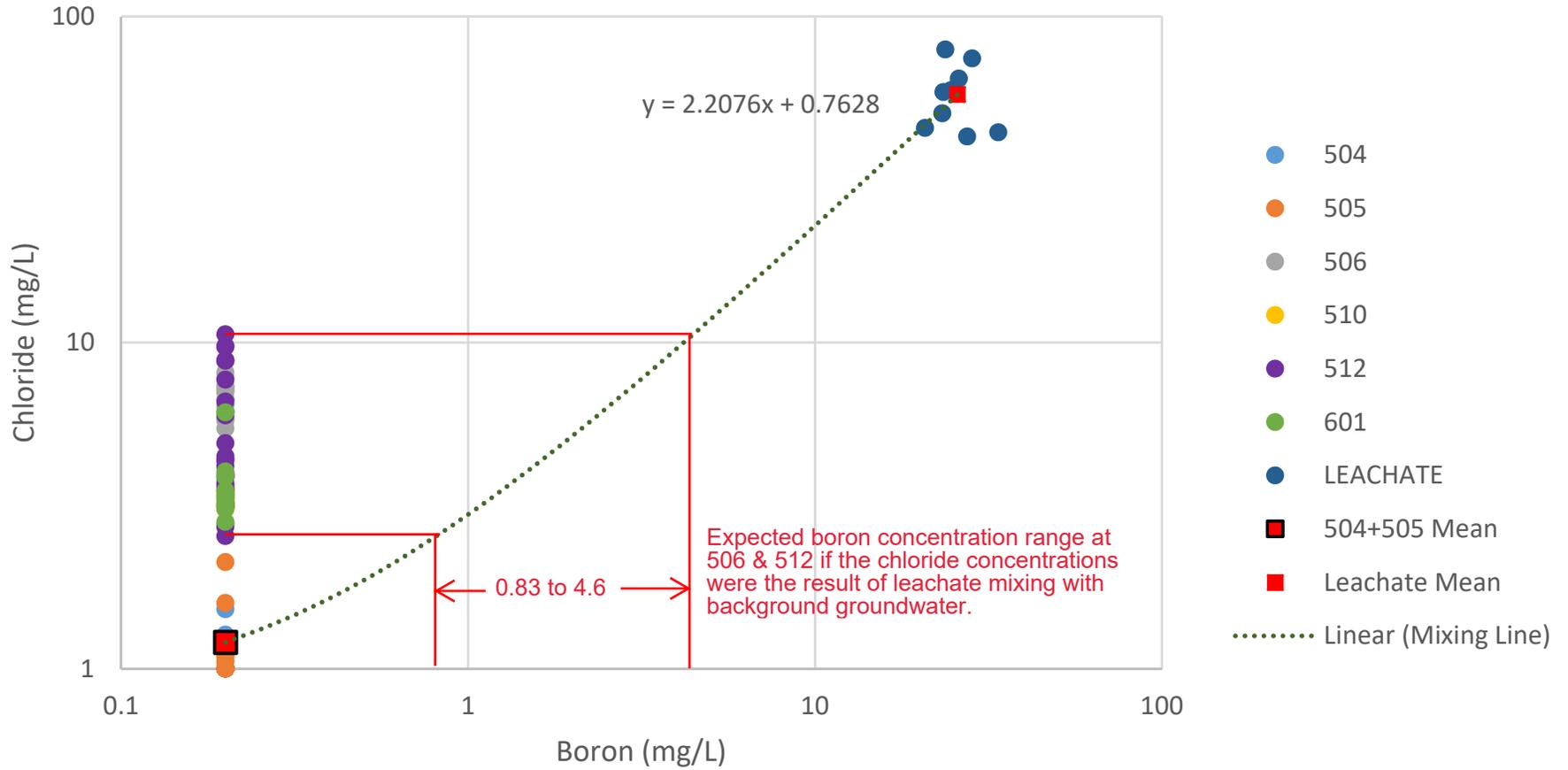
Appendix G

Binary Plots

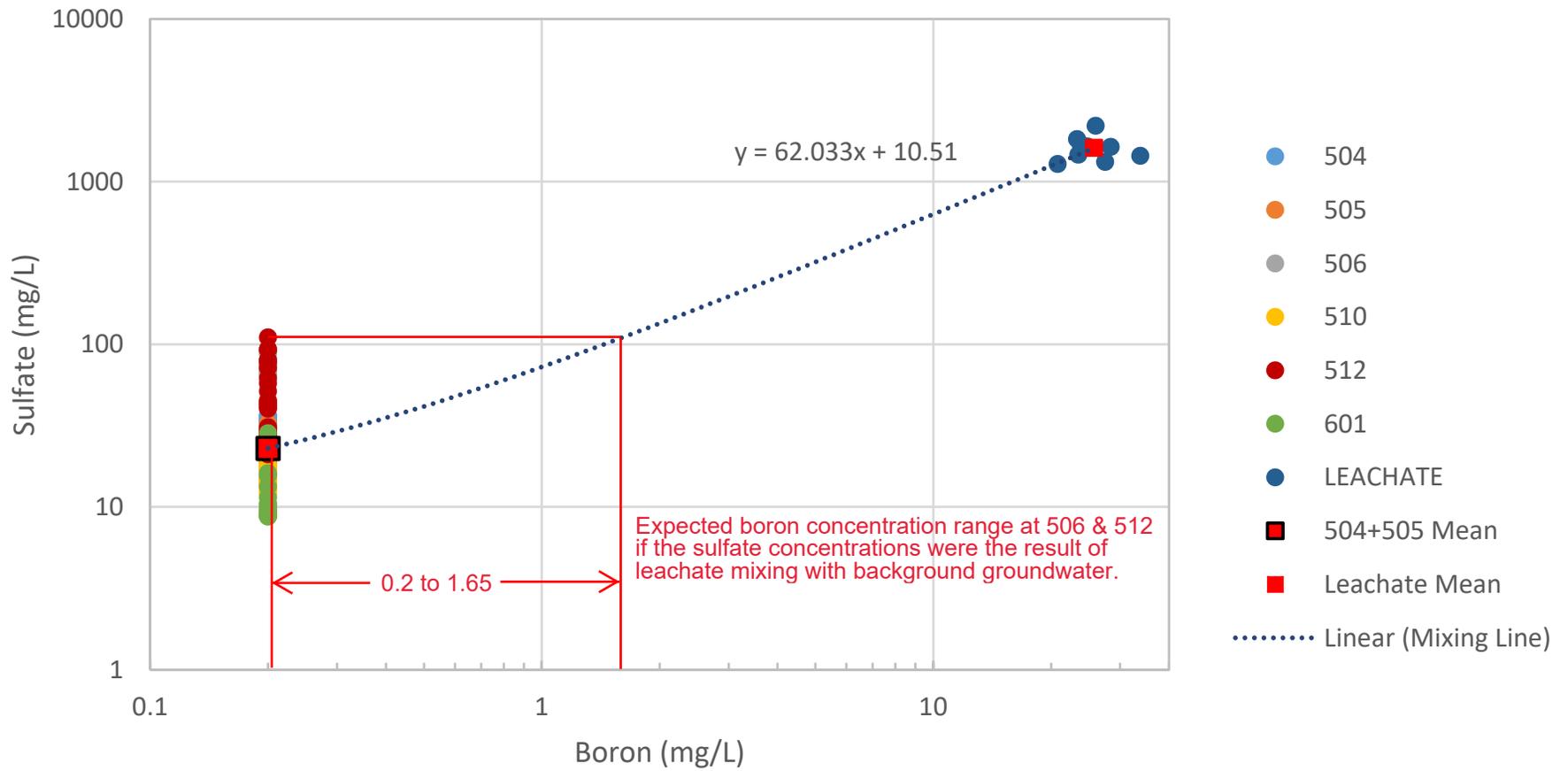
Chloride-Sulfate Binary Diagram



Boron-Chloride Binary Diagram



Boron-Sulfate Binary Diagram



APPENDIX C.2

Groundwater Monitoring Alternative Source Demonstration Report May 2022 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (December 2022)

CCR GROUNDWATER MONITORING
ALTERNATIVE SOURCE DEMONSTRATION REPORT
MAY 2022 GROUNDWATER MONITORING EVENT

CCR LANDFILL

Sibley Generating Station
Evergy Missouri West, Inc.
Sibley, Missouri

SCS ENGINEERS

December 2022
File No. 27213169.22

8575 W. 110th Suite 100
Overland Park, KS 66210
913-749-0700

CERTIFICATIONS

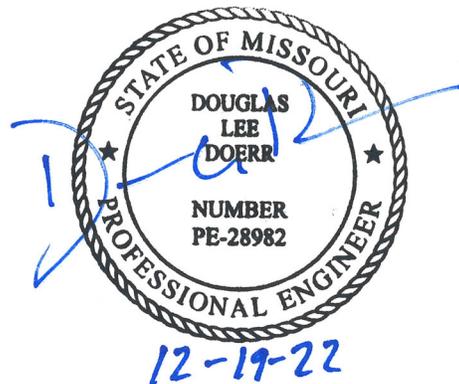
I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Sibley Generating Station. The Alternative Source Demonstration was prepared by me or under my direct supervision in accordance with generally accepted hydrogeological practices and the local standard of care.



John R. Rockhold, R.G.

SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Sibley Generating Station. The Alternative Source Demonstration was prepared by me or under my direct supervision in accordance with generally accepted engineering practices and the local standard of care.



Douglas L. Doerr, P.E.

SCS Engineers

Table of Contents

Section	Page
CERTIFICATIONS.....	i
1 Regulatory Framework	1
2 Statistical Results.....	1
3 Alternative Source Demonstration.....	2
3.1 Time Series Plots	2
3.2 Trend Analysis	3
3.3 Piper Diagram Plots	3
3.4 Stiff Diagrams	4
3.5 Box and Whiskers Plots	4
3.6 Binary Plots.....	5
4 Conclusion	6
5 General Comments	6

Appendices

Appendix A	Figure 1
Appendix B	Time Series Plots
Appendix C	Trend Analysis
Appendix D	Piper Diagram Plots and Analytical Results
Appendix E	Stiff Diagrams and Analytical Results
Appendix F	Box and Whiskers Plots
Appendix G	Binary Plots

1 REGULATORY FRAMEWORK

Certain owners or operators of Coal Combustion Residuals (CCR) units are required to complete groundwater monitoring activities to evaluate whether a release from the unit has occurred. Included in the activities is the completion of a statistical analysis of the groundwater quality data as prescribed in § 257.93(h) of the CCR Final Rule. If the initial analysis indicates a statistically significant increase (SSI) over background levels, the owner or operator may perform an alternative source demonstration (ASD). In accordance with § 257.94(e)(2), the owner or operator of the CCR unit may demonstrate that a source other than the CCR unit caused the SSI over background levels for a constituent, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a SSI over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under § 257.94. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under § 257.95. 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.

2 STATISTICAL RESULTS

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Sibley Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated October 12, 2017. Detection monitoring groundwater samples were collected on May 12, 2022. Review and validation of the results from the May 2022 Detection Monitoring Event was completed on July 1, 2022, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on July 15, 2022 and August 18, 2022.

The completed statistical evaluation identified two Appendix III constituents above their prediction limits established for monitoring well MW-506.

Monitoring Well Constituent	*UPL	Observation May 12, 2022	1st Verification July 15, 2022	2nd Verification August 18, 2022
MW-506				
Chloride	7.578	8.39	8.5	12.5/8.54**
Sulfate	76.83	99	102	95.5

*UPL – Upper Prediction Limit

**Duplicate Sample Result

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified

two SSIs above the background prediction limits. These include chloride and sulfate at monitoring well MW-506.

3 ALTERNATIVE SOURCE DEMONSTRATION

An Alternative Source Demonstration (ASD) is a means to provide supporting lines of evidence that something other than a release from a regulated CCR unit caused an SSI. For the above-identified SSIs for the CCR Landfill at the Sibley Generating Station, there are multiple lines of supporting evidence to indicate the above SSIs were not caused by a release from the CCR Landfill. Select multiple lines of supporting evidence are described as follows.

3.1 TIME SERIES PLOTS

Time series plots provide a graphical method to view changes in data at a particular well (monitoring point) or wells over time. Time series plots display the variability in concentration levels over time and can be used to indicate possible outliers or data errors (i.e. “spikes”). More than one well can be compared on the same plot to look for differences between wells. Non-detect data is plotted as censored data at one-half of the laboratory reporting limit. Time series plots can also be used to examine the data for trends.

The time series plot for chloride in monitoring well MW-506 was compared to time series plots for chloride in upgradient and side-gradient non-CCR monitoring system wells installed for future state-permitted landfill expansion purposes. Side-gradient and up-gradient monitoring wells are considered to represent natural groundwater since they could not have been impacted by the landfill due to the direction of groundwater travel in relation to the location of the landfill. The comparisons indicate the chloride concentrations increased in non-CCR monitoring system upgradient/side-gradient wells MW-515 and MW-516 and the concentrations in MW-506 are near the concentration levels for natural groundwater as represented by the upgradient/side-gradient monitoring wells in the vicinity of the CCR Landfill. Additionally, the varying levels of chloride in these wells indicate that groundwater chloride concentrations can fluctuate naturally within the well network, including upgradient/side-gradient wells such as MW-515 and MW-516.

Time series plots for sulfate in monitoring well MW-506 were compared to time series plots for sulfate in an upgradient monitoring network well (MW-504) and upgradient/side-gradient non-CCR monitoring system well (MW-515), installed for future state-permitted landfill expansion purposes. Sulfate comparisons indicate the concentrations in MW-506 are within or very near the range of concentration levels for upgradient/side-gradient groundwater in the vicinity of the CCR Landfill; specifically, MW-515. Additionally, there has been increasing concentrations of sulfate in upgradient well MW-504 and large variations of concentrations in MW-515, both of which represent natural groundwater conditions.

Figure 1 in Appendix A shows these upgradient and side-gradient non-CCR monitoring system wells and their relationships to groundwater flow near and beneath the CCR Landfill. Because the non-CCR monitoring system wells are located in a nearby area where they could not be impacted by the landfill due to their upgradient and side-gradient locations, and exhibit variability that includes concentrations within the range or similar to those seen in MW-506, the observed concentrations are within the range of

expected natural spatial variation within and between wells. This demonstrates that a source other than the CCR Landfill could have caused the SSIs over the background levels, or that the SSIs could have resulted from natural variation in groundwater quality. Time series plots are provided in **Appendix B**.

3.2 TREND ANALYSIS

Trend analysis was performed to evaluate for statistically significant trends utilizing Sen's Slope/Mann-Kendall Statistical Analysis. Sen's Slope/Mann-Kendall statistical analysis is used to determine if the data exhibits an SSI or statistically significant decreasing (SSD) trend. A trend is the general increase or decrease in observed values of a variable 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 detection 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 are missing.

The Sen's Slope/Mann-Kendall Statistical Analysis was performed at the 98 percent confidence level utilizing the statistical program Sanitas™. Chloride data from December 2015 through the most recent data for upgradient and side-gradient non-CCR monitoring system well MW-516 and monitoring network well MW-506 were used to perform trend analysis. The trend analysis for chloride indicates upgradient/side-gradient well MW-516 has a positive slope (i.e. increasing trend but not statistically significant) and concentrations near that of MW-506. Since this upgradient/side-gradient well shows a positive concentration slope and a concentration range similar to MW-506 and represents natural conditions, it is also likely the downgradient wells increased similarly due to natural conditions.

Sulfate data from December 2015 through the most recent data for upgradient well MW-504 and downgradient well MW-506 were used to perform trend analysis. The trend analysis for sulfate indicates upgradient well MW-504 and downgradient well MW-506 have increasing trends. Since an upgradient well has an increasing trend due to natural conditions not due to the unit, it is also likely the downgradient well increased similarly due to natural conditions.

These trend analyses demonstrate that a source other than the CCR Landfill caused the SSIs over the background level for chloride and sulfate or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Trend analyses are provided in **Appendix C**.

3.3 PIPER DIAGRAM PLOTS

Piper diagrams are a form of tri-linear diagram, and a widely accepted method to provide a visual representation of the ion concentration of groundwater. Piper diagrams portray water compositions and facilitate the interpretation and presentation of chemical analyses. They may be used to visually compare the chemical composition of water quality across wells, and aid in determining whether the waters are similar or dis-similar, and can over time indicate whether the waters are mixing.

A piper diagram has two triangular plots on the right and left side of a 4-sided center field. The three major cations are plotted in the left triangle and anions in the right. Each of the three cation/anion variables, in milliequivalents, is divided by the sum of the three values, to produce a percent of total cation/anions. These percentages determine the location of the associated symbol. The data points in the center field are located by extending the points in the lower triangles to the point of intersection. In order for a piper diagram to be produced, the selected data file must contain the following constituents: Sodium (Na), Potassium (K), Calcium (Ca), Magnesium (Mg), Chloride (Cl), Sulfate (SO₄), Carbonate (CO₃), and Bicarbonate (HCO₃).

A Piper diagram generated for downgradient well MW-506 and landfill leachate is provided in **Appendix D** along with analytical results. The Piper diagram indicates the groundwater from MW-506 does not exhibit the same geochemical characteristics as the leachate. The groundwater and the leachate plot in different hydrochemical facies indicating there is no mixing of the two types of water (groundwater and leachate) and that downgradient groundwater characteristics are different from the leachate. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels in MW-506, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

3.4 STIFF DIAGRAMS

Stiff diagrams are a graphical method commonly used to portray water compositions and facilitate the interpretation and presentation of chemical analysis. They visually compare the chemical composition of water quality across wells, and aid in determining whether the waters are similar or dis-similar, and can over time indicate whether the waters are mixing.

Stiff diagrams are calculated in terms of milliequivalents and take into account ionic charge and the formula weight for major ions, specifically Sodium (Na) plus Potassium (K), Calcium (Ca), Magnesium (Mg), Chloride (Cl), Sulfate (SO₄), Carbonate (CO₃), and Bicarbonate (HCO₃). The milliequivalents per liter of the cation and anions are plotted across from each other along a central vertical line and the distance from the center line is the value for each constituent.

Stiff diagrams were prepared for MW-506 alongside Stiff diagrams calculated for leachate and are provided in **Appendix E**. The Stiff diagrams indicate the groundwater from MW-506 does not exhibit the same geochemical characteristics as the leachate. The groundwater and the leachate stiff diagram shapes are dis-similar indicating there is no mixing of the two types of water (groundwater and leachate) and that downgradient groundwater characteristics are different from the leachate. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels in MW-506, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

3.5 BOX AND WHISKERS PLOTS

A commonly accepted method to demonstrate and visualize the distribution of data in a given data set is to construct box and whiskers plots. The basic box plotted graphically locates the median, 25th and 75th percentiles of the data set; the "whiskers" extend to the minimum and maximum values of the data set.

The range between the ends of a box plot represents the Interquartile Range, which can be used as an estimate of spread or variability. The mean is denoted by a "+".

When comparing multiple wells or well groups, box plots for each well can be lined up on the same axis to roughly compare the variability in each well. This may be used as an exploratory screening for the test of homogeneity of variance across multiple wells.

The box and whiskers plot for chloride in monitoring well MW-506 was compared to box and whiskers plots for chloride in upgradient and side-gradient non-CCR monitoring system wells (MW-515 and MW-516) installed for future state-permitted landfill expansion purposes. Chloride comparisons indicate the concentrations in MW-506 are generally within the range of expected concentrations for natural groundwater in the vicinity of the CCR Landfill.

The box and whiskers plot for sulfate in monitoring well MW-506 was compared to box and whiskers plots for sulfate in upgradient and side-gradient non-CCR monitoring system well MW-515 installed for future state-permitted landfill expansion purposes. Sulfate comparisons indicate the concentrations in MW-506 are generally within the range of concentration levels for natural groundwater as represented by upgradient and side-gradient monitoring well MW-515 in the vicinity of the CCR Landfill.

Figure 1 in Appendix A shows these upgradient and non-CCR monitoring system wells and their relationships to groundwater flow near and beneath the CCR Landfill. Because the non-CCR monitoring system wells are located in a nearby area where they could not be impacted by the landfill due to their upgradient and side-gradient locations, and exhibit natural variability that includes concentrations similar to those seen in MW-506, the observed concentrations are within the range of expected natural spatial variation within and between wells. This demonstrates that a source other than the CCR Landfill caused the SSIs over the background levels, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots are provided in **Appendix F**.

3.6 BINARY PLOTS

Binary plots are another way to visualize data and allow evaluation of mixing of various waters. Binary plots for the monitoring wells and leachate were prepared for pairs of highly mobile constituents. These include chloride - sulfate, boron - sulfate, and boron - chloride. The chloride – sulfate plot identifies the mixing zone between the mean concentrations for upgradient groundwater (MW-504 and MW-505) and leachate. If leachate were mixing with upgradient groundwater, the data for the downgradient wells would fall within the mixing zone on the plot; however, the data for the downgradient wells falls below the mixing zone. The boron – sulfate and boron - chloride plots identify the mixing line between the mean concentrations for upgradient groundwater (MW-504 and MW-505) and leachate. If leachate were mixing with upgradient groundwater, the sulfate – boron and chloride – boron data for MW-506 would fall on the mixing line and the boron concentrations would range from 0.92 mg/L to 1.6 mg/L based on the sulfate mixing line and approximately 2.2 mg/L to 3.5 mg/L based on the chloride mixing line. However, the boron in downgradient wells was not detected at a concentration above the reporting limit of 0.2 mg/L. Therefore, because boron is present in the leachate but is not present in the downgradient wells, leachate is not mixing with groundwater.

These binary plots demonstrate that leachate is not mixing with upgradient groundwater and that a source other than the CCR Landfill caused the SSIs over the background level for sulfate and chloride, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Binary plots are provided in **Appendix G**.

4 CONCLUSION

Our opinion is that a sufficient body of evidence is available and presented above to demonstrate that a source other than the CCR Landfill caused the SSIs over the background levels, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Based on the successful ASD, the owner or operator of the CCR Landfill may continue with the detection monitoring program under § 257.94.

5 GENERAL COMMENTS

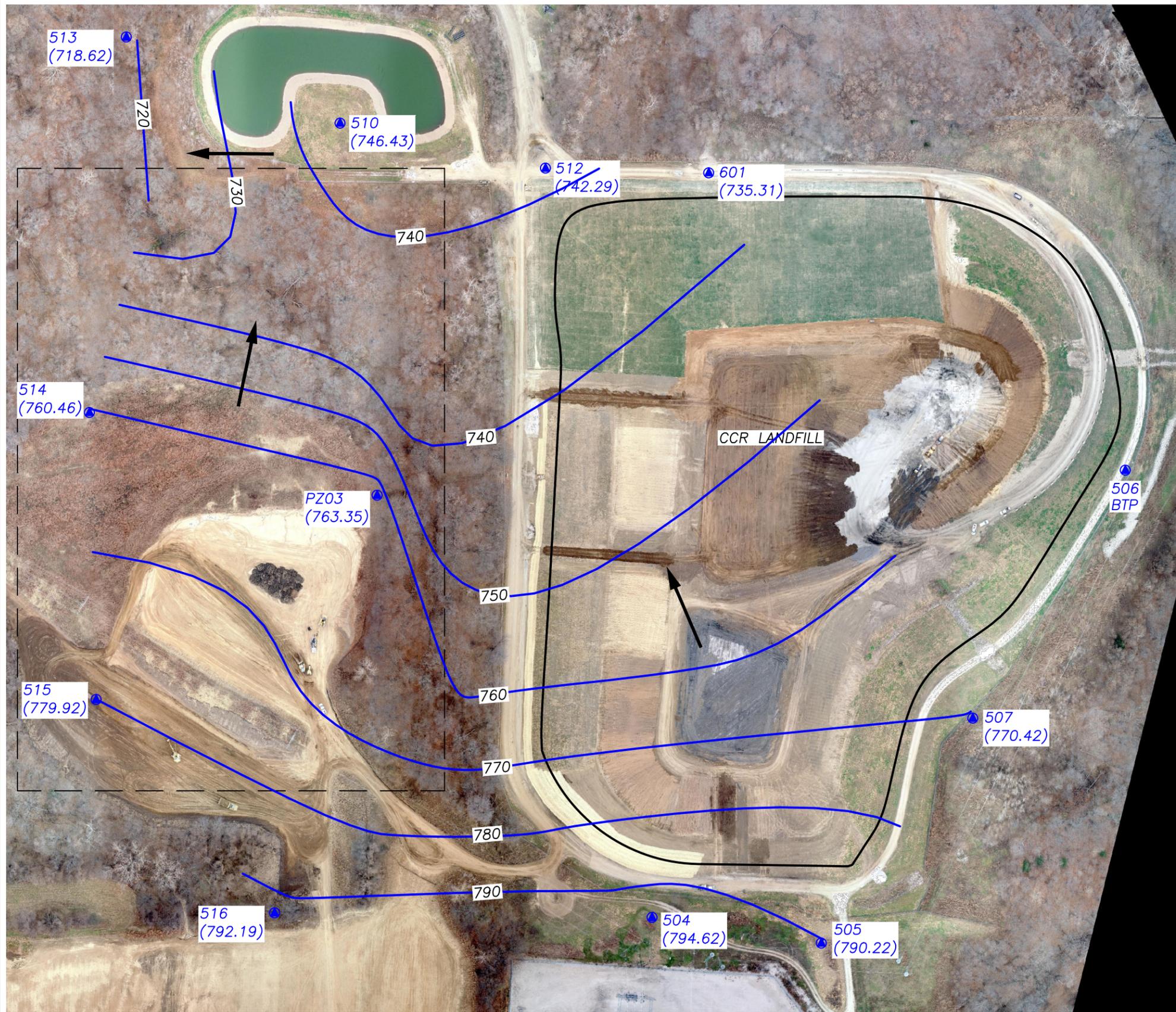
This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering and geological practices, within the constraints of the client's directives. It is intended for the exclusive use of Evergy Missouri West, Inc. for specific application to the Sibley Generating Station. No warranties, express or implied, are intended or made.

The signatures of the certifying registered geologist and professional engineer on this document represents that to the best of their knowledge, information, and belief in the exercise of their professional judgement in accordance with the standard of practice, it is their professional opinions that the aforementioned information is accurate as of the date of such signature. Any opinion or decisions by them are made on the basis of their experience, qualifications, and professional judgement and are not to be construed as warranties or guaranties. In addition, opinions relating to regulatory, environmental, geologic, geochemical and geotechnical conditions interpretations or other estimates are based on available data, and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

Appendix A

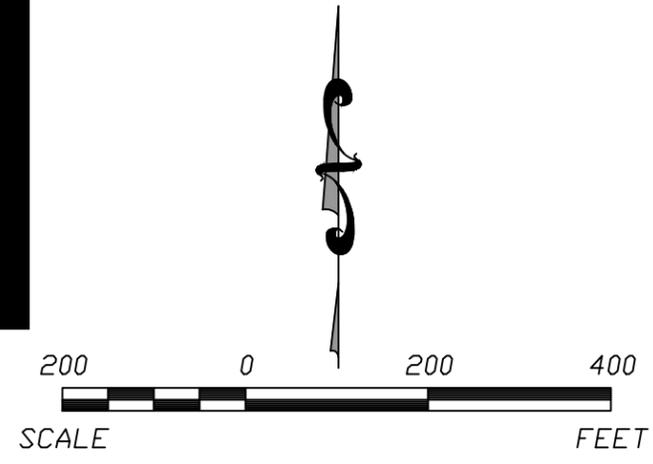
Figure 1

N:\KCP\Projects\Groundwater\DWG\Sibley2022\GW\Figure 1A v2.dwg Jul 01, 2022 - 11:49am Layout Name: Fig 2A By: 4415air



- LEGEND:**
- 760 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
 - 601 (734.55) GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
 - UTILITY WASTE LANDFILL UNIT BOUNDARY
 - ← GROUNDWATER FLOW DIRECTION
 - BTP BELOW TOP OF PUMP

- NOTES:**
1. HORIZONTAL & VERTICAL DATUM: URS PLANS FOR CONSTRUCTION, KCP&L SIBLEY GENERATING STATION, DESIGN FILE 16530511.00001, DATED JANUARY 2010
 2. GOOGLE EARTH AERIAL IMAGE. MARCH 2015.
 3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.

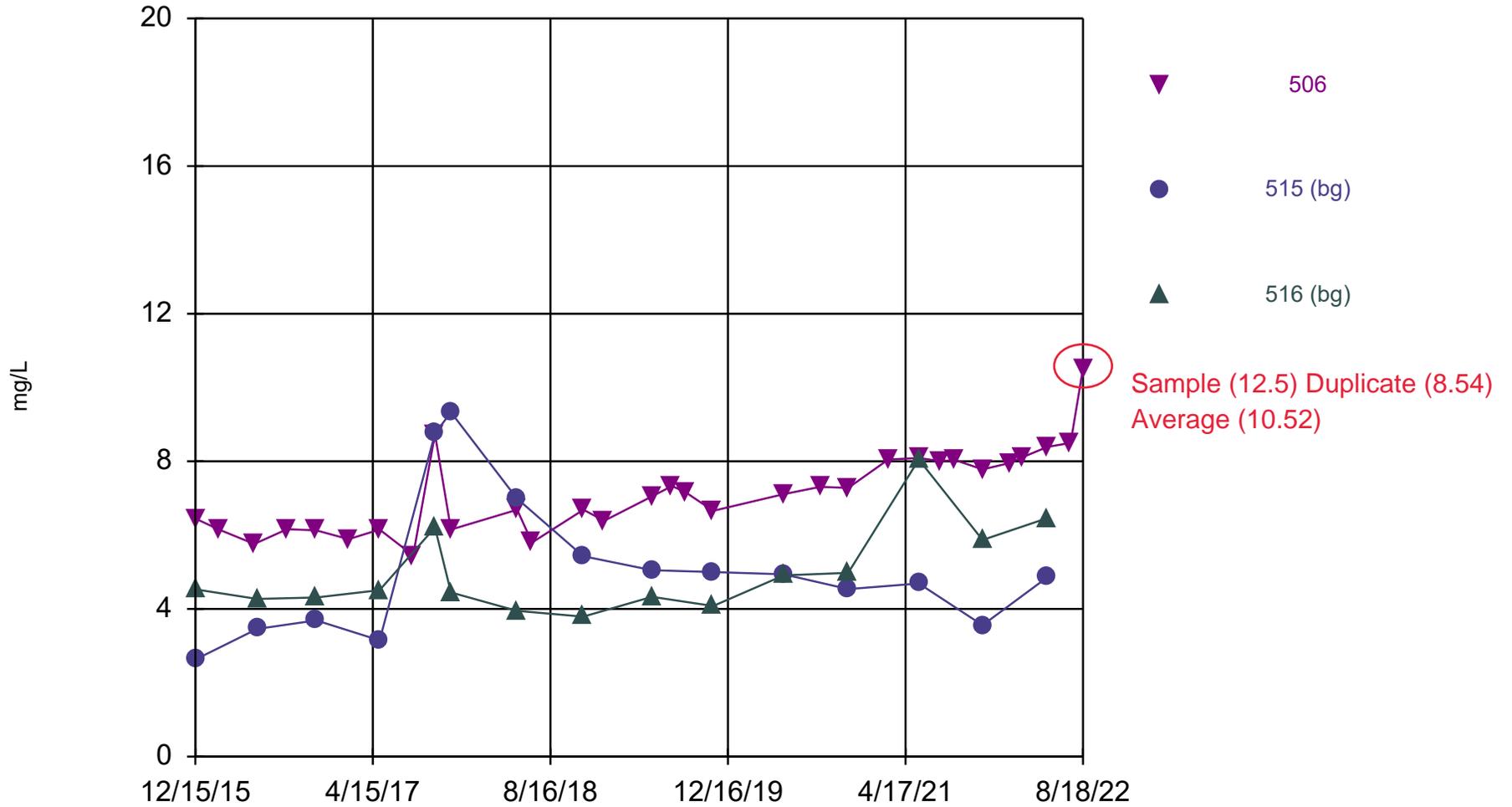


	REV.	DATE			
SHEET TITLE		POTENTIOMETRIC SURFACE MAP (MAY 2022)		UTILITY WASTE LANDFILL	
CLIENT		EVERGY MISSOURI WEST, INC.		SIBLEY GENERATING STATION	
PROJECT TITLE		SIBLEY, MISSOURI		SIBLEY GROUNDWATER 2022	
<p>SCS ENGINEERS 8875 W. 110th St, Ste. 100 Overland Park, Kansas 66210 PH: (913) 681-0030 FAX: (913) 681-0012</p> <p> PROJ. NO. 27713167.20 DESK. BY: TOW DWN. BY: MBJ CHK. BY: JRR O/A REV. BY: JRR PROJ. MGR. JRF </p>					
CADD FILE: FIGURE 1A V2.DWG					
DATE: 6/17/22					
FIGURE NO. 1					

Appendix B

Time Series Plots

Time Series



Constituent: Chloride Analysis Run 11/28/2022 11:20 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

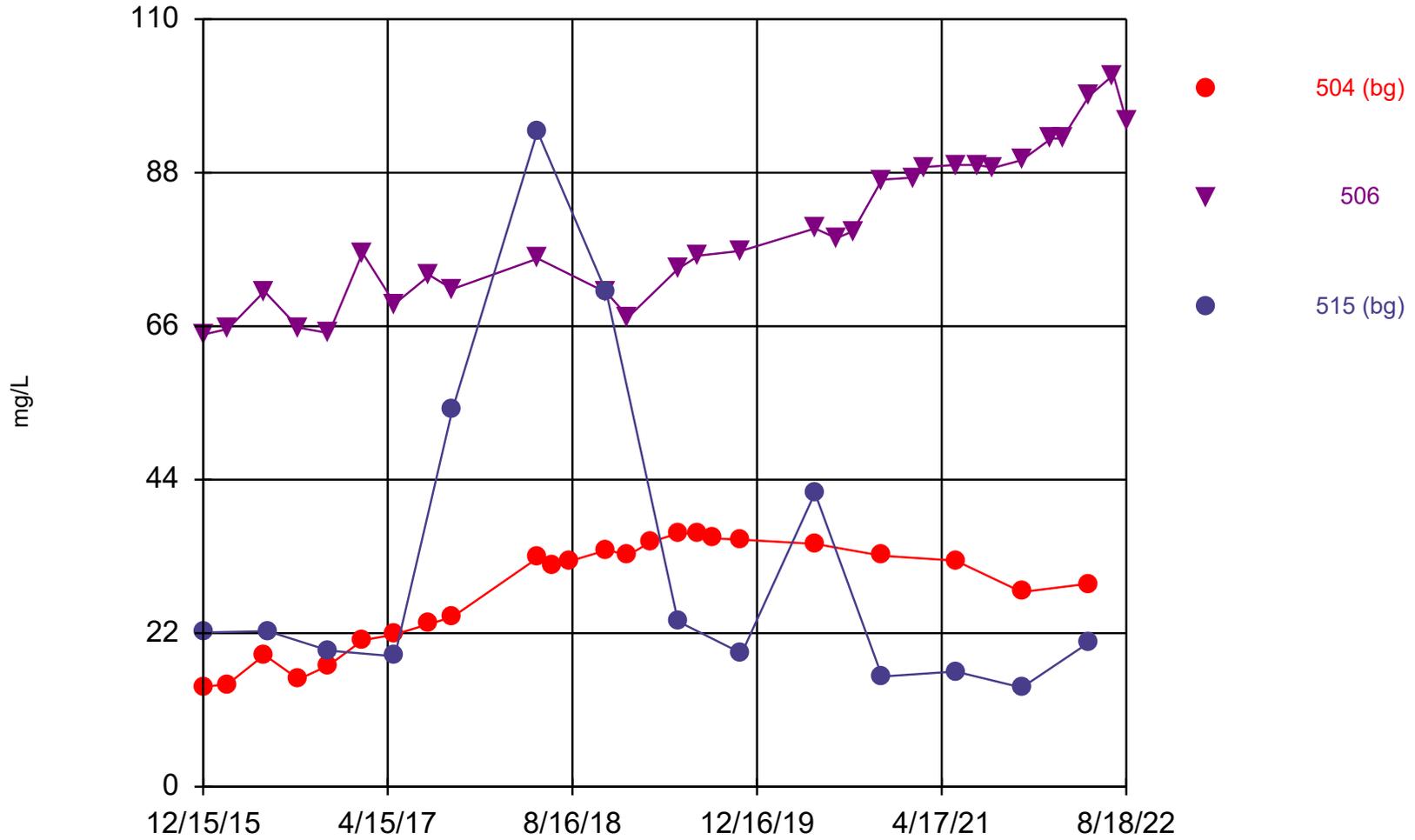
Time Series

Constituent: Chloride (mg/L) Analysis Run 11/28/2022 11:21 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	506	515 (bg)	516 (bg)
12/15/2015	6.45	2.63	4.53
2/18/2016	6.15		
5/25/2016	5.76		
6/2/2016		3.46	4.27
8/23/2016	6.16		
11/11/2016	6.13	3.69	4.31
2/8/2017	5.89		
5/4/2017	6.15	3.15	4.51
8/4/2017	5.45		
10/3/2017	8.74	8.75	6.21
11/16/2017	6.15	9.33	4.45
5/16/2018		7	3.95
5/17/2018	6.69		
6/27/2018	5.8		
11/14/2018		5.43	3.79
11/15/2018	6.69		
1/11/2019	6.39		
5/22/2019	7.05	5.05	4.33
7/16/2019	7.33		
8/21/2019	7.17		
11/6/2019	6.66	5	4.08
5/18/2020	7.11	4.94	4.91
8/26/2020	7.31		
11/11/2020	7.28	4.54	4.98
3/1/2021	8.05		
5/24/2021	8.09	4.69	8.05
7/19/2021	8.01		
9/2/2021	8.03		
11/15/2021	7.78	3.56	5.87
2/1/2022	7.96		
3/2/2022	8.1		
5/12/2022	8.39	4.86	6.46
7/15/2022	8.5		
8/18/2022	10.52 (D)		

Sample (12.5) Duplicate (8.54) Average (10.52)

Time Series



Constituent: Sulfate Analysis Run 11/28/2022 11:15 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Time Series

Constituent: Sulfate (mg/L) Analysis Run 11/28/2022 11:16 AM View: LF III

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

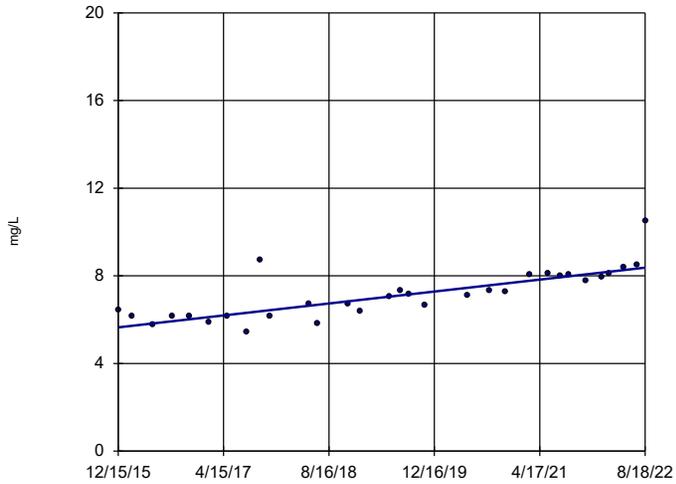
	504 (bg)	506	515 (bg)
12/15/2015		64.8	22.1
12/16/2015	14.3		
2/18/2016	14.7	65.6	
5/25/2016	18.9	71	
6/2/2016			22.3
8/23/2016	15.4	65.8	
11/11/2016	17.4	65	19.5
2/8/2017	21	76.5	
5/4/2017	21.8	69.2	18.7
8/1/2017	23.3		
8/4/2017		73.3	
10/3/2017	24.3	71.3	54
5/16/2018			93.9
5/17/2018	32.8	75.7	
6/27/2018	31.8		
8/8/2018	32.3		
11/14/2018			70.8
11/15/2018	33.9	70.8	
1/11/2019	33.2	67.3	
3/12/2019	35.1		
5/22/2019	36.3	74.2	23.7
7/16/2019	36.3	76.1	
8/21/2019	35.6		
11/6/2019	35.4	76.8	19.1
5/18/2020	34.8	80	42.1
7/14/2020		78.6	
8/26/2020		79.6	
11/11/2020	33.1	87	15.8
2/3/2021		87.3	
3/1/2021		88.8	
5/24/2021	32.4	89.1	16.5
7/19/2021		89.1	
9/2/2021		88.7	
11/15/2021	27.9	89.8	14.2
2/1/2022		92.9	
3/2/2022		92.9	
5/12/2022	29.1	99	20.7
7/15/2022		102	
8/18/2022		95.5	

Appendix C

Trend Analysis

Sen's Slope Estimator

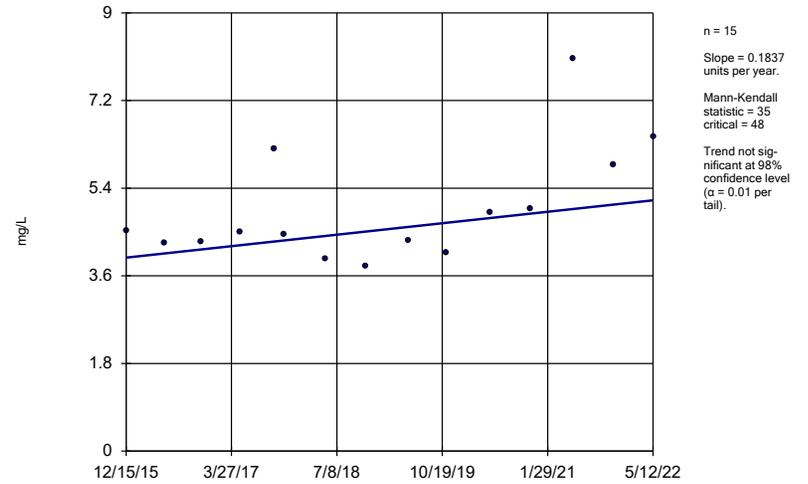
506



Constituent: Chloride Analysis Run 11/28/2022 11:28 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

516 (bg)



Constituent: Chloride Analysis Run 11/28/2022 11:28 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

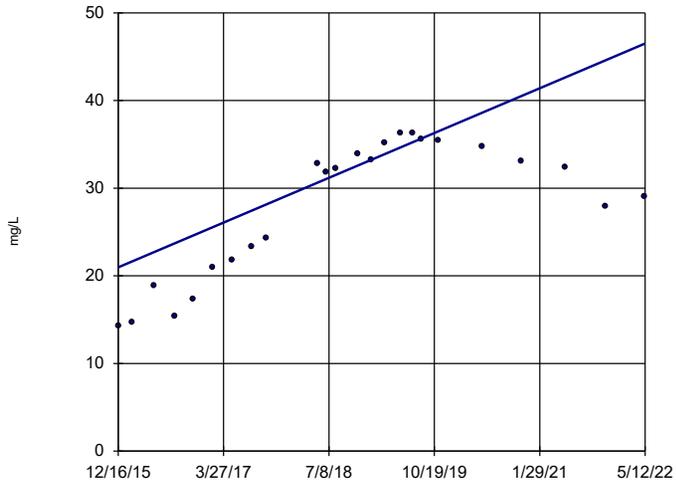
Trend Test

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley Printed 11/28/2022, 11:29 AM

<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>
Chloride (mg/L)	506	0.4075	307	138	Yes	31	0	n/a	n/a	0.02	NP
Chloride (mg/L)	516 (bg)	0.1837	35	48	No	15	0	n/a	n/a	0.02	NP

Sen's Slope Estimator

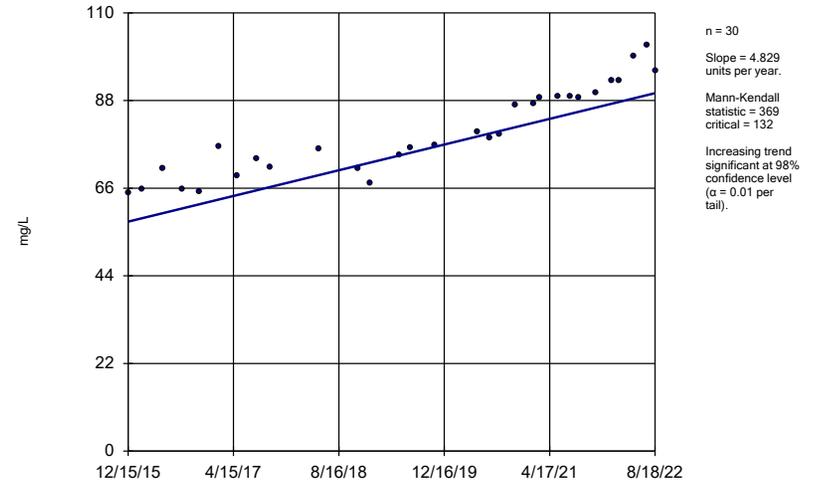
504 (bg)



Constituent: Sulfate Analysis Run 11/28/2022 11:32 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

506



Constituent: Sulfate Analysis Run 11/28/2022 11:32 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Trend Test

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley Printed 11/28/2022, 11:33 AM

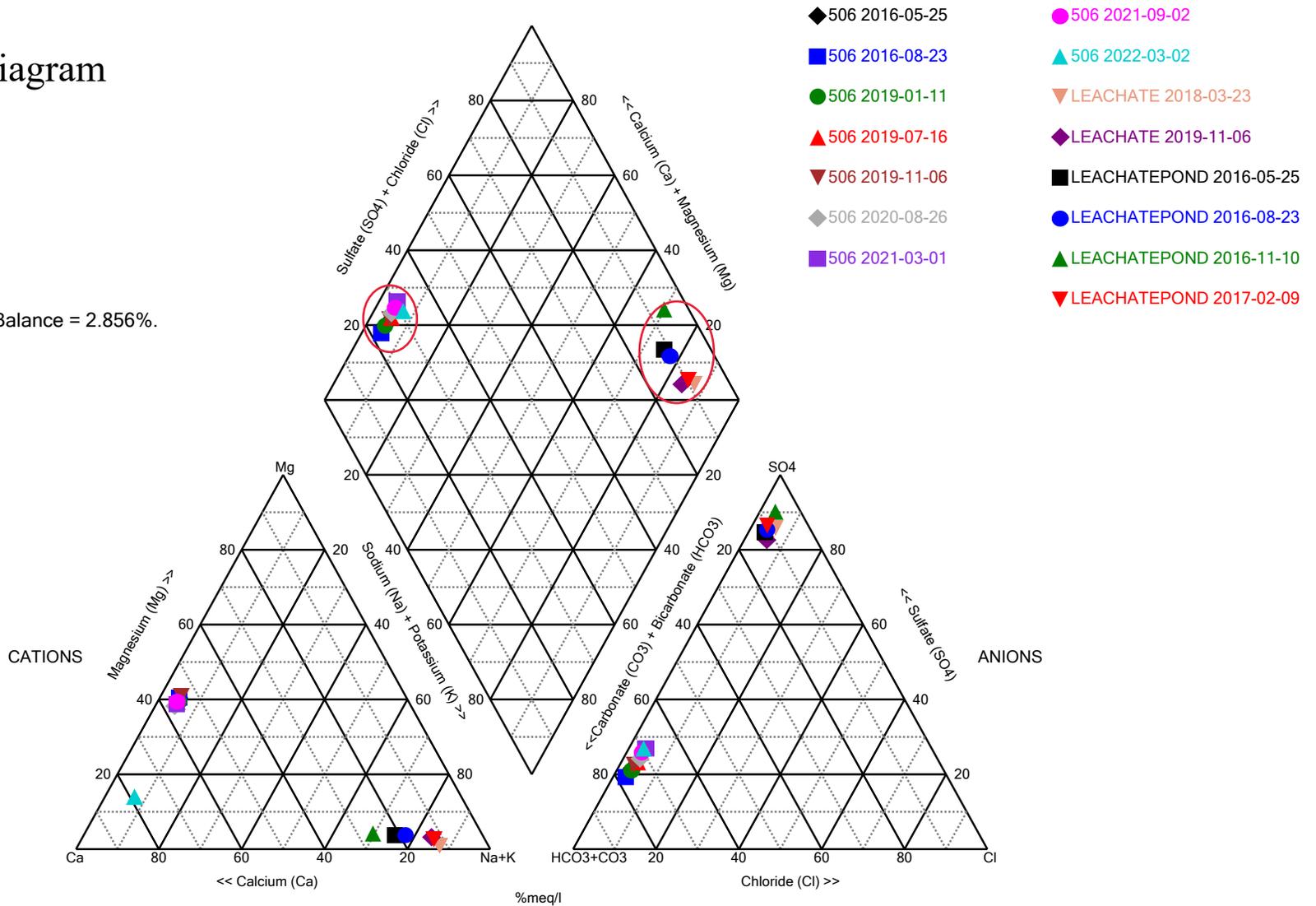
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Sulfate (mg/L)	504 (bg)	3.983	157	95	Yes	24	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	506	4.829	369	132	Yes	30	0	n/a	n/a	0.02	NP

Appendix D

Piper Diagram Plots and Analytical Results

Piper Diagram

Cation-Anion Balance = 2.856%.



Analysis Run 11/28/2022 11:36 AM View: Pipers ASD

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Piper Diagram

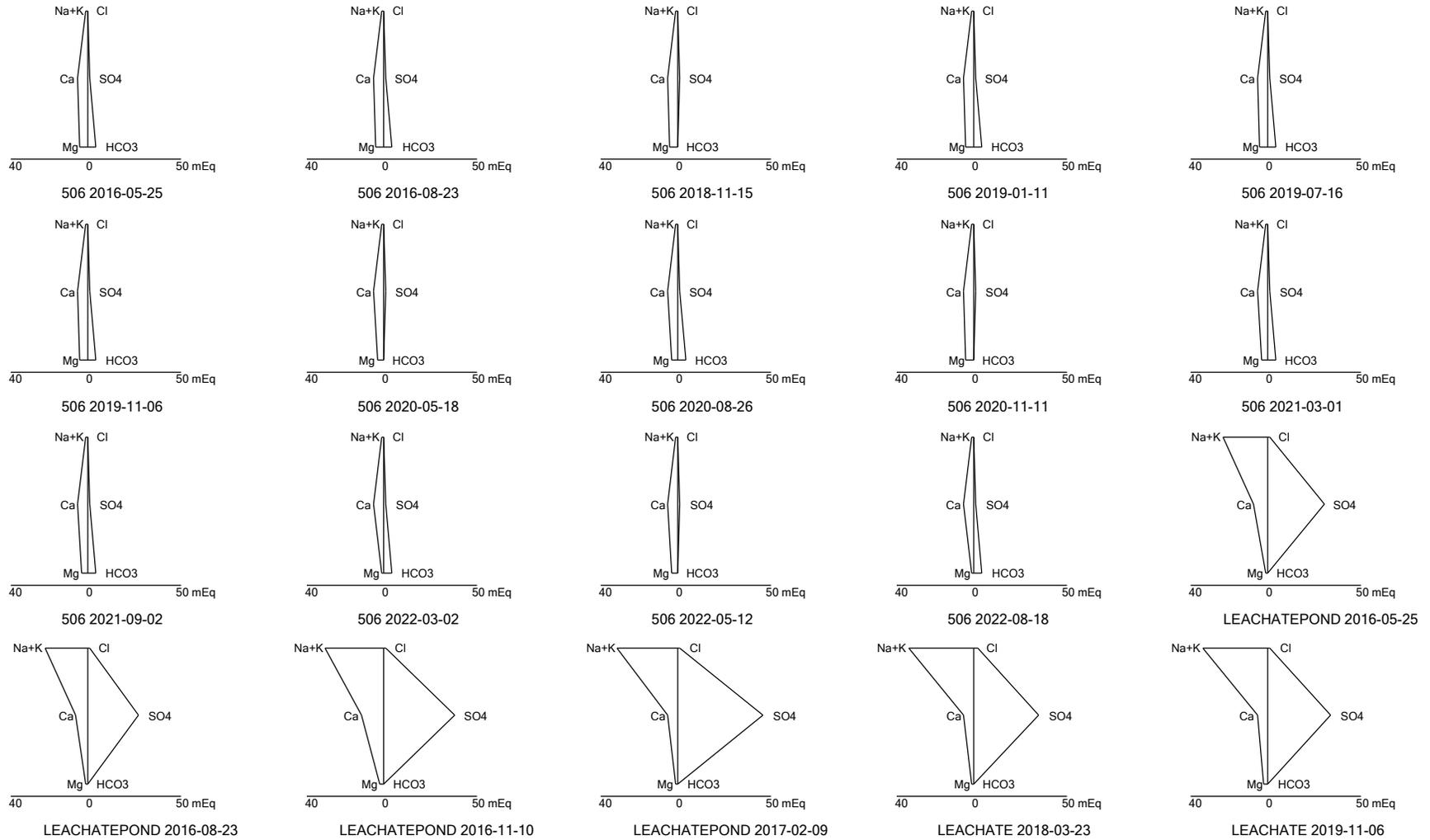
Analysis Run 11/28/2022 11:55 AM View: Pipers ASD

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3	CO3
506 2016-05-25	8.51	2.19	98.3	43.6	5.76	71	304	10
506 2016-08-23	8.28	1.79	97.2	42.8	6.16	65.8	326	10
506 2019-01-11	8.21	1.85	93	39.7	6.39	67.3	292	10
506 2019-07-16	8.24	1.89	95.3	40.7	7.33	76.1	291	10
506 2019-11-06	8.1	1.88	93.7	42.2	6.66	76.8	306	10
506 2020-08-26	8.15	1	93.9	38.2	7.31	79.6	289	10
506 2021-03-01	8.14	1	93	38.8	8.05	88.8	277	10
506 2021-09-02	8.43	1	91.1	38.3	8.03	88.7	296	10
506 2022-03-02	9.44	1	94.6	10	8.1	92.9	293	10
506 2022-08-18	8.34	2.03	94.2	3.94	10.52	95.5	312	10
LEACHATEPOND 2016-05-25	499	58.6	129	12.9	44.1	1440	10	119
LEACHATEPOND 2016-08-23	479	56.8	108	12.8	42.8	1320	10	104
LEACHATEPOND 2016-11-10	651	75.3	224	22.5	50.4	1820	30.5	68.3
LEACHATEPOND 2017-02-09	678	66.2	89.4	10.8	64.5	2200	38.9	146
LEACHATE 2018-03-23	741	70.3	88.5	4.66	79.1	1690	10	108
LEACHATE 2019-11-06	732	76.4	101	13.5	74.3	1630	53.3	125

Appendix E

Stiff Diagrams and Analytical Results



Stiff Diagram Analysis Run 11/28/2022 11:58 AM View: Pipers ASD
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Stiff Diagram

Analysis Run 11/28/2022 11:58 AM View: Pipers ASD

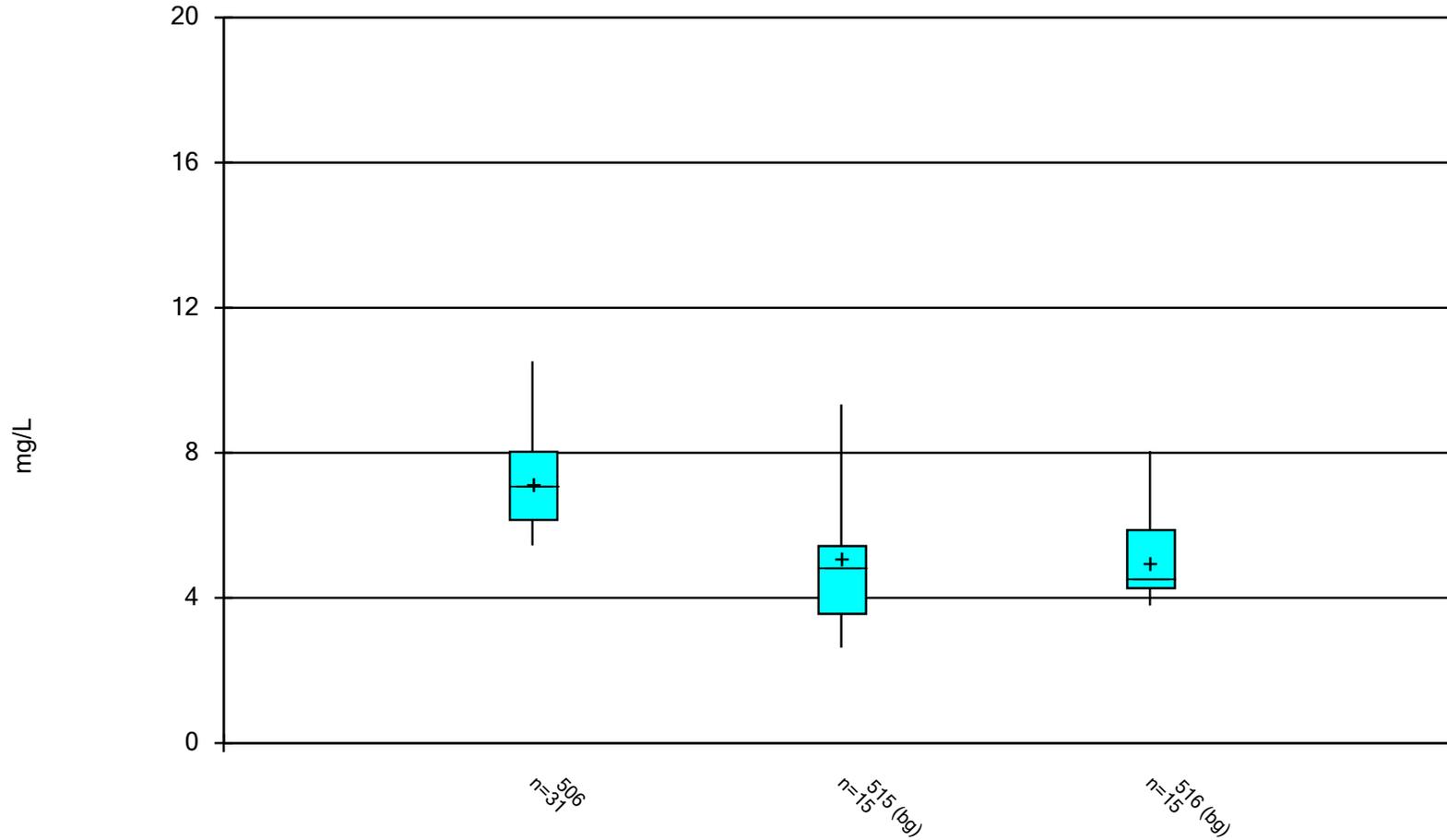
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3
506 2016-05-25	8.51	2.19	98.3	43.6	5.76	71	304
506 2016-08-23	8.28	1.79	97.2	42.8	6.16	65.8	326
506 2018-11-15	8.54	0	93.4	41.6	6.69	70.8	0
506 2019-01-11	8.21	1.85	93	39.7	6.39	67.3	292
506 2019-07-16	8.24	1.89	95.3	40.7	7.33	76.1	291
506 2019-11-06	8.1	1.88	93.7	42.2	6.66	76.8	306
506 2020-05-18	7.93	0	92.7	39	7.11	80	0
506 2020-08-26	8.15	1	93.9	38.2	7.31	79.6	289
506 2020-11-11	8.38	0	93.4	40.1	7.28	87	0
506 2021-03-01	8.14	1	93	38.8	8.05	88.8	277
506 2021-09-02	8.43	1	91.1	38.3	8.03	88.7	296
506 2022-03-02	9.44	1	94.6	10	8.1	92.9	293
506 2022-05-12	7.99	0	89.4	37.7	8.39	99	0
506 2022-08-18	8.34	2.03	94.2	3.94	10.52	95.5	312
LEACHATEPOND 2016-05-25	499	58.6	129	12.9	44.1	1440	10
LEACHATEPOND 2016-08-23	479	56.8	108	12.8	42.8	1320	10
LEACHATEPOND 2016-11-10	651	75.3	224	22.5	50.4	1820	30.5
LEACHATEPOND 2017-02-09	678	66.2	89.4	10.8	64.5	2200	38.9
LEACHATE 2018-03-23	741	70.3	88.5	4.66	79.1	1690	10
LEACHATE 2019-11-06	732	76.4	101	13.5	74.3	1630	53.3

Appendix F

Box and Whiskers Plots

Box & Whiskers Plot



Constituent: Chloride Analysis Run 11/28/2022 11:21 AM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Constituent: Chloride (mg/L) Analysis Run 11/28/2022 11:22 AM View: LF III

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

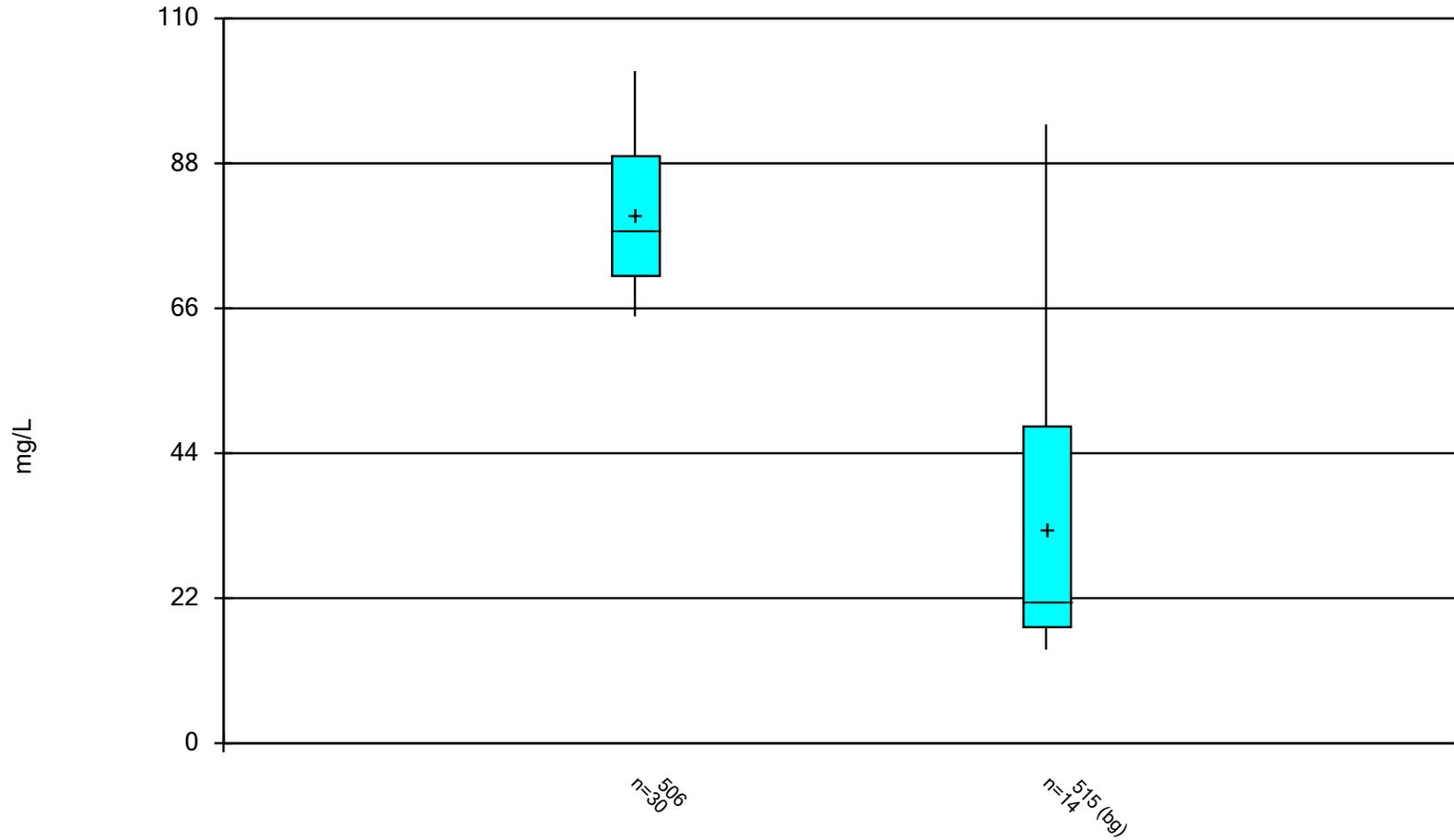
	506	515 (bg)	516 (bg)
12/15/2015	6.45	2.63	4.53
2/18/2016	6.15		
5/25/2016	5.76		
6/2/2016		3.46	4.27
8/23/2016	6.16		
11/11/2016	6.13	3.69	4.31
2/8/2017	5.89		
5/4/2017	6.15	3.15	4.51
8/4/2017	5.45		
10/3/2017	8.74	8.75	6.21
11/16/2017	6.15	9.33	4.45
5/16/2018		7	3.95
5/17/2018	6.69		
6/27/2018	5.8		
11/14/2018		5.43	3.79
11/15/2018	6.69		
1/11/2019	6.39		
5/22/2019	7.05	5.05	4.33
7/16/2019	7.33		
8/21/2019	7.17		
11/6/2019	6.66	5	4.08
5/18/2020	7.11	4.94	4.91
8/26/2020	7.31		
11/11/2020	7.28	4.54	4.98
3/1/2021	8.05		
5/24/2021	8.09	4.69	8.05
7/19/2021	8.01		
9/2/2021	8.03		
11/15/2021	7.78	3.56	5.87
2/1/2022	7.96		
3/2/2022	8.1		
5/12/2022	8.39	4.86	6.46
7/15/2022	8.5		
8/18/2022	10.52 (D)		
Median	7.11	4.86	4.51
LowerQ.	6.15	3.56	4.27
UpperQ.	8.03	5.43	5.87
Min	5.45	2.63	3.79
Max	10.52	9.33	8.05
Mean	7.159	5.072	4.98

Box & Whiskers Plot

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley Printed 11/28/2022, 11:22 AM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Chloride (mg/L)	506	31	7.159	1.118	0.2007	7.11	5.45	10.52	0
Chloride (mg/L)	515 (bg)	15	5.072	1.936	0.4998	4.86	2.63	9.33	0
Chloride (mg/L)	516 (bg)	15	4.98	1.174	0.3031	4.51	3.79	8.05	0

Box & Whiskers Plot



Constituent: Sulfate Analysis Run 11/28/2022 2:20 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

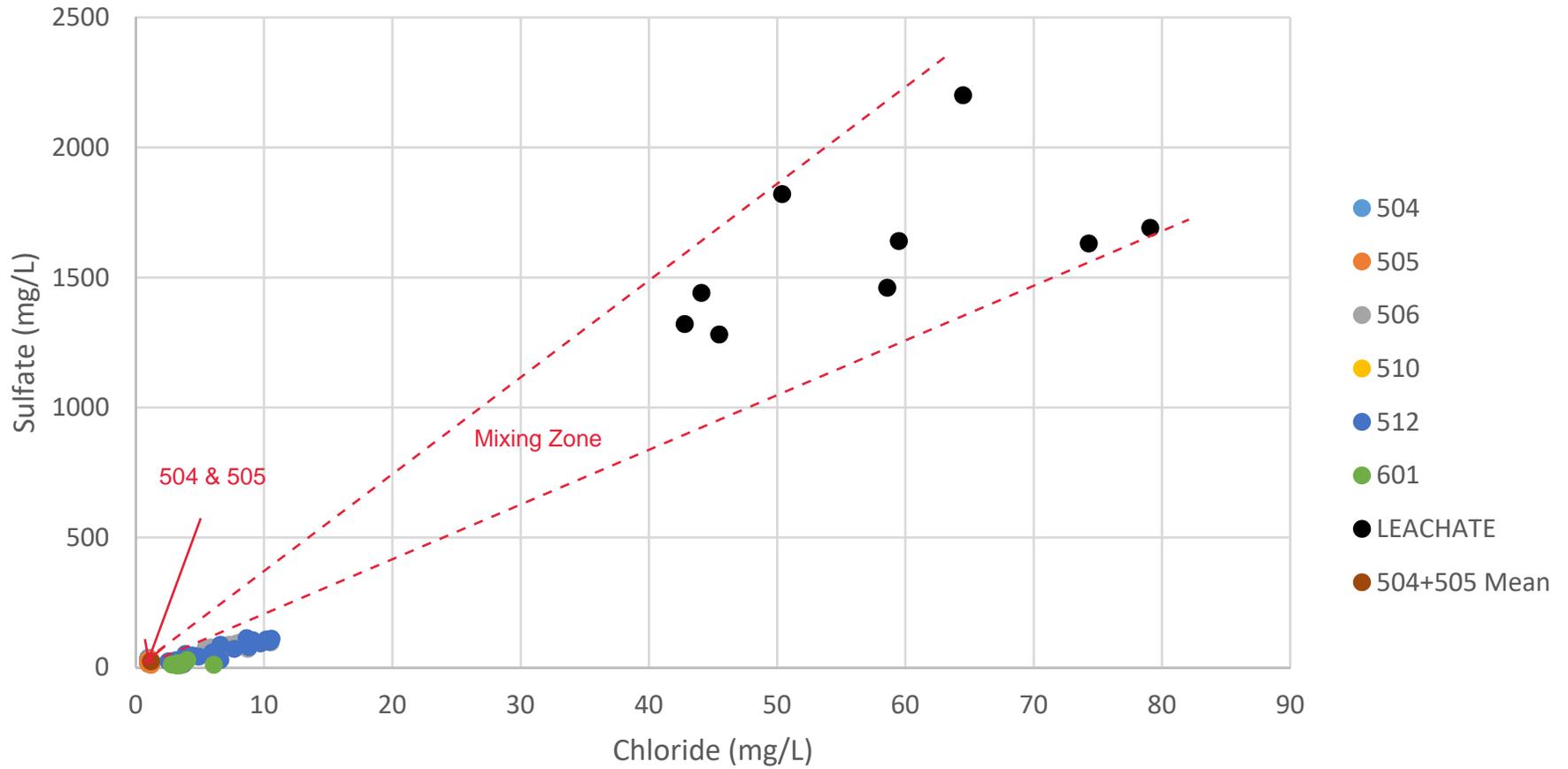
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley Printed 11/28/2022, 2:21 PM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Sulfate (mg/L)	506	30	80.12	10.92	1.993	77.7	64.8	102	0
Sulfate (mg/L)	515 (bg)	14	32.39	24.22	6.474	21.4	14.2	93.9	0

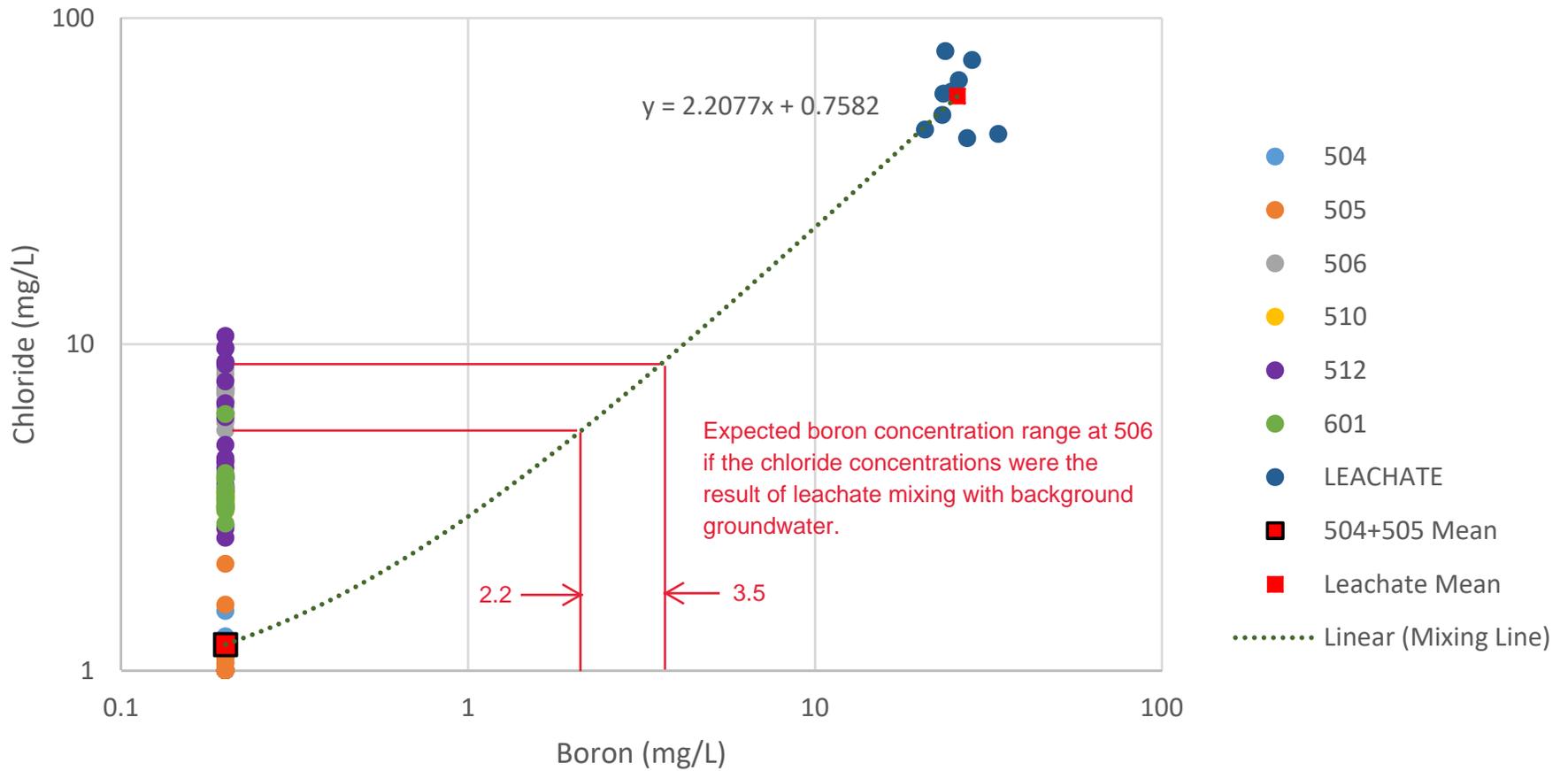
Appendix G

Binary Plots

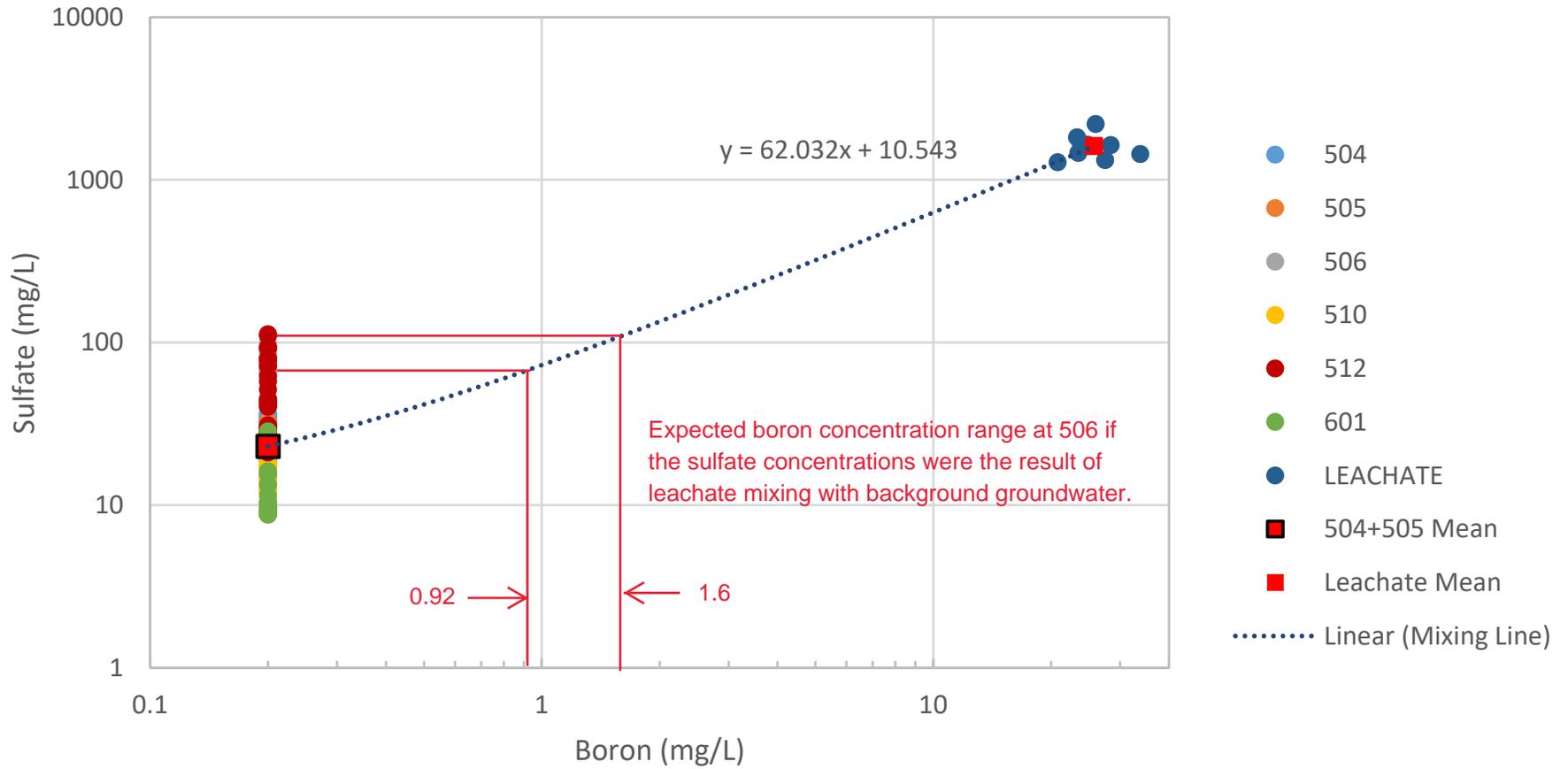
Chloride-Sulfate Binary Diagram



Boron-Chloride Binary Diagram



Boron-Sulfate Binary Diagram



APPENDIX D

LABORATORY ANALYTICAL REPORTS

- February 2022 – First verification sampling for the Fall 2021 detection monitoring event.
- March 2022 – Second verification sampling for the Fall 2021 detection monitoring event.
- May 2022 – Spring 2022 semiannual detection monitoring sampling event.
- July 2022 – First verification sampling for the Spring 2022 detection monitoring sampling event.
- August 2022 – Second verification sampling for Spring 2022 detection monitoring sampling event.
- November 2022 - Fall 2022 semiannual detection monitoring sampling event.

SCS Engineers - KS

Sample Delivery Group: L1457366
Samples Received: 02/02/2022
Project Number: 27213169.21 - G
Description: Sibley Generating Station

Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	2 Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	3 Ss
MW-505 L1457366-01	5	
MW-506 L1457366-02	6	4 Cn
MW-510 L1457366-03	7	5 Sr
MW-512 L1457366-04	8	
DUPLICATE L1457366-05	9	6 Qc
Qc: Quality Control Summary	10	
Gravimetric Analysis by Method 2540 C-2011	10	7 Gl
Wet Chemistry by Method 9056A	11	
Metals (ICP) by Method 6010D	13	8 Al
Gl: Glossary of Terms	14	
Al: Accreditations & Locations	15	
Sc: Sample Chain of Custody	16	9 Sc

SAMPLE SUMMARY

MW-505 L1457366-01 GW

Collected by: Matt Vander Puttey
 Collected date/time: 02/01/22 11:30
 Received date/time: 02/02/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1812756	1	02/03/22 14:16	02/03/22 15:36	MMF	Mt. Juliet, TN

MW-506 L1457366-02 GW

Collected by: Matt Vander Puttey
 Collected date/time: 02/01/22 12:35
 Received date/time: 02/02/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1812605	1	02/03/22 18:59	02/03/22 18:59	LBR	Mt. Juliet, TN

MW-510 L1457366-03 GW

Collected by: Matt Vander Puttey
 Collected date/time: 02/01/22 13:10
 Received date/time: 02/02/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1812605	1	02/03/22 19:13	02/03/22 19:13	LBR	Mt. Juliet, TN

MW-512 L1457366-04 GW

Collected by: Matt Vander Puttey
 Collected date/time: 02/01/22 13:45
 Received date/time: 02/02/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1812756	1	02/03/22 14:16	02/03/22 15:36	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1812605	1	02/03/22 19:28	02/03/22 19:28	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1812605	5	02/04/22 10:07	02/04/22 10:07	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1811672	1	02/03/22 12:20	02/03/22 19:08	CCE	Mt. Juliet, TN

DUPLICATE L1457366-05 GW

Collected by: Matt Vander Puttey
 Collected date/time: 02/01/22 13:45
 Received date/time: 02/02/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1812756	1	02/03/22 14:16	02/03/22 15:36	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1812605	1	02/03/22 20:26	02/03/22 20:26	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1812605	5	02/04/22 10:34	02/04/22 10:34	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1811672	1	02/03/22 12:20	02/03/22 20:01	CCE	Mt. Juliet, TN



CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	182000		10000	1	02/03/2022 15:36	WG1812756

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	7960		1000	1	02/03/2022 18:59	WG1812605
Sulfate	92900		5000	1	02/03/2022 18:59	WG1812605

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	14400		5000	1	02/03/2022 19:13	WG1812605

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	516000		10000	1	02/03/2022 15:36	WG1812756

¹ Cp

² Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	9140		1000	1	02/03/2022 19:28	WG1812605
Sulfate	104000		25000	5	02/04/2022 10:07	WG1812605

³ Ss

⁴ Cn

⁵ Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	110000	<u>V</u>	1000	1	02/03/2022 19:08	WG1811672

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	524000		10000	1	02/03/2022 15:36	WG1812756

¹ Cp

² Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	9220		1000	1	02/03/2022 20:26	WG1812605
Sulfate	105000		25000	5	02/04/2022 10:34	WG1812605

³ Ss

⁴ Cn

⁵ Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	111000		1000	1	02/03/2022 20:01	WG1811672

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3757713-1 02/03/22 15:36

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1457354-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1457354-01 02/03/22 15:36 • (DUP) R3757713-3 02/03/22 15:36

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1130000	1150000	1	1.76		5

4 Cn

5 Sr

L1457366-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1457366-04 02/03/22 15:36 • (DUP) R3757713-4 02/03/22 15:36

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	516000	525000	1	1.73		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3757713-2 02/03/22 15:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8630000	98.1	77.4-123	

9 Sc

Method Blank (MB)

(MB) R3757158-1 02/03/22 09:37

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1456954-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1456954-02 02/03/22 13:53 • (DUP) R3757158-3 02/03/22 14:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	1890	1930	1	1.62		15

L1457366-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1457366-04 02/03/22 19:28 • (DUP) R3757158-6 02/03/22 19:42

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	9140	9220	1	0.876		15
Sulfate	112000	112000	1	0.452	E	15

L1456954-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1456954-02 02/03/22 21:10 • (DUP) R3757158-9 02/03/22 21:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	ND	5	0.000		15

L1457366-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1457366-04 02/04/22 10:07 • (DUP) R3757158-10 02/04/22 10:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	104000	104000	5	0.281		15

Laboratory Control Sample (LCS)

(LCS) R3757158-2 02/03/22 09:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Chloride	40000	39500	98.6	80.0-120	
Sulfate	40000	39600	99.0	80.0-120	

L1456954-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1456954-02 02/03/22 13:53 • (MS) R3757158-4 02/03/22 14:23 • (MSD) R3757158-5 02/03/22 14:37

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	1890	51900	51400	100	99.0	1	80.0-120			0.932	15

L1457366-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1457366-04 02/03/22 19:28 • (MS) R3757158-7 02/03/22 19:57 • (MSD) R3757158-8 02/03/22 20:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	9140	59800	59500	101	101	1	80.0-120			0.546	15
Sulfate	50000	112000	157000	156000	89.6	87.8	1	80.0-120	<u>E</u>	<u>E</u>	0.557	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3756787-1 02/03/22 19:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	369	⬇	79.3	1000

¹ Cp

² Tc

³ Ss

Laboratory Control Sample (LCS)

(LCS) R3756787-2 02/03/22 19:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10000	9450	94.5	80.0-120	

⁴ Cn

⁵ Sr

L1457366-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1457366-04 02/03/22 19:08 • (MS) R3756787-4 02/03/22 19:13 • (MSD) R3756787-5 02/03/22 19:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	110000	118000	119000	72.9	85.5	1	75.0-125	⬇		1.06	20

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

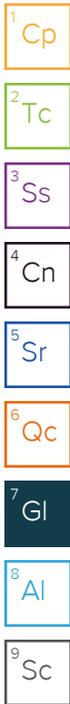
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: **SCS Engineers - KS**
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
 Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Report to:
Jason Franks

Project Description:
Sibley Generating Station

City/State Collected: **Sibyl MO**

Please Circle: PT MT CD ET

Phone: **913-681-0030**

Client Project # **27213169.21 - G**

Lab Project # **AQUAOPKS-SIBLEY**

Chain of Custody Page of

Pace
 PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

Email To: **jfranks@scsengineers.com;jay.martin@evergy.com**

Project Description: **Sibley Generating Station**

City/State Collected: **Sibyl MO**

Please Circle: PT MT CD ET

Phone: **913-681-0030**

Client Project # **27213169.21 - G**

Lab Project # **AQUAOPKS-SIBLEY**

SDG # **149 7366**

H139

Collected by (print): **Matt VanderPutten**

Site/Facility ID #

P.O. #

Collected by (signature): *[Signature]*

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #

Date Results Needed **Std**

Immediately

Packed on Ice N ___ Y X

Acctnum: **AQUAOPKS**

Template: **T117427**

Prelogin: **P900453**

PM: **206 - Jeff Carr**

PB:

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Ca - 6010 250mlHDPE-HNO3	Chloride, SO4 125mlHDPE-NoPres	SO4 125mlHDPE-NoPres	TDS 1L-HDPE NoPres
MW-505	Grab	GW		02/01/22	1130	1				X
MW-506	Grab	GW		02/01/22	1235	1		X		
MW-510	Grab	GW		02/01/22	1310	1			X	
MW-512	Grab	GW		02/01/22	1345	3	X	X		X
MW-512 MS/MSD	Grab	GW		02/01/22	1345	2	X	X		
DUPLICATE	Grab	GW		02/01/22	1345	3	X	X		X

Shipped Via:

Remarks

Sample # (lab only)

-01

-02

-03

-04

-05

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
 ___ UPS ___ FedEx ___ Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact: NP Y N

COC Signed/Accurate: Y N

Bottles arrive intact: Y N

Correct bottles used: Y N

Sufficient volume sent: Y N

If Applicable

VOA Zero Headspace: Y N

Preservation Correct/Checked: Y N

RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature) *[Signature]* Date: **02/01/22** Time: **1815**

Received by: (Signature) _____ Trip Blank Received: Yes/No HCL/MeOH TBR

Temp: **2.4** °C Bottles Received: **11**

Relinquished by: (Signature) _____ Date: _____ Time: _____

Received for lab by: (Signature) *[Signature]* Date: **2/2/22** Time: **0930**

Hold: _____ Condition: **NCF OK**



SCS Engineers - KS

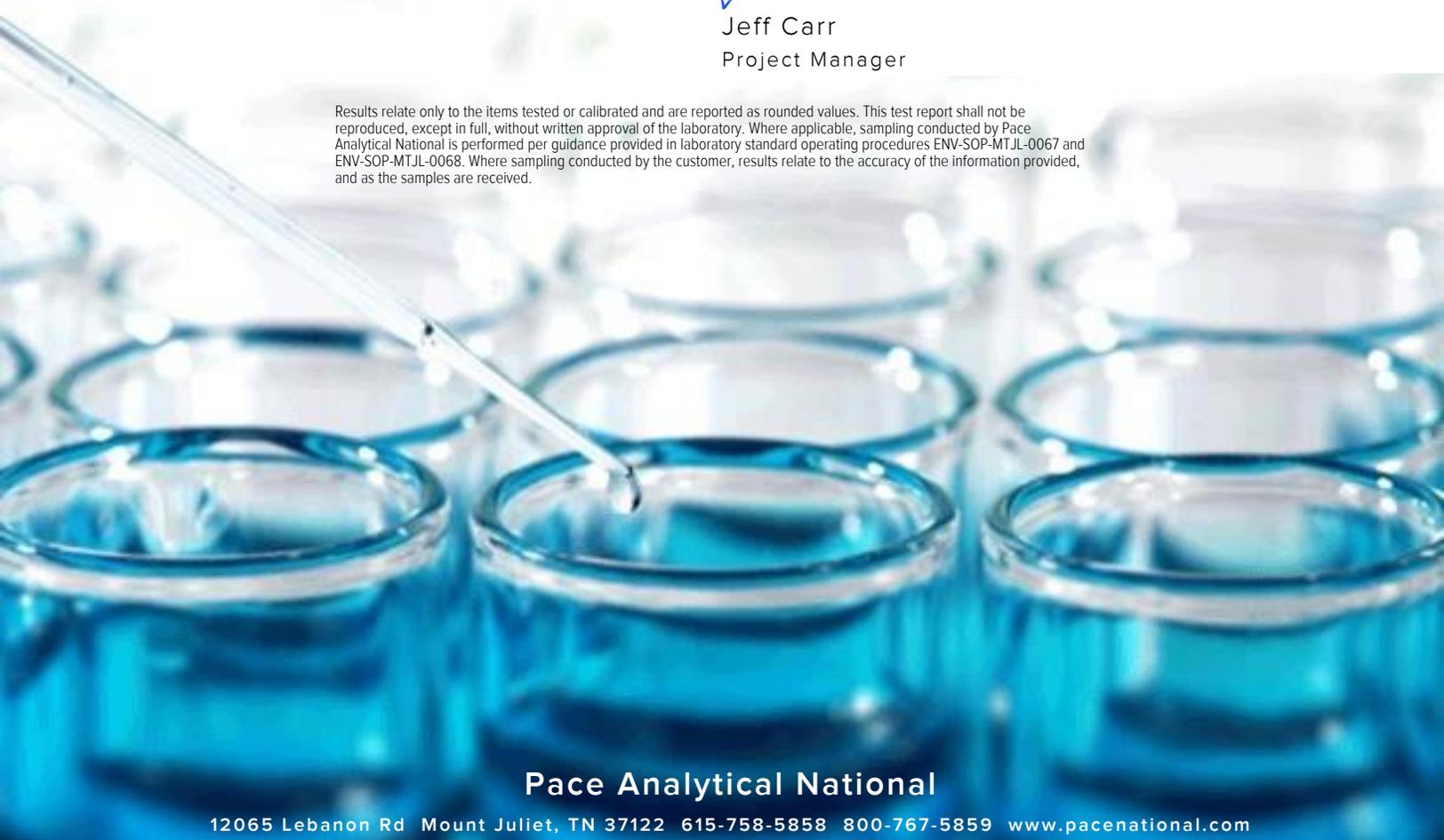
Sample Delivery Group: L1467576
Samples Received: 03/03/2022
Project Number: 27213169.21 - G
Description: Sibley Generating Station
Site: SIBLEY ENERGY
Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³Ss
MW-505 L1467576-01	5	
MW-506 L1467576-02	6	⁴Cn
MW-512 L1467576-03	7	⁵Sr
DUPLICATE L1467576-04	8	
Qc: Quality Control Summary	9	⁶Qc
Gravimetric Analysis by Method 2540 C-2011	9	
Wet Chemistry by Method 9056A	11	⁷Gl
Gl: Glossary of Terms	13	⁸Al
Al: Accreditations & Locations	14	
Sc: Sample Chain of Custody	15	⁹Sc

SAMPLE SUMMARY

MW-505 L1467576-01 GW

Collected by Britta Coleman Collected date/time 03/02/22 11:45 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1831040	1	03/11/22 16:16	03/11/22 18:01	MMF	Mt. Juliet, TN

1 Cp

2 Tc

MW-506 L1467576-02 GW

Collected by Britta Coleman Collected date/time 03/02/22 11:05 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1827629	1	03/05/22 16:23	03/05/22 16:23	KEG	Mt. Juliet, TN

3 Ss

4 Cn

5 Sr

MW-512 L1467576-03 GW

Collected by Britta Coleman Collected date/time 03/02/22 09:55 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1829065	1	03/08/22 13:02	03/08/22 17:24	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1827629	1	03/05/22 16:36	03/05/22 16:36	KEG	Mt. Juliet, TN

6 Qc

7 Gl

8 Al

DUPLICATE L1467576-04 GW

Collected by Britta Coleman Collected date/time 03/02/22 10:00 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1829065	1	03/08/22 13:02	03/08/22 17:24	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1827629	1	03/05/22 17:25	03/05/22 17:25	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1827629	5	03/05/22 17:38	03/05/22 17:38	KEG	Mt. Juliet, TN

9 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	185000	<u>P1</u>	50000	1	03/11/2022 18:01	WG1831040

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8100		1000	1	03/05/2022 16:23	WG1827629
Sulfate	92900		5000	1	03/05/2022 16:23	WG1827629

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	513000		10000	1	03/08/2022 17:24	WG1829065

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	6610		1000	1	03/05/2022 16:36	WG1827629
Sulfate	86800		5000	1	03/05/2022 16:36	WG1827629

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	508000		10000	1	03/08/2022 17:24	WG1829065

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8930		1000	1	03/05/2022 17:25	WG1827629
Sulfate	104000		25000	5	03/05/2022 17:38	WG1827629

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3768554-1 03/08/22 17:24

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	21000		10000	10000

1 Cp

2 Tc

3 Ss

L1467564-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1467564-02 03/08/22 17:24 • (DUP) R3768554-3 03/08/22 17:24

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	846000	870000	1	2.80		5

4 Cn

5 Sr

L1467564-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1467564-03 03/08/22 17:24 • (DUP) R3768554-4 03/08/22 17:24

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	744000	791000	1	6.08	J3	5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3768554-2 03/08/22 17:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8240000	93.6	77.4-123	

9 Sc

Method Blank (MB)

(MB) R3769589-1 03/11/22 18:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1467207-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1467207-03 03/11/22 18:01 • (DUP) R3769589-3 03/11/22 18:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3520000	3400000	1	3.47		5

4 Cn

5 Sr

6 Qc

L1467576-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1467576-01 03/11/22 18:01 • (DUP) R3769589-4 03/11/22 18:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	185000	135000	1	31.3	P1	5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3769589-2 03/11/22 18:01

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8470000	96.3	77.4-123	

Method Blank (MB)

(MB) R3767360-1 03/05/22 09:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1467576-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1467576-03 03/05/22 16:36 • (DUP) R3767360-3 03/05/22 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	6610	6180	1	6.68		15
Sulfate	86800	86000	1	0.950		15

L1467834-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1467834-08 03/05/22 21:34 • (DUP) R3767360-6 03/05/22 21:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	9610	9900	1	2.97		15
Sulfate	84200	84000	1	0.224		15

Laboratory Control Sample (LCS)

(LCS) R3767360-2 03/05/22 09:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	38200	95.5	80.0-120	
Sulfate	40000	38500	96.2	80.0-120	

L1467576-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1467576-03 03/05/22 16:36 • (MS) R3767360-4 03/05/22 17:00 • (MSD) R3767360-5 03/05/22 17:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	6610	57700	56700	102	100	1	80.0-120			1.70	15
Sulfate	50000	86800	133000	131000	91.8	88.3	1	80.0-120	E	E	1.34	15

L1467834-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1467834-08 03/05/22 21:34 • (MS) R3767360-8 03/05/22 22:24 • (MSD) R3767360-9 03/05/22 22:37

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	9610	106000	106000	193	193	1	80.0-120	<u>E J5</u>	<u>E J5</u>	0.00395	15
Sulfate	50000	84200	175000	175000	181	181	1	80.0-120	<u>E J5</u>	<u>E J5</u>	0.0212	15

Sample Narrative:

MS: SAMPLE DOUBLE SPIKED

MSD: SAMPLE DOUBLE SPIKED

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



ACCREDITATIONS & LOCATIONS

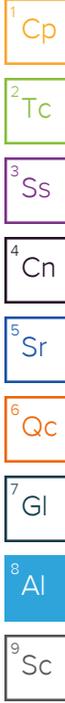
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:
SCS Engineers - KS
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Pres
 Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Report to:
Jason Franks

Email To:
 jfranks@scsengineers.com;jay.martin@evergy.com

Project Description:
Sibley Generating Station

City/State Collected: **Sibley, Mo**

Please Circle:
 PT MT **CT** ET

Phone: **913-681-0030**

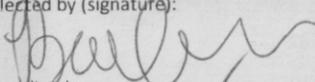
Client Project #
27213169.21 - G

Lab Project #
AQUAOPKS-SIBLEY

Collected by (print):
Brian Coleman

Site/Facility ID #
Sibley Energy

P.O #

Collected by (signature):


Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #
510

Immediately Packed on Ice N ___ Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride, SO4 125mL HDPE-NoPres	TDS 1L-HDPE NoPres
MW-505	Grab	GW	-	3/2/22	1145	1		X
MW-506	Grab	GW	-	3/2/22	1105	1	X	
MW-512	Grab	GW	-	3/2/22	0955	2	X	X
MW-512 MS/MSD	Grab	GW	-	3/2/22	1005	1	X	
DUPLICATE	Grab	GW	-	3/2/22	1000	2	X	X

Pace
 PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1467576**
B218

Acctnum: **AQUAOPKS**
 Template: **T117427**
 Prelogin: **P908206**
 PM: **206 - Jeff Carr**
 PB:

Shipped Via:

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:

Samples returned via:
 ___ UPS ___ FedEx ___ Courier

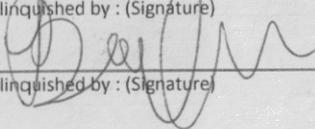
Tracking # **53004294 3884**

pH ___ Temp ___
 Flow ___ Other ___

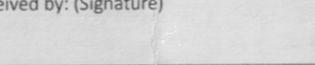
Sample Receipt Checklist

COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N

If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)


Date: **3/2/22**
 Time: **1130**

Received by: (Signature)


Trip Blank Received: Yes No
 HCL/ MeOH TBR

Temp: **84.7°C** Bottles Received: **2.4 to 2.14 14**

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Company Name/Address:
SCS Engineers - KS
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Pres Chk	22																			
----------	----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Chain of Custody Page 2 of 2

 PEOPLE ADVANCING SCIENCE
MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

Report to:
Jason Franks

Email To:
jfranks@scsengineers.com;jay.martin@evergy.c

Project Description:
Sibley Generating Station

City/State Collected:
Sibley, MO

Please Circle:
 PT MT ET

Phone: **913-681-0030**

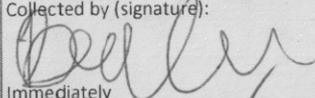
Client Project #
27213169.21 - G

Lab Project #
AQUAOPKS-SIBLEY

Collected by (print):
Brista Lehman

Site/Facility ID #
Sibley Energy

P.O. #

Collected by (signature):


Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #
STD

No. of Cntrs

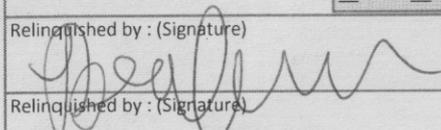
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time															
MW-505	Grab	GW	-	3/2/22	1145	3	X	X	X											
MW-506	Grab	GW	-	3/2/22	1105	2	X	X												
MW-512	Grab	GW	-	3/2/22	0955	2	X	X												

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

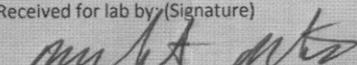
Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 ___ UPS ___ FedEx ___ Courier _____
 Tracking # _____

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP	<input type="checkbox"/> Y	<input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
If Applicable			
VOA Zero Headspace:	<input type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N

Relinquished by: (Signature)


Date: **3/2/22**
 Time: **1330**

Received by: (Signature)


Trip Blank Received: Yes/No
 HCL/ MeOH
 TBR
 Temp: **3AAT°C**
2.4 + 10 = 2.4 14

If preservation required by Login: Date/Time
 Hold:
 Condition:
 NCF OK



SCS Engineers - KS

Sample Delivery Group: L1467592
Samples Received: 03/03/2022
Project Number: 27213169.21 - G
Description: Sibley Generating Station

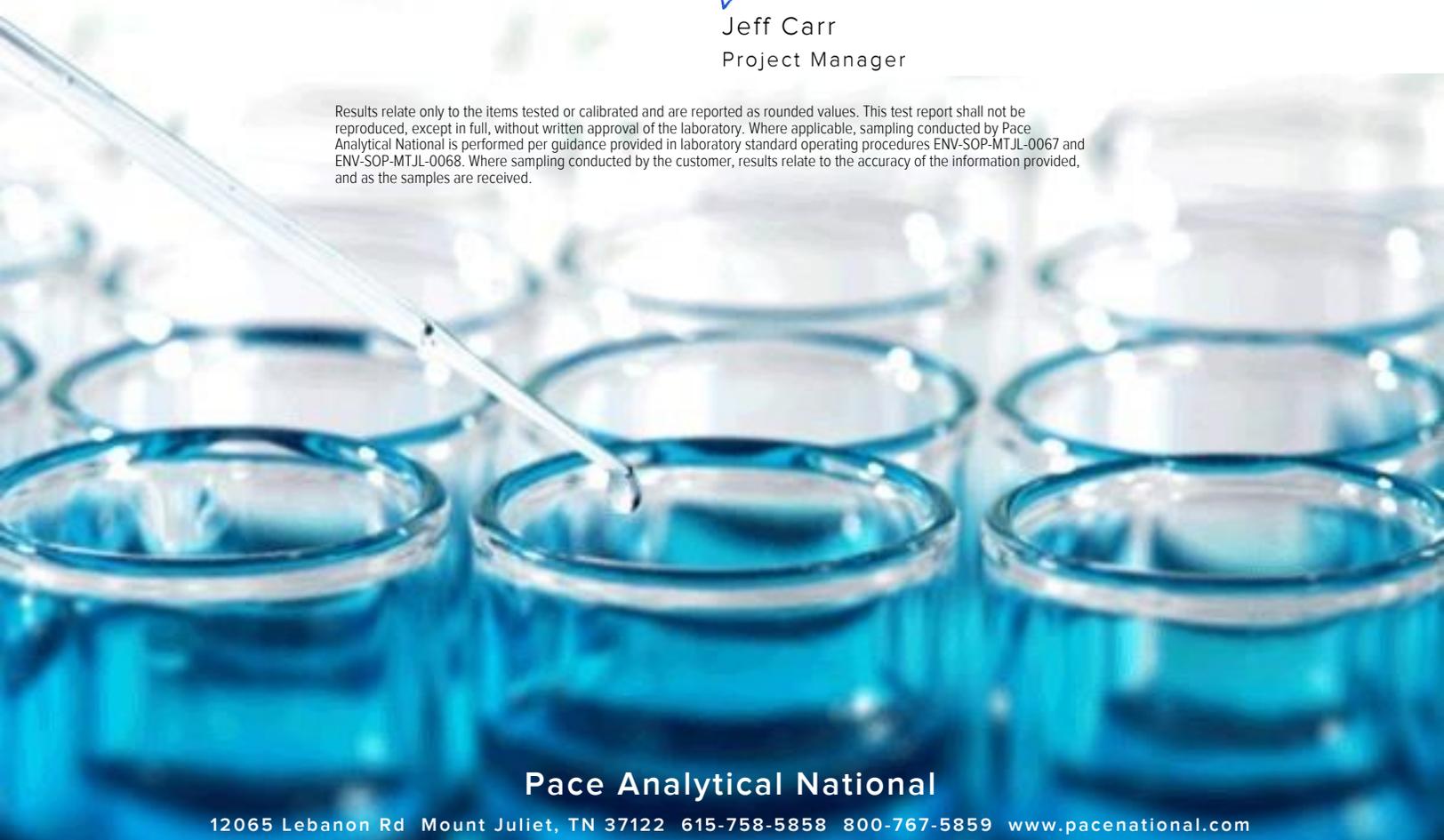
Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	4	
Sr: Sample Results	5	
MW-505 L1467592-01	5	
MW-506 L1467592-02	6	
MW-512 L1467592-03	7	
Qc: Quality Control Summary	8	
Wet Chemistry by Method 2320 B-2011	8	
Wet Chemistry by Method 9056A	10	
Metals (ICP) by Method 6010D	11	
Gl: Glossary of Terms	12	
Al: Accreditations & Locations	13	
Sc: Sample Chain of Custody	14	

SAMPLE SUMMARY

MW-505 L1467592-01 GW

Collected by Britta Coleman Collected date/time 03/02/22 11:45 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1828044	1	03/06/22 09:03	03/06/22 09:03	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1827867	1	03/05/22 18:15	03/05/22 18:15	KEG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1828304	1	03/08/22 11:09	03/09/22 01:11	ZSA	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

MW-506 L1467592-02 GW

Collected by Britta Coleman Collected date/time 03/02/22 11:05 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1828044	1	03/06/22 09:10	03/06/22 09:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1828304	1	03/08/22 11:09	03/09/22 01:14	ZSA	Mt. Juliet, TN

MW-512 L1467592-03 GW

Collected by Britta Coleman Collected date/time 03/02/22 09:55 Received date/time 03/03/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1828044	1	03/06/22 09:13	03/06/22 09:13	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1828304	1	03/08/22 11:09	03/09/22 01:17	ZSA	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	107000		20000	1	03/06/2022 09:03	WG1828044
Alkalinity,Carbonate	ND		20000	1	03/06/2022 09:03	WG1828044

Sample Narrative:

L1467592-01 WG1828044: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1180		1000	1	03/05/2022 18:15	WG1827867
Sulfate	16800		5000	1	03/05/2022 18:15	WG1827867

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	32800		1000	1	03/09/2022 01:11	WG1828304
Magnesium	9320		1000	1	03/09/2022 01:11	WG1828304
Potassium	ND		2000	1	03/09/2022 01:11	WG1828304
Sodium	9000	<u>B</u>	3000	1	03/09/2022 01:11	WG1828304

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	293000		20000	1	03/06/2022 09:10	WG1828044
Alkalinity,Carbonate	ND		20000	1	03/06/2022 09:10	WG1828044

Sample Narrative:

L1467592-02 WG1828044: Endpoint pH 4.5 Headspace

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	94600		1000	1	03/09/2022 01:14	WG1828304
Magnesium	40000		1000	1	03/09/2022 01:14	WG1828304
Potassium	ND		2000	1	03/09/2022 01:14	WG1828304
Sodium	9440	<u>B</u>	3000	1	03/09/2022 01:14	WG1828304

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	355000		20000	1	03/06/2022 09:13	WG1828044
Alkalinity,Carbonate	ND		20000	1	03/06/2022 09:13	WG1828044

Sample Narrative:

L1467592-03 WG1828044: Endpoint pH 4.5 Headspace

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	118000		1000	1	03/09/2022 01:17	WG1828304
Magnesium	41600		1000	1	03/09/2022 01:17	WG1828304
Potassium	2400	<u>B</u>	2000	1	03/09/2022 01:17	WG1828304
Sodium	11300	<u>B</u>	3000	1	03/09/2022 01:17	WG1828304

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3766932-2 03/06/22 07:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

Method Blank (MB)

(MB) R3766932-3 03/06/22 08:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1467523-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1467523-03 03/06/22 08:19 • (DUP) R3766932-4 03/06/22 08:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l	%	%		%
Alkalinity,Bicarbonate	343000	346000	1	0.725		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1467592-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1467592-01 03/06/22 09:03 • (DUP) R3766932-5 03/06/22 09:07

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l	%	%		%
Alkalinity,Bicarbonate	107000	108000	1	1.16		20
Alkalinity,Carbonate	ND	ND	1	0.000		20



L1467592-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1467592-01 03/06/22 09:03 • (DUP) R3766932-5 03/06/22 09:07

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
---------	-------------------------	--------------------	----------	--------------	----------------------	------------------------

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3767047-1 03/05/22 10:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1466573-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1466573-01 03/05/22 12:32 • (DUP) R3767047-3 03/05/22 12:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	16200	16200	1	0.00616		15
Sulfate	18200	18400	1	0.628		15

L1467119-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1467119-01 03/05/22 19:14 • (DUP) R3767047-6 03/05/22 19:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	115000	114000	20	0.633		15
Sulfate	311000	310000	20	0.278		15

Laboratory Control Sample (LCS)

(LCS) R3767047-2 03/05/22 10:20

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	39100	97.8	80.0-120	
Sulfate	40000	39000	97.5	80.0-120	

L1467119-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1467119-01 03/05/22 19:14 • (MS) R3767047-7 03/05/22 19:44 • (MSD) R3767047-8 03/05/22 19:59

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	115000	157000	156000	83.8	82.9	20	80.0-120			0.286	15
Sulfate	50000	311000	346000	344000	70.0	65.2	20	80.0-120	V	V	0.701	15

Method Blank (MB)

(MB) R3767714-1 03/09/22 00:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		79.3	1000
Magnesium	U		85.3	1000
Potassium	372	U	261	2000
Sodium	1740	U	504	3000

Laboratory Control Sample (LCS)

(LCS) R3767714-2 03/09/22 00:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10000	9410	94.1	80.0-120	
Magnesium	10000	9440	94.4	80.0-120	
Potassium	10000	9470	94.7	80.0-120	
Sodium	10000	11000	110	80.0-120	

L1467557-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1467557-03 03/09/22 00:31 • (MS) R3767714-4 03/09/22 00:37 • (MSD) R3767714-5 03/09/22 00:39

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	114000	123000	122000	86.8	80.0	1	75.0-125			0.558	20
Magnesium	10000	7500	16600	16500	90.9	89.5	1	75.0-125			0.867	20
Potassium	10000	ND	10300	10300	90.7	91.0	1	75.0-125			0.274	20
Sodium	10000	9620	18500	18600	89.1	89.9	1	75.0-125			0.446	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

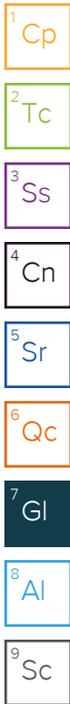
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

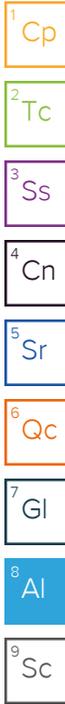
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:
SCS Engineers - KS
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
 Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Report to:
Jason Franks

Email To:
 jfranks@scsengineers.com;jay.martin@evergy.c

Project Description:
Sibley Generating Station

City/State Collected:
Sibley, MO

Please Circle:
 PT MT ET

Phone: **913-681-0030**

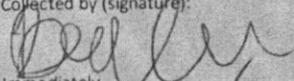
Client Project #
27213169.21 - G

Lab Project #
AQUAOPKS-SIBLEY

Collected by (print):
Bridgeta Lohman

Site/Facility ID #
Sibley Energy

P.O. #

Collected by (signature):

 Immediately
 Packed on Ice N Y

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #
 Date Results Needed
STD

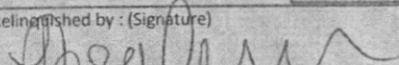
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALKBI, ALKCA	125mlHDPE-NoPres	Ca, K, Mg, Na - 6010	250mlHDPE-HNO3	SO4, Chloride - 9056	125mlHDPE-NoPres
MW-505	Grab	GW	-	3/2/22	1145	3	X	X	X			
MW-506	Grab	GW	-	3/2/22	1105	2	X	X				
MW-512	Grab	GW	-	3/2/22	0955	2	X	X				

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 UPS ___ FedEx ___ Courier _____
 Tracking # _____

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
If Applicable		
VOA Zero Headspace:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Relinquished by: (Signature)


Date: **3/2/22**
 Time: **1330**

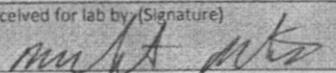
Received by: (Signature)
 Trip Blank Received: Yes/No
 HCL/Mech
 TBR

Temp: **34.1°C**
 Bottles Received: **2.4 + 0 = 2.4 14**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____
 Time: _____

Received for lab by (Signature)


Date: **3/3/22**
 Time: **915**

Hold: _____
 Condition: NCF OK

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelab.com/hubfs/pas-standard-terms.pdf>

SDG # **1967576** *NV*

Table # **L1467592** *3/4/22*

Acctnum: **AQUAOPKS**

Template: **T204388**

Prelogin: **P908208**

PM: **Z06 - Jeff Carr**

PB:

Shipped Via: **FedEX Ground**

Remarks Sample # (lab only)

-05 -01
-06 -02
-07 -03

SCS Engineers - KS

Sample Delivery Group: L1493660
Samples Received: 05/13/2022
Project Number: 27213169.22-A
Description: Evergy - Sibley Generating Station

Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	2 Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	3 Ss
MW-504 L1493660-01	6	
MW-505 L1493660-02	7	4 Cn
MW-506 L1493660-03	8	5 Sr
MW-510 L1493660-04	9	
MW-512 L1493660-05	10	6 Qc
MW-601 L1493660-06	11	
DUPLICATE L1493660-07	12	7 Gl
Qc: Quality Control Summary	13	8 Al
Gravimetric Analysis by Method 2540 C-2011	13	
Wet Chemistry by Method 9056A	14	
Metals (ICP) by Method 6010D	16	9 Sc
Gl: Glossary of Terms	18	
Al: Accreditations & Locations	19	
Sc: Sample Chain of Custody	20	

SAMPLE SUMMARY

MW-504 L1493660-01 GW

Collected by Whit Martin Collected date/time 05/12/22 10:50 Received date/time 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/07/22 21:44	06/07/22 21:44	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866295	1	05/21/22 10:12	05/23/22 01:04	CCE	Mt. Juliet, TN



MW-505 L1493660-02 GW

Collected by Whit Martin Collected date/time 05/12/22 11:30 Received date/time 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/07/22 21:58	06/07/22 21:58	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866295	1	05/21/22 10:12	05/23/22 01:07	CCE	Mt. Juliet, TN

MW-506 L1493660-03 GW

Collected by Whit Martin Collected date/time 05/12/22 12:10 Received date/time 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/07/22 22:13	06/07/22 22:13	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866295	1	05/21/22 10:12	05/23/22 01:14	CCE	Mt. Juliet, TN

MW-510 L1493660-04 GW

Collected by Whit Martin Collected date/time 05/12/22 15:10 Received date/time 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/07/22 23:13	06/07/22 23:13	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866295	1	05/21/22 10:12	05/23/22 01:17	CCE	Mt. Juliet, TN

MW-512 L1493660-05 GW

Collected by Whit Martin Collected date/time 05/12/22 13:55 Received date/time 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/07/22 23:28	06/07/22 23:28	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	5	06/07/22 23:43	06/07/22 23:43	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866295	1	05/21/22 10:12	05/23/22 01:20	CCE	Mt. Juliet, TN

MW-601 L1493660-06 GW

Collected by Whit Martin Collected date/time 05/12/22 11:25 Received date/time 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/07/22 23:58	06/07/22 23:58	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866297	1	05/21/22 10:13	05/23/22 16:43	ZSA	Mt. Juliet, TN

SAMPLE SUMMARY

DUPLICATE L1493660-07 GW

Collected by: Whit Martin
 Collected date/time: 05/12/22 11:30
 Received date/time: 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1866258	1	05/19/22 09:00	05/19/22 15:29	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1874948	1	06/08/22 00:42	06/08/22 00:42	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1866295	1	05/21/22 10:12	05/23/22 01:23	CCE	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	171000		10000	1	05/19/2022 15:29	WG1866258

¹ Cp

² Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	ND		1000	1	06/07/2022 21:44	WG1874948
Fluoride	168		150	1	06/07/2022 21:44	WG1874948
Sulfate	29100		5000	1	06/07/2022 21:44	WG1874948

³ Ss

⁴ Cn

⁵ Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 01:04	WG1866295
Calcium	28700		1000	1	05/23/2022 01:04	WG1866295

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	182000		10000	1	05/19/2022 15:29	WG1866258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1200		1000	1	06/07/2022 21:58	WG1874948
Fluoride	162		150	1	06/07/2022 21:58	WG1874948
Sulfate	27200		5000	1	06/07/2022 21:58	WG1874948

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 01:07	WG1866295
Calcium	28900		1000	1	05/23/2022 01:07	WG1866295

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	463000		10000	1	05/19/2022 15:29	WG1866258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8390		1000	1	06/07/2022 22:13	WG1874948
Fluoride	284		150	1	06/07/2022 22:13	WG1874948
Sulfate	99000		5000	1	06/07/2022 22:13	WG1874948

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 01:14	WG1866295
Calcium	89400		1000	1	05/23/2022 01:14	WG1866295

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	475000		10000	1	05/19/2022 15:29	WG1866258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3350		1000	1	06/07/2022 23:13	WG1874948
Fluoride	285		150	1	06/07/2022 23:13	WG1874948
Sulfate	15000		5000	1	06/07/2022 23:13	WG1874948

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 01:17	WG1866295
Calcium	110000		1000	1	05/23/2022 01:17	WG1866295

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	548000		10000	1	05/19/2022 15:29	WG1866258

¹ Cp

² Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8660		1000	1	06/07/2022 23:28	WG1874948
Fluoride	264		150	1	06/07/2022 23:28	WG1874948
Sulfate	112000		25000	5	06/07/2022 23:43	WG1874948

³ Ss

⁴ Cn

⁵ Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 01:20	WG1866295
Calcium	111000		1000	1	05/23/2022 01:20	WG1866295

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	394000		10000	1	05/19/2022 15:29	WG1866258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3640		1000	1	06/07/2022 23:58	WG1874948
Fluoride	237		150	1	06/07/2022 23:58	WG1874948
Sulfate	13100		5000	1	06/07/2022 23:58	WG1874948

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 16:43	WG1866297
Calcium	100000		1000	1	05/23/2022 16:43	WG1866297

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	390000		10000	1	05/19/2022 15:29	WG1866258

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3650		1000	1	06/08/2022 00:42	WG1874948
Fluoride	243		150	1	06/08/2022 00:42	WG1874948
Sulfate	11400		5000	1	06/08/2022 00:42	WG1874948

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/23/2022 01:23	WG1866295
Calcium	92600		1000	1	05/23/2022 01:23	WG1866295

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3795376-1 05/19/22 15:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1493988-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1493988-03 05/19/22 15:29 • (DUP) R3795376-3 05/19/22 15:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1020000	998000	1	1.98		5

L1493988-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1493988-05 05/19/22 15:29 • (DUP) R3795376-4 05/19/22 15:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2140000	2120000	1	0.939		5

Laboratory Control Sample (LCS)

(LCS) R3795376-2 05/19/22 15:29

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	2460000	2710000	110	81.7-118	

Method Blank (MB)

(MB) R3800774-1 06/07/22 20:13

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1493654-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1493654-05 06/07/22 20:43 • (DUP) R3800774-3 06/07/22 20:58

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	6460	6300	1	2.44		15
Fluoride	171	178	1	3.55		15
Sulfate	17900	17700	1	1.46		15

L1493674-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1493674-04 06/08/22 02:57 • (DUP) R3800774-7 06/08/22 03:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	5300	5240	1	1.28		15
Fluoride		640	1	0.141		15
Sulfate	ND	ND	1	200	P1	15

Laboratory Control Sample (LCS)

(LCS) R3800774-2 06/07/22 20:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40800	102	80.0-120	
Fluoride	8000	8380	105	80.0-120	
Sulfate	40000	41100	103	80.0-120	

L1493654-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1493654-06 06/07/22 21:13 • (MS) R3800774-4 06/07/22 21:28

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50000	ND	50700	99.5	1	80.0-120	
Fluoride	5000	297	5460	103	1	80.0-120	
Sulfate	50000	25900	77400	103	1	80.0-120	

L1493660-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493660-06 06/07/22 23:58 • (MS) R3800774-5 06/08/22 00:13 • (MSD) R3800774-6 06/08/22 00:27

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	3640	54000	54500	101	102	1	80.0-120			1.07	15
Fluoride	5000	237	5380	5340	103	102	1	80.0-120			0.715	15
Sulfate	50000	13100	65300	65400	104	105	1	80.0-120			0.246	15

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3794746-1 05/23/22 00:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3794746-2 05/23/22 00:13

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	920	92.0	80.0-120	
Calcium	10000	9230	92.3	80.0-120	

L1493654-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493654-12 05/23/22 00:15 • (MS) R3794746-4 05/23/22 00:21 • (MSD) R3794746-5 05/23/22 00:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	ND	951	966	92.0	93.5	1	75.0-125			1.57	20
Calcium	10000	93400	101000	100000	73.7	70.8	1	75.0-125	<u>V</u>	<u>V</u>	0.283	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3795106-1 05/23/22 16:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3795106-2 05/23/22 16:41

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	999	99.9	80.0-120	
Calcium	10000	10000	100	80.0-120	

L1493660-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493660-06 05/23/22 16:43 • (MS) R3795106-4 05/23/22 16:49 • (MSD) R3795106-5 05/23/22 16:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	ND	1030	1030	99.5	99.8	1	75.0-125			0.267	20
Calcium	10000	100000	109000	108000	85.0	81.2	1	75.0-125			0.343	20

GLOSSARY OF TERMS

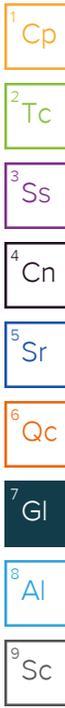
Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Company Name/Address:
SCS Engineers - KS
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
 Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Pres Chk	Analysis / Container / Preservative
8	



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

Report to:
Jason Franks

Email To:
 jfranks@scsengineers.com;jay.martin@evergy.c

Project Description:
Energy - Sibley Generating Station

City/State Collected:
Sibley, MO

Please Circle:
 PT MT **CT** ET

Phone: **913-681-0030**

Client Project #
27213169.22-A

Lab Project #
AQUAOPKS-SIBLEY

Collected by (print):
Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature):
Whit Martin

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #
 Date Results Needed
Std

Immediately Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions (Cl ₂ , F, SO ₄)	B, Ca	TDS	125mIHDPE-NoPres	250mIHDPE-HNO3	250mIHDPE-NoPres
MW-504	Grab	GW		5/12/22	1050	3	X	X	X			
MW-505	Grab	GW		5/12/22	1130	3	X	X	X			
MW-506	Grab	GW		5/12/22	1210	3	X	X	X			
MW-510	Grab	GW		5/12/22	1510	3	X	X	X			
MW-512	Grab	GW		5/12/22	1355	3	X	X	X			
MW-601	Grab	GW		5/12/22	1125	3	X	X	X			
601 MS/MSD	Grab	GW		5/12/22	1130	3	X	X	X			
DUPLICATE	Grab	GW		5/12/22	1130	3	X	X	X			

SDG # **L1493660**

G213

Acctnum: **AQUAOPKS**
 Template: **T136014**
 Prelogin: **P922359**
 PM: **206 - Jeff Carr**
 PB:

Shipped Via: **FedEX Ground**

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 ___ UPS ___ FedEx ___ Courier _____
 Tracking # **5671 5374 7280**

Sample Receipt Checklist	
COC Seal Present/Intact:	<input type="checkbox"/> NP <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature)
Whit Martin

Date: **5/12/22**
 Time: **1755**

Received by: (Signature)
 Trip Blank Received: Yes No
 HCL / MeOH
 TBR

Relinquished by: (Signature)

Date: _____
 Time: _____

Received by: (Signature)

Temp: **1.4 to 1.4**
 Bottles Received: **24**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____
 Time: _____

Received for lab by: (Signature)
J. Smith

Date: **5/13/22**
 Time: **0900**

Hold: _____
 Condition: **NCF / OK**



SCS Engineers - KS

Sample Delivery Group: L1515710
Samples Received: 07/16/2022
Project Number: 27213169.22-I
Description: Evergy Sibley Gen Station GW 2022-23

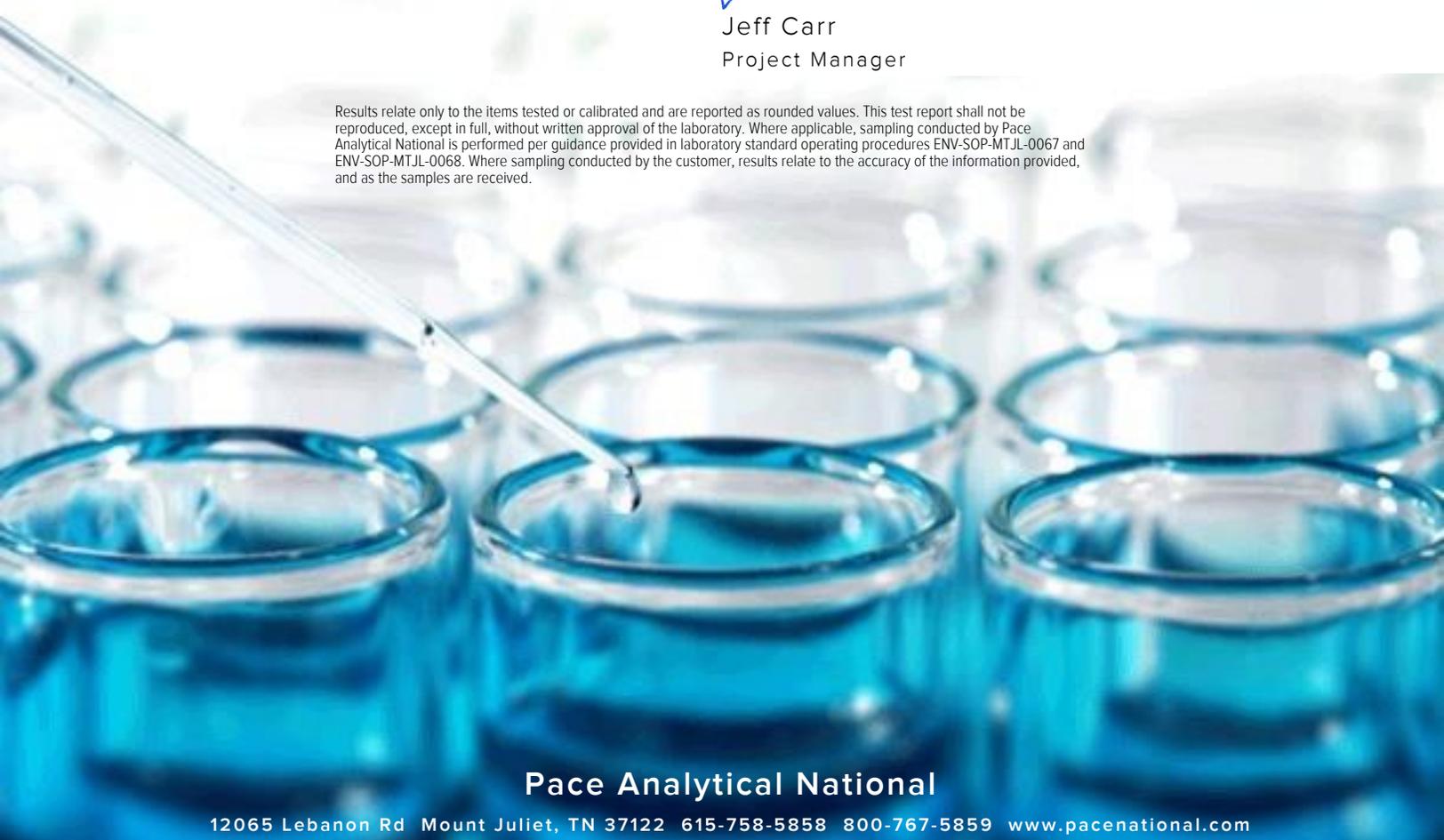
Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	2 Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	3 Ss
MW-505 L1515710-01	5	
MW-506 L1515710-02	6	4 Cn
MW-512 L1515710-03	7	5 Sr
DUPLICATE 1 L1515710-04	8	
Qc: Quality Control Summary	9	6 Qc
Gravimetric Analysis by Method 2540 C-2011	9	
Wet Chemistry by Method 9056A	10	7 Gl
Gl: Glossary of Terms	14	8 Al
Al: Accreditations & Locations	15	
Sc: Sample Chain of Custody	16	9 Sc

SAMPLE SUMMARY

MW-505 L1515710-01 GW

Collected by B. Coleman Collected date/time 07/15/22 13:45 Received date/time 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1899236	1	07/22/22 05:52	07/22/22 11:28	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1899118	1	07/22/22 11:01	07/22/22 11:01	ELN	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

MW-506 L1515710-02 GW

Collected by B. Coleman Collected date/time 07/15/22 12:00 Received date/time 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1899118	1	07/22/22 11:15	07/22/22 11:15	ELN	Mt. Juliet, TN

4 Cn

5 Sr

MW-512 L1515710-03 GW

Collected by B. Coleman Collected date/time 07/15/22 12:25 Received date/time 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1899236	1	07/22/22 05:52	07/22/22 11:28	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1899118	1	07/22/22 11:30	07/22/22 11:30	ELN	Mt. Juliet, TN

6 Qc

7 Gl

8 Al

DUPLICATE 1 L1515710-04 GW

Collected by B. Coleman Collected date/time 07/15/22 00:00 Received date/time 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1899236	1	07/22/22 05:52	07/22/22 11:28	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1899306	1	07/22/22 19:55	07/22/22 19:55	LBR	Mt. Juliet, TN

9 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	180000		10000	1	07/22/2022 11:28	WG1899236

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	14000		5000	1	07/22/2022 11:01	WG1899118

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8500		1000	1	07/22/2022 11:15	WG1899118
Sulfate	102000		5000	1	07/22/2022 11:15	WG1899118

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	394000		10000	1	07/22/2022 11:28	WG1899236

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3710		1000	1	07/22/2022 11:30	WG1899118
Sulfate	11700		5000	1	07/22/2022 11:30	WG1899118

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	392000		10000	1	07/22/2022 11:28	WG1899236

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3440		1000	1	07/22/2022 19:55	WG1899306
Sulfate	10600		5000	1	07/22/2022 19:55	WG1899306

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3818995-1 07/22/22 11:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1515678-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1515678-02 07/22/22 11:28 • (DUP) R3818995-3 07/22/22 11:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	384000	392000	1	2.06		5

4 Cn

5 Sr

L1515678-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1515678-03 07/22/22 11:28 • (DUP) R3818995-4 07/22/22 11:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	385000	396000	1	2.82		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3818995-2 07/22/22 11:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	7200000	81.8	77.3-123	

9 Sc

Method Blank (MB)

(MB) R3818187-1 07/22/22 03:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Sulfate	U		594	5000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1515364-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1515364-05 07/22/22 05:03 • (DUP) R3818187-3 07/22/22 05:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	2220	2230	1	0.530		15
Sulfate	ND	ND	1	2.54		15

L1515615-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1515615-01 07/22/22 08:46 • (DUP) R3818187-5 07/22/22 09:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	21400	21400	1	0.116		15
Sulfate	27600	27600	1	0.00760		15

Laboratory Control Sample (LCS)

(LCS) R3818187-2 07/22/22 04:03

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40300	101	80.0-120	
Sulfate	40000	41000	103	80.0-120	

L1515364-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1515364-10 07/22/22 07:02 • (MS) R3818187-4 07/22/22 07:17

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50000	13900	71600	116	1	80.0-120	
Sulfate	50000	ND	54300	101	1	80.0-120	

L1515710-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515710-03 07/22/22 11:30 • (MS) R3818187-6 07/22/22 11:45 • (MSD) R3818187-7 07/22/22 12:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	3710	54100	54600	101	102	1	80.0-120			0.928	15
Sulfate	50000	11700	62600	63100	102	103	1	80.0-120			0.822	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3818538-1 07/22/22 09:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Sulfate	U		594	5000

L1515735-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1515735-01 07/22/22 18:21 • (DUP) R3818538-3 07/22/22 18:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	6500	6330	1	2.65		15
Sulfate	40700	40100	1	1.57		15

L1515735-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1515735-03 07/22/22 20:36 • (DUP) R3818538-6 07/22/22 20:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	2190	2090	1	4.78		15
Sulfate	35800	34500	1	3.77		15

Laboratory Control Sample (LCS)

(LCS) R3818538-2 07/22/22 10:01

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40000	99.9	80.0-120	
Sulfate	40000	40300	101	80.0-120	

L1515735-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515735-01 07/22/22 18:21 • (MS) R3818538-4 07/22/22 18:48 • (MSD) R3818538-5 07/22/22 19:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	6500	57100	57300	101	102	1	80.0-120			0.268	15
Sulfate	50000	40700	90600	90900	99.8	100	1	80.0-120			0.311	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1515735-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515735-03 07/22/22 20:36 • (MS) R3818538-7 07/22/22 21:02 • (MSD) R3818538-8 07/22/22 21:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	2190	52700	52800	101	101	1	80.0-120			0.266	15
Sulfate	50000	35800	85000	85200	98.4	98.8	1	80.0-120			0.259	15

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

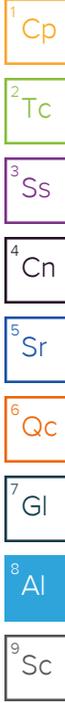
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: **SCS Engineers - KS**
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
 Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Report to: **Jason Franks**
 Email To: **jfranks@scsengineers.com;jay.martin@evergy.c**

Project Description: **Evergy Sibley Gen Station GW 2022-23**
 City/State Collected: **Sibley, MO**
 Please Circle: PT MT **ET**

Chain of Custody Page **1** of **1**

Pace
 PEOPLE ADVANCING SCIENCE

MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

Phone: **913-681-0030**
 Client Project # **27213169.22-1**
 Lab Project # **AQUAOPKS-SIBLEY**

Collected by (print): **B. Colman**
 Site/Facility ID #
 P.O. #

Collected by (signature): *[Signature]*
 Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #
 Date Results Needed: **STD**
 No. of Cntrs

SDG # **1515 710**
L-072

Acctnum: **AQUAOPKS**
 Template: **T212739**
 Prelogin: **P937488**
 PM: **206 - Jeff Carr**
 PB:
 Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride, SO4 125mlHDPE-NoPres	SO4 125mlHDPE-NoPres	TDS 1L-HDPE NoPres	Analysis / Container / Preservative	Remarks	Sample # (lab only)
MW-505	G	GW	I	7/19/22	1345	2		X	X			-01
MW-506	I	GW	I		1200	1	X					-03
MW-512	I	GW	I		1225	2	X		X			-03
MW-512 MS/MSD	I	GW	I		-	1	X					
DUPLICATE 1	I	GW	I		-	2	X		X			-04

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____

Samples returned via: UPS FedEx Courier
 Tracking # **0300 4294 7500**

Relinquished by: (Signature) *[Signature]* Date: **7/19/22** Time: **1930**
 Received by: (Signature) Trip Blank Received: **1** Yes/No HCL/MeOH TBR

Relinquished by: (Signature) Date: _____ Time: _____
 Received by: (Signature) Temp: **3.1+0=3.1** °C Bottles Received: **8**

Relinquished by: (Signature) Date: _____ Time: _____
 Received for Lab by: (Signature) Date: **7/16/22** Time: **9:00** Hold: _____ Condition: **NCF 1/OK**

Sample Receipt Checklist
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 IF Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

SCS Engineers - KS

Sample Delivery Group: L1528488
Samples Received: 08/24/2022
Project Number: 27213169.22 - I
Description: Evergy Sibley Gen Station GW 2022-23
Site: SIBLEY, MS
Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	4	
Sr: Sample Results	5	
MW-506 L1528488-01	5	
DUPLICATE 1 L1528488-02	6	
Qc: Quality Control Summary	7	
Wet Chemistry by Method 9056A	7	
Gl: Glossary of Terms	9	
Al: Accreditations & Locations	10	
Sc: Sample Chain of Custody	11	
		

SAMPLE SUMMARY

MW-506 L1528488-01 GW

Collected by: B. Coleman
 Collected date/time: 08/18/22 12:10
 Received date/time: 08/24/22 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1916041	1	08/25/22 07:54	08/25/22 07:54	LBR	Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

DUPLICATE 1 L1528488-02 GW

Collected by: B. Coleman
 Collected date/time: 08/18/22 00:00
 Received date/time: 08/24/22 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1916041	1	08/25/22 08:48	08/25/22 08:48	LBR	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	12500		1000	1	08/25/2022 07:54	WG1916041
Sulfate	95500		5000	1	08/25/2022 07:54	WG1916041

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

DUPLICATE 1

Collected date/time: 08/18/22 00:00

SAMPLE RESULTS - 02

L1528488

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8540		1000	1	08/25/2022 08:48	WG1916041
Sulfate	95800		5000	1	08/25/2022 08:48	WG1916041

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3830585-1 08/24/22 20:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1528389-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1528389-08 08/25/22 02:50 • (DUP) R3830585-3 08/25/22 03:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	ND	ND	1	0.000		15
Sulfate	ND	ND	1	0.000		15

L1528389-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1528389-09 08/25/22 04:19 • (DUP) R3830585-5 08/25/22 04:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	ND	ND	1	0.000		15
Sulfate	ND	ND	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3830585-2 08/24/22 20:32

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40100	100	80.0-120	
Sulfate	40000	39700	99.3	80.0-120	

L1528389-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1528389-08 08/25/22 02:50 • (MS) R3830585-4 08/25/22 04:01

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50000	ND	51500	103	1	80.0-120	
Sulfate	50000	ND	51800	104	1	80.0-120	

L1528488-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1528488-01 08/25/22 07:54 • (MS) R3830585-6 08/25/22 08:12 • (MSD) R3830585-7 08/25/22 08:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	12500	64100	62700	103	100	1	80.0-120			2.23	15
Sulfate	50000	95500	143000	143000	95.4	94.1	1	80.0-120			0.427	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

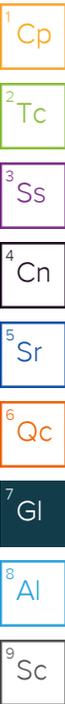
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

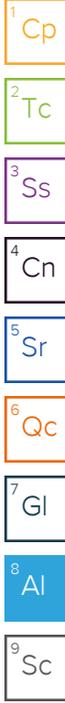
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Franks, Jason

From: Jeffrey Carr <Jeffrey.Carr@pacelabs.com>
Sent: Monday, August 22, 2022 9:02 AM
To: Franks, Jason
Subject: FW: 08/20/22 - NCF AQUAOPKS
Attachments: NCF.pdf

11528488

This email originated from outside of SCS Engineers. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Jason, login has informed me that we did not receive the samples listed on this COC.

From: Deanna Ramsey <Deanna.Ramsey@pacelabs.com>
Sent: Saturday, August 20, 2022 8:23 PM
To: f33eto2je@addtask.kanbanflow.com; Jeffrey Carr <Jeffrey.Carr@pacelabs.com>
Subject: 08/20/22 - NCF AQUAOPKS

NOTICE-- The contents of this email and any attachments may contain confidential, privileged, and/or legally protected information and are for the sole use of the addressee(s). Any review or distribution by others is strictly prohibited. If you are not the intended recipient, please contact the sender immediately and delete any copies.

 Please consider the environment before printing this email

SCS Engineers - KS

Sample Delivery Group: L1557442
Samples Received: 11/12/2022
Project Number: 27213169.22-A
Description: Evergy - Sibley Generating Station

Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	5	
Sr: Sample Results	6	
MW-504 L1557442-01	6	
MW-505 L1557442-02	7	
MW-506 L1557442-03	8	
MW-510 L1557442-04	9	
MW-512 L1557442-05	10	
MW-601 L1557442-06	11	
DUPLICATE L1557442-07	12	
Qc: Quality Control Summary	13	
Gravimetric Analysis by Method 2540 C-2011	13	
Wet Chemistry by Method 9056A	15	
Metals (ICP) by Method 6010D	17	
Gl: Glossary of Terms	18	
Al: Accreditations & Locations	19	
Sc: Sample Chain of Custody	20	

SAMPLE SUMMARY

MW-504 L1557442-01 GW

Collected by Whit Martin Collected date/time 11/10/22 12:25 Received date/time 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961110	1	11/17/22 07:07	11/17/22 14:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 14:49	11/17/22 14:49	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 16:55	KMG	Mt. Juliet, TN



MW-505 L1557442-02 GW

Collected by Whit Martin Collected date/time 11/10/22 15:15 Received date/time 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961103	1	11/17/22 06:44	11/17/22 14:44	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 15:02	11/17/22 15:02	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 16:57	KMG	Mt. Juliet, TN

MW-506 L1557442-03 GW

Collected by Whit Martin Collected date/time 11/10/22 12:15 Received date/time 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961110	1	11/17/22 07:07	11/17/22 14:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 15:15	11/17/22 15:15	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 17:05	KMG	Mt. Juliet, TN

MW-510 L1557442-04 GW

Collected by Whit Martin Collected date/time 11/10/22 10:40 Received date/time 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961110	1	11/17/22 07:07	11/17/22 14:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 15:32	11/17/22 15:32	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 17:08	KMG	Mt. Juliet, TN

MW-512 L1557442-05 GW

Collected by Whit Martin Collected date/time 11/10/22 14:15 Received date/time 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961110	1	11/17/22 07:07	11/17/22 14:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 16:10	11/17/22 16:10	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 17:11	KMG	Mt. Juliet, TN

MW-601 L1557442-06 GW

Collected by Whit Martin Collected date/time 11/10/22 13:00 Received date/time 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961110	1	11/17/22 07:07	11/17/22 14:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 16:23	11/17/22 16:23	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 16:39	KMG	Mt. Juliet, TN

SAMPLE SUMMARY

DUPLICATE L1557442-07 GW

Collected by: Whit Martin
 Collected date/time: 11/10/22 13:00
 Received date/time: 11/12/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1961110	1	11/17/22 07:07	11/17/22 14:48	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1960688	1	11/17/22 17:14	11/17/22 17:14	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1963561	1	11/23/22 13:38	11/23/22 17:13	KMG	Mt. Juliet, TN

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	168000		10000	1	11/17/2022 14:48	WG1961110

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	ND		1000	1	11/17/2022 14:49	WG1960688
Fluoride	ND		150	1	11/17/2022 14:49	WG1960688
Sulfate	27400		5000	1	11/17/2022 14:49	WG1960688

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 16:55	WG1963561
Calcium	34600		1000	1	11/23/2022 16:55	WG1963561

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	183000		10000	1	11/17/2022 14:44	WG1961103

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1170		1000	1	11/17/2022 15:02	WG1960688
Fluoride	ND		150	1	11/17/2022 15:02	WG1960688
Sulfate	23800		5000	1	11/17/2022 15:02	WG1960688

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 16:57	WG1963561
Calcium	32900		1000	1	11/23/2022 16:57	WG1963561

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	446000		10000	1	11/17/2022 14:48	WG1961110

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	9810		1000	1	11/17/2022 15:15	WG1960688
Fluoride	229		150	1	11/17/2022 15:15	WG1960688
Sulfate	96800		5000	1	11/17/2022 15:15	WG1960688

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 17:05	WG1963561
Calcium	96200		1000	1	11/23/2022 17:05	WG1963561

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	468000		10000	1	11/17/2022 14:48	WG1961110

¹ Cp

² Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3990		1000	1	11/17/2022 15:32	WG1960688
Fluoride	229		150	1	11/17/2022 15:32	WG1960688
Sulfate	19700		5000	1	11/17/2022 15:32	WG1960688

³ Ss

⁴ Cn

⁵ Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 17:08	WG1963561
Calcium	120000		1000	1	11/23/2022 17:08	WG1963561

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	510000		10000	1	11/17/2022 14:48	WG1961110

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	9690		1000	1	11/17/2022 16:10	WG1960688
Fluoride	195		150	1	11/17/2022 16:10	WG1960688
Sulfate	115000		5000	1	11/17/2022 16:10	WG1960688

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 17:11	WG1963561
Calcium	118000		1000	1	11/23/2022 17:11	WG1963561

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	383000		10000	1	11/17/2022 14:48	WG1961110

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4030		1000	1	11/17/2022 16:23	WG1960688
Fluoride	189		150	1	11/17/2022 16:23	WG1960688
Sulfate	14200		5000	1	11/17/2022 16:23	WG1960688

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 16:39	WG1963561
Calcium	97400		1000	1	11/23/2022 16:39	WG1963561

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	381000		10000	1	11/17/2022 14:48	WG1961110

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3970		1000	1	11/17/2022 17:14	WG1960688
Fluoride	184		150	1	11/17/2022 17:14	WG1960688
Sulfate	13800		5000	1	11/17/2022 17:14	WG1960688

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/23/2022 17:13	WG1963561
Calcium	99300		1000	1	11/23/2022 17:13	WG1963561

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3864553-1 11/17/22 14:44

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

¹Cp

²Tc

³Ss

L1557241-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1557241-08 11/17/22 14:44 • (DUP) R3864553-3 11/17/22 14:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2990000	3250000	1	8.35	J3	5

⁴Cn

⁵Sr

L1557241-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1557241-09 11/17/22 14:44 • (DUP) R3864553-4 11/17/22 14:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3400000	3430000	1	0.880		5

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3864553-2 11/17/22 14:44

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8600000	97.7	77.3-123	

⁹Sc

Method Blank (MB)

(MB) R3863768-1 11/17/22 14:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1556279-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1556279-01 11/17/22 14:48 • (DUP) R3863768-3 11/17/22 14:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	588000	607000	1	3.18		5

4 Cn

5 Sr

L1557291-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1557291-01 11/17/22 14:48 • (DUP) R3863768-4 11/17/22 14:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1620000	1720000	1	5.69	J3	5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3863768-2 11/17/22 14:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8150000	92.6	77.3-123	

9 Sc

Method Blank (MB)

(MB) R3863139-1 11/17/22 10:31

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

L1557373-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1557373-06 11/17/22 14:10 • (DUP) R3863139-3 11/17/22 14:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	2010	1350	1	39.4	P1	15
Fluoride	470	492	1	4.55		15
Sulfate	26600	26400	1	0.587		15

L1557442-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1557442-06 11/17/22 16:23 • (DUP) R3863139-5 11/17/22 16:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4030	3940	1	2.03		15
Fluoride	189	187	1	1.01		15
Sulfate	14200	14100	1	1.14		15

Laboratory Control Sample (LCS)

(LCS) R3863139-2 11/17/22 10:44

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	41900	105	80.0-120	
Fluoride	8000	8450	106	80.0-120	
Sulfate	40000	42500	106	80.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1557373-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1557373-06 11/17/22 14:10 • (MS) R3863139-4 11/17/22 14:36

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50000	2010	52800	102	1	80.0-120	
Fluoride	5000	470	5820	107	1	80.0-120	
Sulfate	50000	26600	75700	98.3	1	80.0-120	

L1557442-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1557442-06 11/17/22 16:23 • (MS) R3863139-6 11/17/22 16:49 • (MSD) R3863139-7 11/17/22 17:01

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	4030	56300	54900	105	102	1	80.0-120			2.47	15
Fluoride	5000	189	5520	5390	107	104	1	80.0-120			2.49	15
Sulfate	50000	14200	65200	63700	102	98.9	1	80.0-120			2.33	15

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3864743-1 11/23/22 16:34

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3864743-2 11/23/22 16:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Boron	1000	963	96.3	80.0-120	
Calcium	10000	10200	102	80.0-120	

L1557442-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1557442-06 11/23/22 16:39 • (MS) R3864743-4 11/23/22 16:44 • (MSD) R3864743-5 11/23/22 16:47

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	ND	1030	1040	98.4	98.9	1	75.0-125			0.477	20
Calcium	10000	97400	107000	107000	95.7	98.0	1	75.0-125			0.220	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

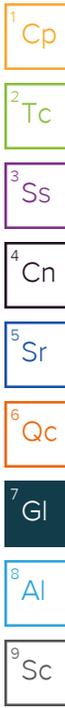
Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



ACCREDITATIONS & LOCATIONS

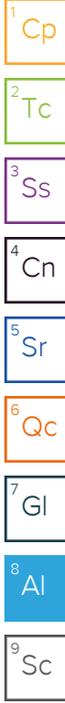
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:
SCS Engineers - KS
 8575 W. 110th Street
 Overland Park, KS 66210

Billing Information:
Accounts Payable
 8575 W. 110th Street
 Overland Park, KS 66210

Pres Chk
 < 2

Analysis / Container / Preservative
 Chain of Custody Page 1 of 1

Report to:
Jason Franks

Email To:
 jfranks@scsengineers.com;jay.martin@evergy.com

Project Description:
Evergy - Sibley Generating Station

City/State Collected:
Sibley, MO

Please Circle:
 PT MT CT ET

Phone: **913-681-0030**

Client Project #
27213169.22-A

Lab Project #
AQUAOPKS-SIBLEY

Collected by (print):
Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature):
Whit Martin

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #

Immediately Packed on Ice N ___ Y **X**

Date Results Needed
Std

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions (Cl, F, SO4)	125mlHDPE-NoPres	B, Ca - 6010	250mlHDPE-HNO3	TDS	250mlHDPE-NoPres							
MW-504	Grab	GW		11/10/22	1225	3	X	X	X										
MW-505	Grab	GW		11/10/22	1515	3	X	X	X										
MW-506	Grab	GW		11/10/22	1215	3	X	X	X										
MW-510	Grab	GW		11/10/22	1040	3	X	X	X										
MW-512	Grab	GW		11/10/22	1415	3	X	X	X										
MW-601	Grab	GW		11/10/22	1300	3	X	X	X										
601 MS/MSD	Grab	GW		11/10/22	1300	3	X	X	X										
DUPLICATE	Grab	GW		11/10/22	1300	3	X	X	X										

Pace
 PEOPLE ADVANCING SCIENCE
MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>
 SDG # **L1557442**
E167
 Acctnum: **AQUAOPKS**
 Template: **T136014**
 Prelogin: **P958843**
 PM: **206 - Jeff Carr**
 PB:

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 ___ UPS ___ FedEx ___ Courier
 Tracking # **6094 5455 9787**

Sample Receipt Checklist
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)
Whit Martin
 Date: _____ Time: _____

Received by: (Signature)
 Date: _____ Time: _____

Received by: (Signature)
 Date: _____ Time: _____

Trip Blank Received: Yes No
 HCL/MeOH
 TBR
 Temp: **20.0 ± 0.2** °C
 Bottles Received: **24**
 Date: **11-12-22** Time: **0900**

If preservation required by Login: Date/Time
 Hold:
 Condition:
 NCF / OK

APPENDIX E

STATISTICAL ANALYSES

E.1 Spring 2021 Semiannual Detection Monitoring Statistical Analyses, Revision 1

E.2 Fall 2021 Semiannual Detection Monitoring Statistical Analyses

E.3 Spring 2022 Semiannual Detection Monitoring Statistical Analyses

Appendix E.1

Spring 2021 Semiannual Detection Monitoring Statistical Analyses, Revision 1

MEMORANDUM

October 5, 2021
January 3, 2022 Revision 1



To: Sibley Generating Station
33200 E Johnson Road
Sibley, Missouri 64088
Evergy Missouri West, Inc.

From: SCS Engineers

RE: Determination of Statistically Significant Increases - CCR Landfill
Spring 2021 Semiannual Detection Monitoring 40 CFR 257.94

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Sibley Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated October 12, 2017. Detection monitoring groundwater samples were collected on May 24, 2021. Review and validation of the results from the May 2021 Detection Monitoring Event was completed on July 9, 2021, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on July 19, 2021 and September 2, 2021.

The completed statistical evaluation identified two Appendix III constituents above their respective prediction limits established for upgradient monitoring well MW-505, two Appendix III constituents above their respective prediction limits established for monitoring well MW-506 and four Appendix III constituents above their respective prediction limits established for monitoring well MW-512.

Monitoring Well/Constituent	*UPL	Observation May 24, 2021	1st Verification July 19, 2021	2nd Verification September 2, 2021
MW-505				
Calcium	29.31	34.4	34.8	34.1
Total Dissolved Solids	180.3	181	184	188
MW-506				
Chloride	7.578	8.09	8.01	8.03
Sulfate	76.83	89.1	89.1	88.7
MW-512				
Calcium	111.3	114	120	114
Chloride	5.094	10.6	10.2	10.2
Total Dissolved Solids	466.4	505	524	555
Sulfate	44.8	110	104	107

*UPL – Upper Prediction Limit

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified eight SSIs above the background prediction limits. These include calcium and total dissolved solids (TDS) at upgradient monitoring well MW-505, chloride and sulfate at monitoring well MW-506, and calcium, chloride, TDS, and sulfate at monitoring well MW-512.

Attached to this memorandum are the following backup information:

Attachment 1: Sanitas™ Output:

Statistical evaluation output from Sanitas™ for the prediction limit analysis. This includes prediction limit plots, prediction limit background data, detection sample results, 1st verification re-sample results (when applicable), 2nd verification re-sample results (when applicable), extra sample results for pH because pH is collected as part of the sampling procedure, and a Prediction Limit summary table. Output documentation includes the analytical data used for the statistical analyses.

Attachment 2: Sanitas™ Configuration Settings:

Screen shots of the applicable Sanitas™ configuration settings for the statistical prediction limit analysis. This includes data configuration, output configuration, prediction limit configuration and other tests configuration.

Revision Number	Revision Date	Attachment Revised	Summary of Revisions
1	January 3, 2022	No	Date of completion for the review and validation of the results from the May 2021 Detection Monitoring Event was corrected to July 9, 2021 from the incorrect date of July 27, 2021.

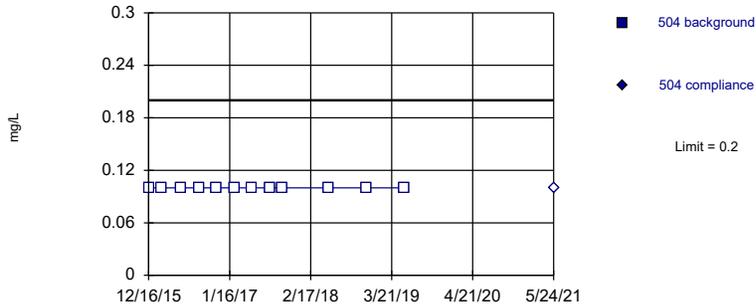
Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
October 5, 2021
January 3, 2021 Revision 1

ATTACHMENT 1

Sanitas™ Output

Within Limit

Prediction Limit Intrawell Non-parametric

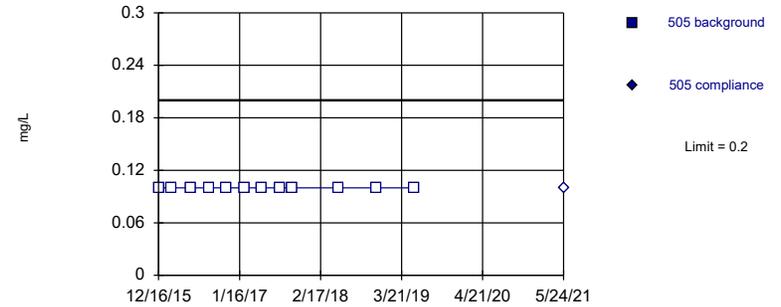


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

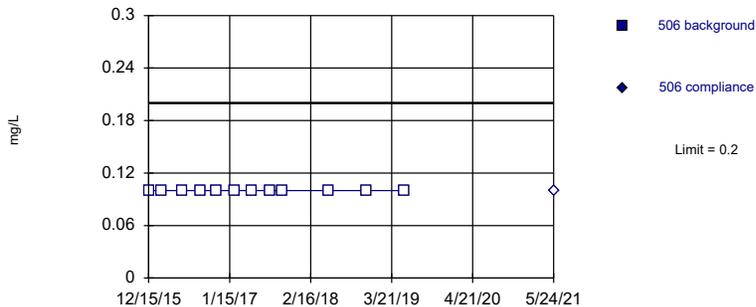


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

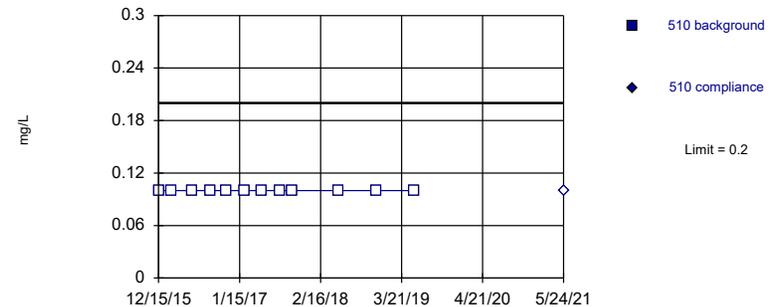


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

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 = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

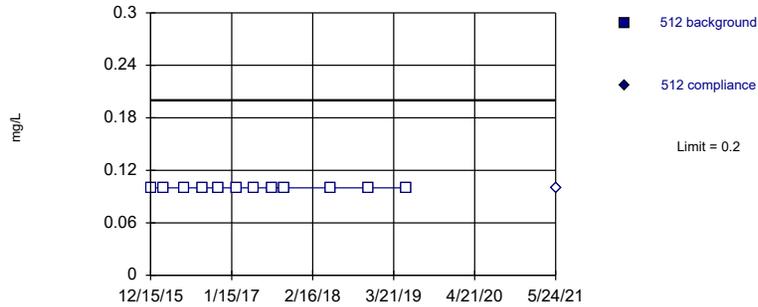
Constituent: Boron Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					<0.2		<0.2	
12/16/2015	<0.2		<0.2					
2/18/2016	<0.2		<0.2		<0.2		<0.2	
5/25/2016	<0.2		<0.2		<0.2		<0.2	
8/23/2016	<0.2		<0.2		<0.2		<0.2	
11/10/2016							<0.2	
11/11/2016	<0.2		<0.2		<0.2			
2/8/2017	<0.2		<0.2		<0.2		<0.2	
5/3/2017							<0.2	
5/4/2017	<0.2		<0.2		<0.2			
8/1/2017	<0.2		<0.2				<0.2	
8/4/2017					<0.2			
10/3/2017	<0.2		<0.2		<0.2		<0.2	
5/17/2018	<0.2		<0.2		<0.2		<0.2	
11/15/2018	<0.2		<0.2		<0.2		<0.2	
5/22/2019	<0.2		<0.2		<0.2		<0.2	
5/24/2021		<0.2		<0.2		<0.2		<0.2

Within Limit

Prediction Limit
Intrawell Non-parametric

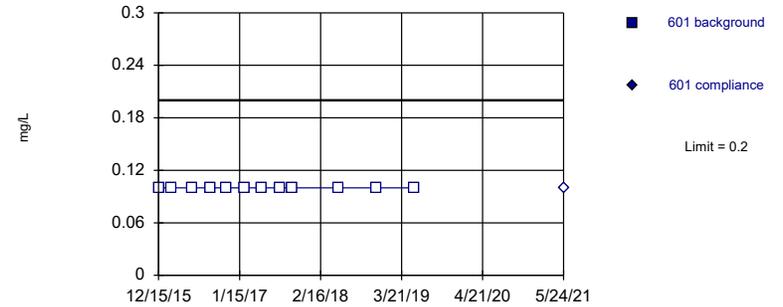


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

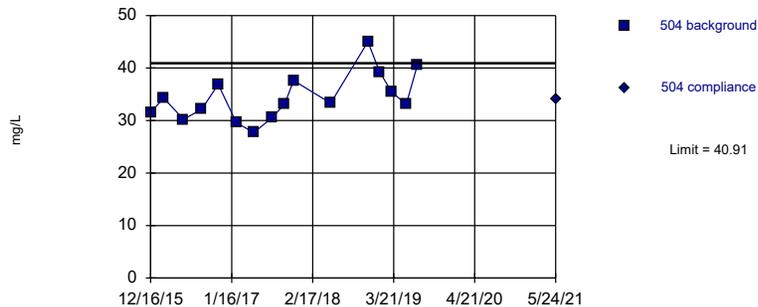


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

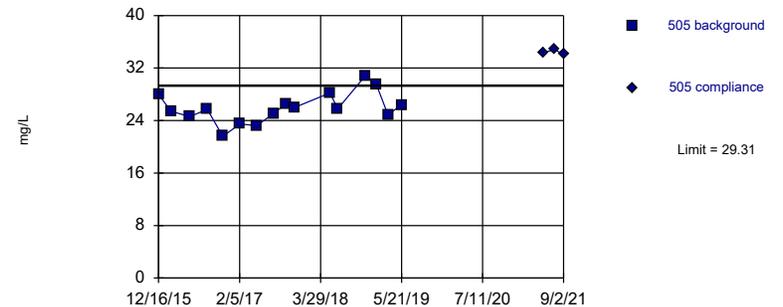


Background Data Summary: Mean=34.4, Std. Dev.=4.551, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

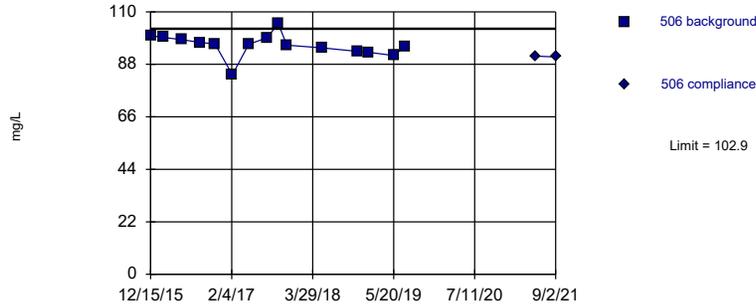
Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=25.96, Std. Dev.=2.346, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9775, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

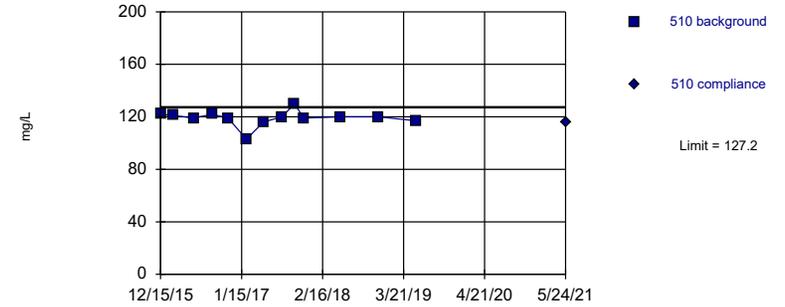
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=95.97, Std. Dev.=4.734, n=15. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9252, critical = 0.835. Kappa = 1.458 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

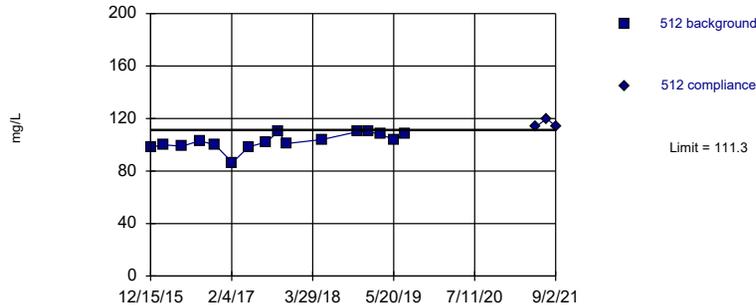
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary (based on cube transformation): Mean=1699613, Std. Dev.=238011, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8274, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

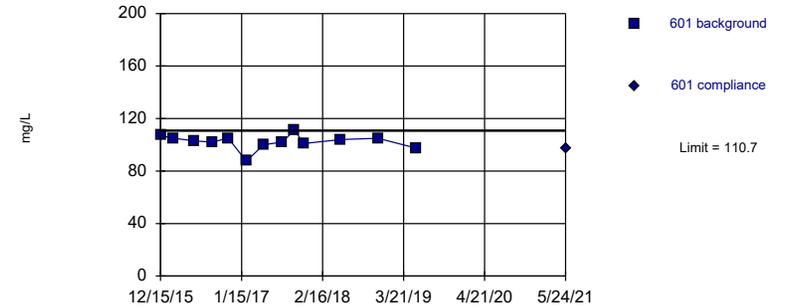
Exceeds Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=102.6, Std. Dev.=6.094, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.892, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=102.3, Std. Dev.=5.577, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8789, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/20/2021 12:26 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

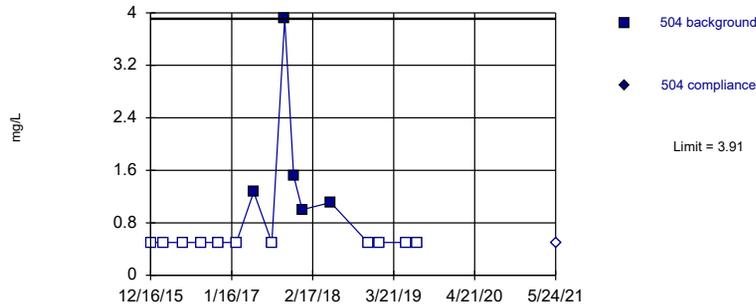
Constituent: Calcium Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	100		122		98.1		107	
2/18/2016	99.3		121		100		105	
5/25/2016	98.3		119		98.9			
5/26/2016							103	
8/23/2016	97.2		122		103		102	
11/10/2016			119					
11/11/2016	96.5				100		105	
2/8/2017	83.6		103		86.4		87.5	
5/3/2017			116		98.4		100	
5/4/2017	96.4							
8/1/2017			120		102		102	
8/4/2017	99							
10/3/2017	105		130		110		111	
11/16/2017	96		119		101		101	
5/17/2018	94.9		120		104		104	
11/15/2018	93.4		120		110		105	
1/11/2019	93				110			
3/12/2019					108			
5/22/2019	91.7		117		104		97.4	
7/16/2019	95.3				108			
5/24/2021		91.4		116		114		97.4
7/19/2021						120		
9/2/2021		91.1				114		

Within Limit

Prediction Limit
Intrawell Non-parametric

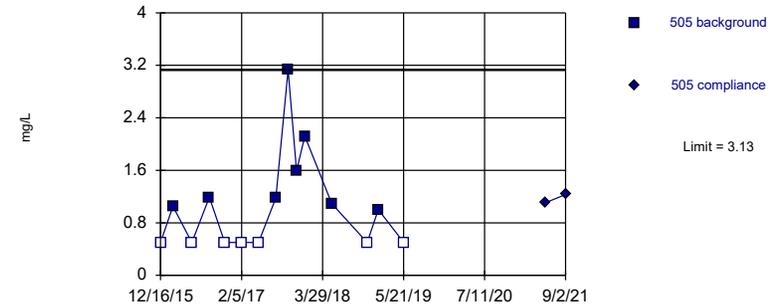


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 68.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

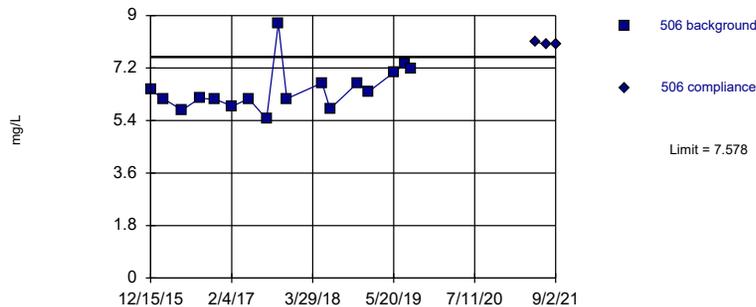


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. 46.67% NDs. Well-constituent pair annual alpha = 0.002624. Individual comparison alpha = 0.001313 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric



Prediction Limit

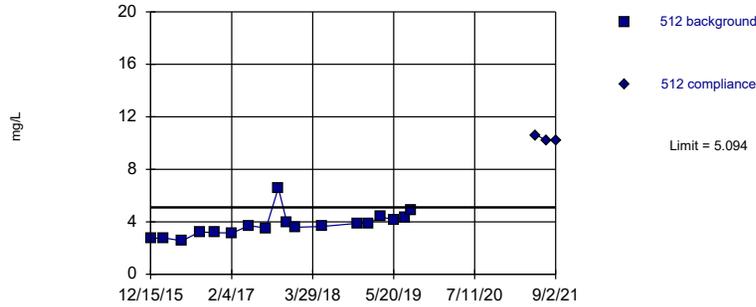
Constituent: Chloride Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					6.45		3.33	
12/16/2015	<1		<1					
2/18/2016	<1		1.05		6.15		3.48	
5/25/2016	<1		<1		5.76		3.12	
8/23/2016	<1		1.19		6.16		3.58	
11/10/2016							3.49	
11/11/2016	<1		<1		6.13			
2/8/2017	<1		<1		5.89		3.49	
5/3/2017							3.63	
5/4/2017	1.27		<1		6.15			
8/1/2017	<1		1.18				3.53	
8/4/2017					5.45			
10/3/2017	3.91		3.13		8.74		3.36	
11/16/2017	1.52		1.59		6.15		3.91	
12/28/2017	1		2.12					
5/17/2018	1.11		1.09		6.69		3.44	
6/27/2018					5.8			
11/15/2018	<1		<1		6.69		3.15	
1/11/2019	<1		1		6.39			
5/22/2019	<1		<1		7.05		3.39	
7/16/2019	<1				7.33			
8/21/2019					7.17			
5/24/2021		<1		1.11		8.09		3.53
7/19/2021						8.01		
9/2/2021				1.23		8.03		

Exceeds Limit

Prediction Limit Intrawell Parametric

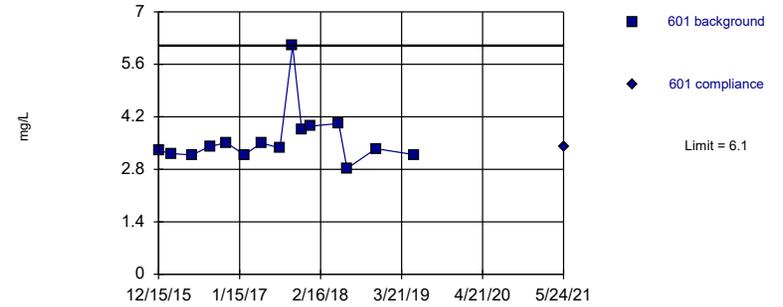


Background Data Summary: Mean=3.786, Std. Dev.=0.9366, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8846, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

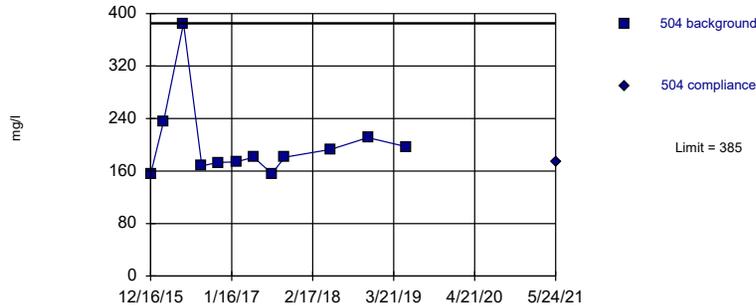


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. Well-constituent pair annual alpha = 0.002624. Individual comparison alpha = 0.001313 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

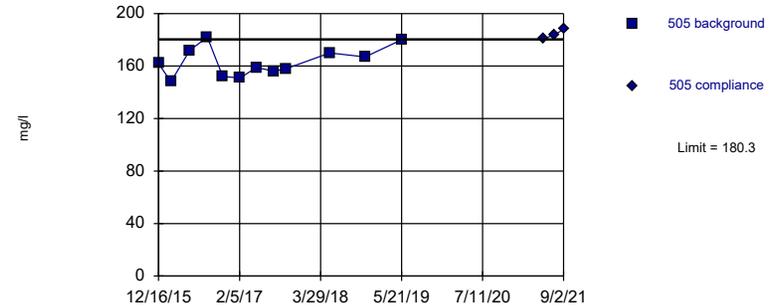


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 12 background values. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Dissolved Solids Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=163.1, Std. Dev.=11.19, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9461, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

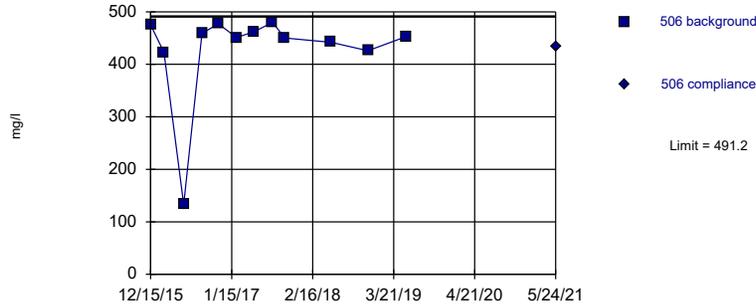
Constituent: Chloride, Dissolved Solids Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	2.72		3.3					
12/16/2015					155		162	
2/18/2016	2.78		3.22		236		148	
5/25/2016	2.55				385		172	
5/26/2016			3.18					
8/23/2016	3.23		3.41		168		182	
11/11/2016	3.17		3.51		173		152	
2/8/2017	3.14		3.19		174		151	
5/3/2017	3.7		3.5					
5/4/2017					181		159	
8/1/2017	3.53		3.37		156		156	
10/3/2017	6.59		6.1		181		158	
11/16/2017	3.97		3.87					
12/28/2017	3.58		3.95					
5/17/2018	3.64		4.02		193		170	
6/27/2018			2.82					
11/15/2018	3.89		3.35		211		167	
1/11/2019	3.85							
3/12/2019	4.38							
5/22/2019	4.17		3.19		197		180	
7/16/2019	4.35							
8/21/2019	4.91							
5/24/2021		10.6		3.4		174		181
7/19/2021		10.2						184
9/2/2021		10.2						188

Within Limit

Prediction Limit
Intrawell Parametric

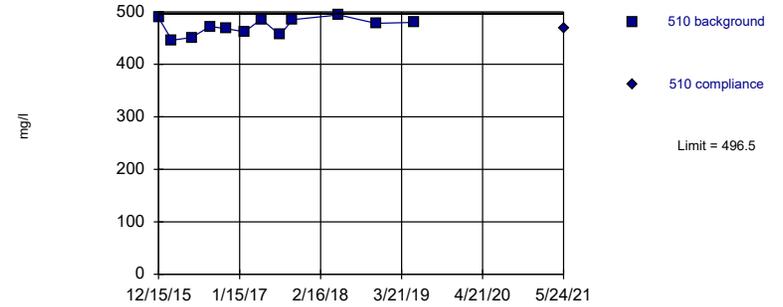


Background Data Summary (based on x^5 transformation): Mean=1.8e13, Std. Dev.=6.8e12, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8456, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

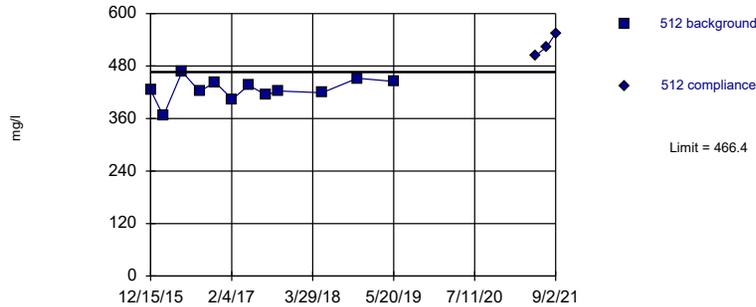


Background Data Summary: Mean=472.3, Std. Dev.=15.74, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric



Prediction Limit

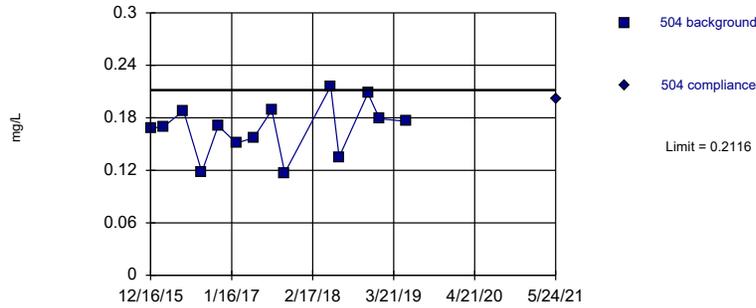
Constituent: Dissolved Solids Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	475		489		425		387	
2/18/2016	423		446		366		380	
5/25/2016	133		451		467			
5/26/2016							461	
8/23/2016	459		472		422		401	
11/10/2016			468					
11/11/2016	477				443		423	
2/8/2017	451		462		404		396	
5/3/2017			486		436		406	
5/4/2017	462							
8/1/2017			456		414		393	
8/4/2017	480							
10/3/2017	450		485		423		397	
5/17/2018	442		494		419		431	
11/15/2018	426		478		452		397	
5/22/2019	453		480		445		404	
5/24/2021		433		468		505		381
7/19/2021						524		
9/2/2021						555		

Within Limit

Prediction Limit
Intrawell Parametric

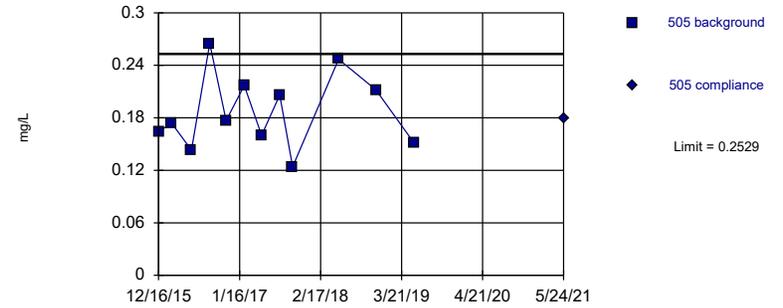


Background Data Summary: Mean=0.1674, Std. Dev.=0.02979, n=14. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.825. Kappa = 1.486 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

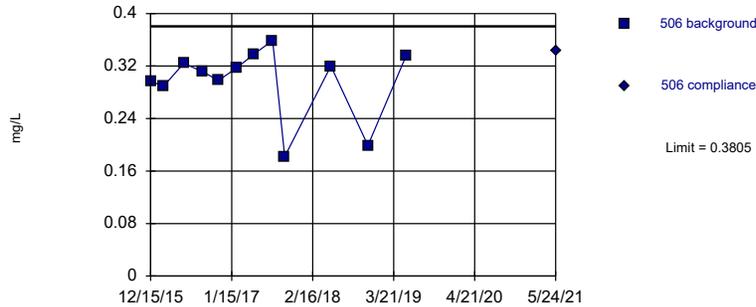


Background Data Summary: Mean=0.1867, Std. Dev.=0.04296, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9585, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

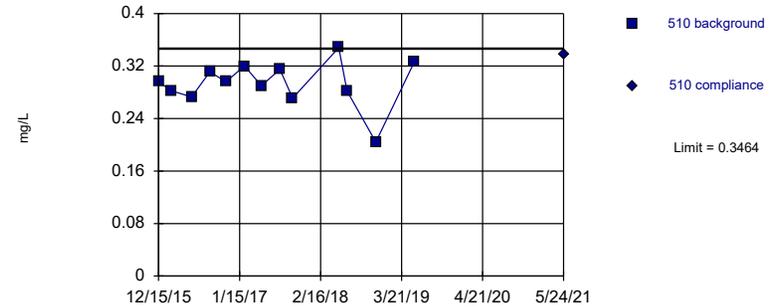


Background Data Summary: Mean=0.2976, Std. Dev.=0.05377, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8104, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=0.2934, Std. Dev.=0.03503, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9129, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

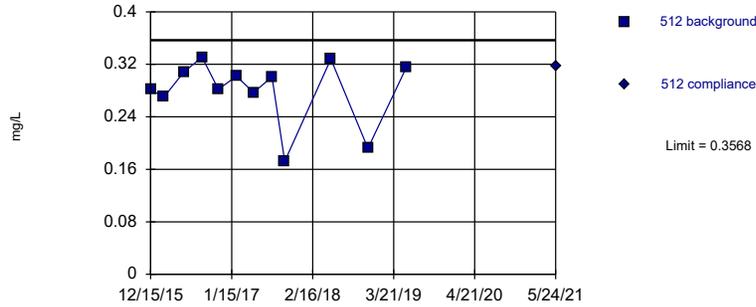
Prediction Limit

Constituent: Fluoride Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					0.296		0.296	
12/16/2015	0.168		0.164					
2/18/2016	0.17		0.174		0.29		0.282	
5/25/2016	0.188		0.143		0.324		0.273	
8/23/2016	0.118		0.265		0.312		0.311	
11/10/2016							0.296	
11/11/2016	0.171		0.177		0.298			
2/8/2017	0.151		0.217		0.317		0.32	
5/3/2017							0.29	
5/4/2017	0.157		0.16		0.338			
8/1/2017	0.189		0.206				0.315	
8/4/2017					0.359			
10/3/2017	0.117		0.124		0.182		0.271	
5/17/2018	0.216		0.247		0.32		0.348	
6/27/2018	0.135						0.282	
11/15/2018	0.208		0.212		0.199		0.204	
1/11/2019	0.179							
5/22/2019	0.176		0.151		0.336		0.326	
5/24/2021		0.201		0.18		0.344		0.338

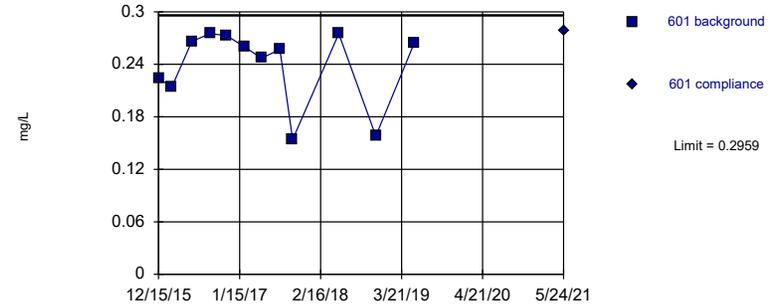
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=0.2799, Std. Dev.=0.04987, n=12. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8252, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

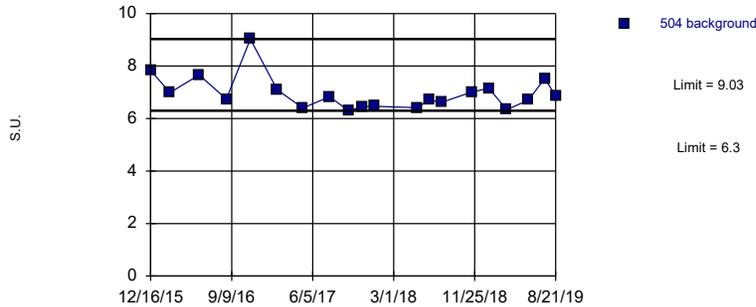
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary (based on square transformation): Mean=0.0588, Std. Dev.=0.01866, n=12. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8225, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

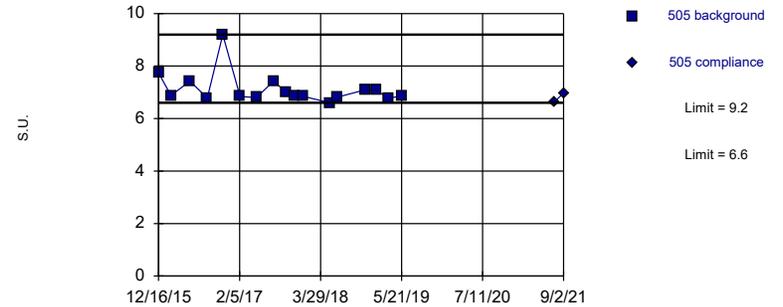
Prediction Limit
Intrawell Non-parametric, 504 (bg)



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. Limits are highest and lowest of 20 background values. Well-constituent pair annual alpha = 0.00225. Individual comparison alpha = 0.001125 (1 of 3). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limits Prediction Limit
Intrawell Non-parametric

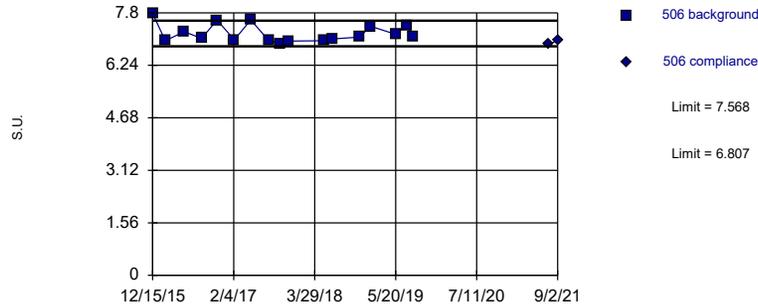


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 17 background values. Well-constituent pair annual alpha = 0.003639. Individual comparison alpha = 0.00182 (1 of 3). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limits

Prediction Limit
Intrawell Parametric

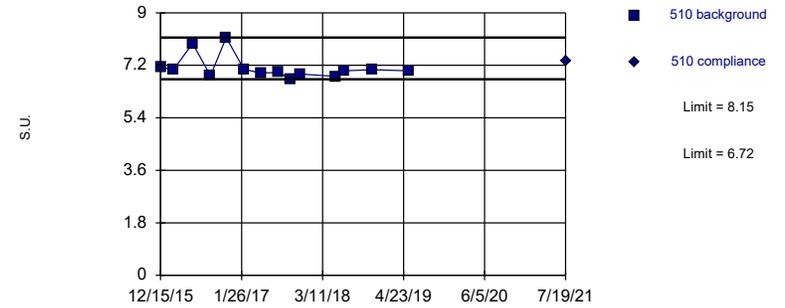


Background Data Summary: Mean=7.188, Std. Dev.=0.2694, n=17. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8664, critical = 0.851. Kappa = 1.413 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/20/2021 12:27 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Within Limits

Prediction Limit
Intrawell Non-parametric

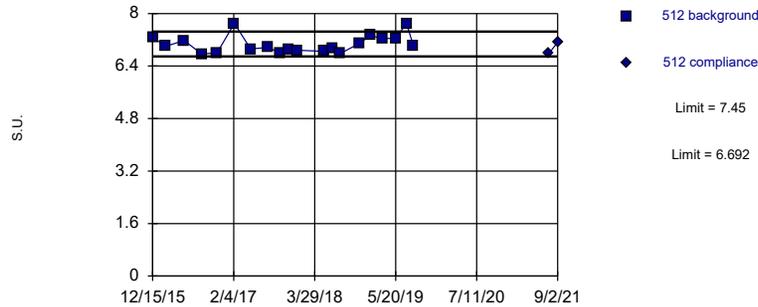


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 14 background values. Well-constituent pair annual alpha = 0.006393. Individual comparison alpha = 0.003199 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 9/20/2021 12:27 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Within Limits

Prediction Limit
Intrawell Parametric

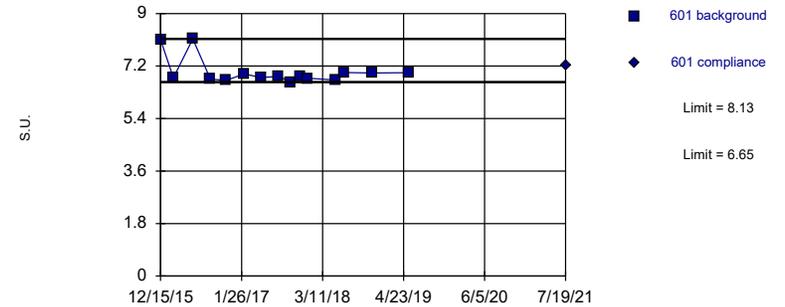


Background Data Summary: Mean=7.071, Std. Dev.=0.2785, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8734, critical = 0.868. Kappa = 1.362 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/20/2021 12:27 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Within Limits

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. Limits are highest and lowest of 15 background values. Well-constituent pair annual alpha = 0.005248. Individual comparison alpha = 0.002625 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 9/20/2021 12:27 PM View: LF III
 Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

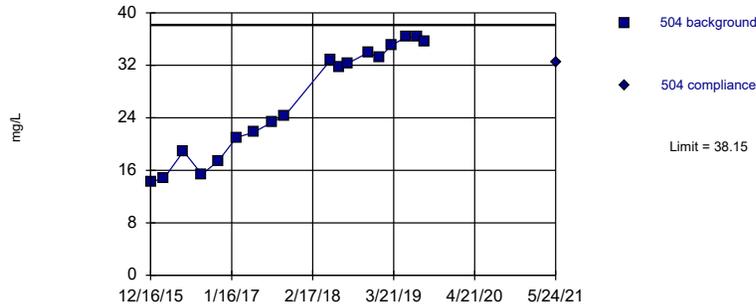
Constituent: pH Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	7.78		7.14		7.29		8.11	
2/18/2016	6.97		7.05		7		6.8	
5/25/2016	7.24		7.95		7.18			
5/26/2016							8.13	
8/23/2016	7.04		6.84		6.77		6.75	
11/10/2016			8.15					
11/11/2016	7.58				6.8		6.71	
2/8/2017	7		7.06		7.7		6.93	
5/3/2017			6.94		6.92			
5/4/2017	7.59						6.81	
8/1/2017			6.95		6.97		6.84	
8/4/2017	6.98							
10/3/2017	6.88		6.72		6.79		6.65	
11/16/2017	6.96		6.9		6.92		6.84	
12/28/2017					6.88		6.78	
5/17/2018	6.97		6.82		6.85		6.72	
6/27/2018	7.02		7.01		6.95		6.98	
8/8/2018					6.78			
11/15/2018	7.08		7.05		7.09		6.96	
1/11/2019	7.4				7.34			
3/12/2019					7.23			
5/22/2019	7.16		7.01		7.25		6.97	
7/16/2019	7.43				7.7			
8/21/2019	7.11				7.01			
7/19/2021		6.86		7.36		6.78		7.21
9/2/2021		6.98				7.13		

Within Limit

Prediction Limit
Intrawell Parametric

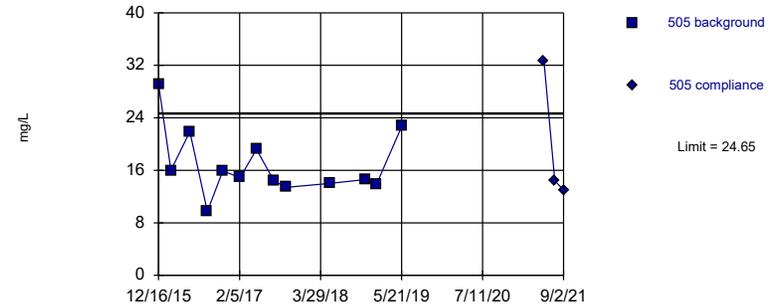


Background Data Summary: Mean=26.58, Std. Dev.=8.293, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8677, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

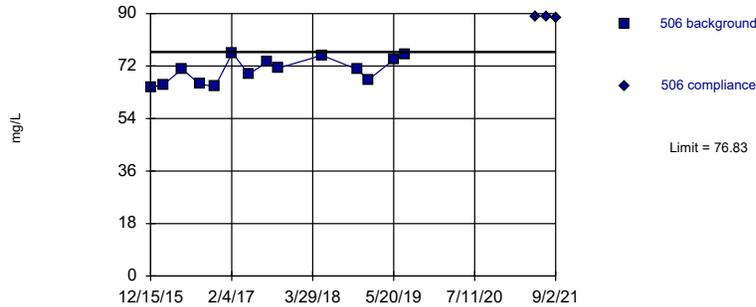


Background Data Summary: Mean=16.9, Std. Dev.=5.117, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8783, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric

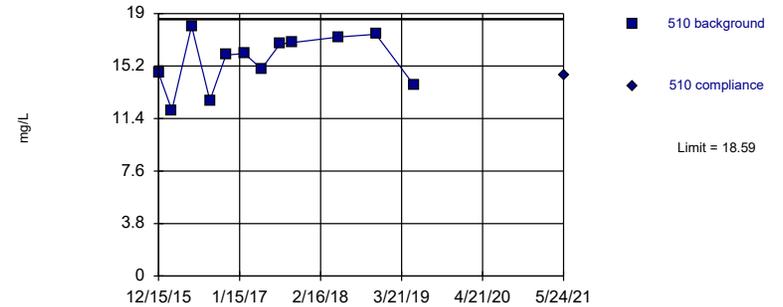


Background Data Summary: Mean=70.47, Std. Dev.=4.276, n=14. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9125, critical = 0.825. Kappa = 1.486 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=15.58, Std. Dev.=1.955, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9362, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/20/2021 12:27 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					64.8		14.7	
12/16/2015	14.3		29.2					
2/18/2016	14.7		16		65.6		12	
5/25/2016	18.9		21.9		71		18.1	
8/23/2016	15.4		9.73		65.8		12.7	
11/10/2016							16	
11/11/2016	17.4		15.9		65			
2/8/2017	21		14.9		76.5		16.1	
5/3/2017							15	
5/4/2017	21.8		19.2		69.2			
8/1/2017	23.3		14.4				16.8	
8/4/2017					73.3			
10/3/2017	24.3		13.4		71.3		16.9	
5/17/2018	32.8		14		75.7		17.3	
6/27/2018	31.8							
8/8/2018	32.3							
11/15/2018	33.9		14.6		70.8		17.5	
1/11/2019	33.2		13.8		67.3			
3/12/2019	35.1							
5/22/2019	36.3		22.7		74.2		13.8	
7/16/2019	36.3				76.1			
8/21/2019	35.6							
5/24/2021		32.4		32.6		89.1		14.5
7/19/2021				14.4		89.1		
9/2/2021				13		88.7		

Prediction Limit

Constituent: Sulfate Analysis Run 9/20/2021 12:29 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	512	512	601	601
12/15/2015	23		15.5	
2/18/2016	21		8.87	
5/25/2016	23.1			
5/26/2016			8.85	
8/23/2016	24.4		9.11	
11/11/2016	24		16.1	
2/8/2017	27.8		10.5	
5/3/2017	27.3		8.71	
8/1/2017	28.1		9.33	
10/3/2017	28.2		9.76	
5/17/2018	29.6		28.3	
6/27/2018	30.3		10.3	
8/8/2018	30.9			
11/15/2018	51.4		13.3	
1/11/2019	43.3			
3/12/2019	44.2			
5/22/2019	40.1		8.74	
7/16/2019	42.1			
8/21/2019	41			
5/24/2021		110		9.71
7/19/2021		104		
9/2/2021		107		

Prediction Limit

Sibley Client: SCS Engineers Data: Sibley Printed 9/20/2021, 12:29 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>
Boron (mg/L)	504	0.2	n/a	5/24/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	505	0.2	n/a	5/24/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	506	0.2	n/a	5/24/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	510	0.2	n/a	5/24/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	512	0.2	n/a	5/24/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	601	0.2	n/a	5/24/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Calcium (mg/L)	504	40.91	n/a	5/24/2021	34.1	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	505	29.31	n/a	9/2/2021	34.1	Yes	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	506	102.9	n/a	9/2/2021	91.1	No	15	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	510	127.2	n/a	5/24/2021	116	No	13	0	x^3	0.00188	Param Intra 1 of 3
Calcium (mg/L)	512	111.3	n/a	9/2/2021	114	Yes	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	601	110.7	n/a	5/24/2021	97.4	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	504	3.91	n/a	5/24/2021	0.5ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Chloride (mg/L)	505	3.13	n/a	9/2/2021	1.23	No	15	46.67	n/a	0.001313	NP Intra (normality) ...
Chloride (mg/L)	506	7.578	n/a	9/2/2021	8.03	Yes	17	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	510	3.762	n/a	5/24/2021	3.53	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	512	5.094	n/a	9/2/2021	10.2	Yes	18	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	601	6.1	n/a	5/24/2021	3.4	No	15	0	n/a	0.001313	NP Intra (normality) ...
Dissolved Solids (mg/l)	504	385	n/a	5/24/2021	174	No	12	0	n/a	0.002173	NP Intra (normality) ...
Dissolved Solids (mg/l)	505	180.3	n/a	9/2/2021	188	Yes	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	506	491.2	n/a	5/24/2021	433	No	12	0	x^5	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	510	496.5	n/a	5/24/2021	468	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	512	466.4	n/a	9/2/2021	555	Yes	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	601	440.6	n/a	5/24/2021	381	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	504	0.2116	n/a	5/24/2021	0.201	No	14	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	505	0.2529	n/a	5/24/2021	0.18	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	506	0.3805	n/a	5/24/2021	0.344	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	510	0.3464	n/a	5/24/2021	0.338	No	13	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	512	0.3568	n/a	5/24/2021	0.318	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	601	0.2959	n/a	5/24/2021	0.278	No	12	0	x^2	0.00188	Param Intra 1 of 3
pH (S.U.)	504	9.03	6.3	n/a	1 future	n/a	20	0	n/a	0.001125	NP Intra (normality) ...
pH (S.U.)	505	9.2	6.6	9/2/2021	6.97	No	17	0	n/a	0.00182	NP Intra (normality) ...
pH (S.U.)	506	7.568	6.807	9/2/2021	6.98	No	17	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	510	8.15	6.72	7/19/2021	7.36	No	14	0	n/a	0.003199	NP Intra (normality) ...
pH (S.U.)	512	7.45	6.692	9/2/2021	7.13	No	20	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	601	8.13	6.65	7/19/2021	7.21	No	15	0	n/a	0.002625	NP Intra (normality) ...
Sulfate (mg/L)	504	38.15	n/a	5/24/2021	32.4	No	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	505	24.65	n/a	9/2/2021	13	No	13	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	506	76.83	n/a	9/2/2021	88.7	Yes	14	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	510	18.59	n/a	5/24/2021	14.5	No	12	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	512	44.8	n/a	9/2/2021	107	Yes	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	601	28.3	n/a	5/24/2021	9.71	No	13	0	n/a	0.001886	NP Intra (normality) ...

Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
October 5, 2021
January 3, 2021 Revision 1

ATTACHMENT 2

Sanitas™ Configuration Settings

Exclude data flags:

Data Reading Options

- Individual Observations
- Mean of Each: Month
- Median of Each: Season

Automatically Process Resamples...

- Black and White Output
- Four Plots Per Page
 - Always Combine Data Pages...
 - Include Tick Marks on Data Page
 - Use Constituent Name for Graph Title
- Draw Border Around Text Reports and Data Pages
- Enlarge/Reduce Fonts (Graphs):
- Enlarge/Reduce Fonts (Data/Text Reports):
- Wide Margins (on reports without explicit setting)
- Use CAS# (Not Const. Name)
- Truncate File Names to Characters
- Include Limit Lines when found in Database...
- Show Deselected Data on Time Series ▾
- Show Deselected Data on all Data Pages ▾

- Prompt to Overwrite/Append Summary Tables
- Round Limits to Sig. Digits (when not set in data file)
- User-Set Scale
- Indicate Background Data
- Show Exact Dates
- Thick Plot Lines

Zoom Factor: ▾

- Output Decimal Precision
- Less Precision
 - Normal Precision
 - More Precision

Store Print Jobs in Multiple Constituent Mode

Printer: ▾

Use Modified Alpha... 0.02

Test Residuals For Normality (Parametric test only) using Shapiro-Wilk/Francia at Alpha = 0.01

Continue Parametric if Unable to Normalize

Transformation (Parametric test only)

- Use Ladder of Powers
- Natural Log or No Transformation
- Never Transform
- Use Specific Transformation:

- Use Best W Statistic
- Plot Transformed Values

Use Non-Parametric Test (Sen's Slope/Mann-Kendall) when Non-Detects Percent > 75

Include 95% Confidence Interval around Trend Line

Automatically Remove Outliers (Parametric test only)

Note: there is no "Always Use Non-Parametric" checkbox on this tab because, for consistency with prior versions, Sen's Slope / Mann-Kendall (the non-parametric alternative) is available as a report in its own right, under Analysis->Intrawell->Trend.

Test for Normality using Shapiro-Wilk/Francia at Alpha = 0.01

Use Non-Parametric Test when Non-Detects Percent > 50

Use Aitchison's Adjustment when Non-Detects Percent > 15

Optional Further Refinement: Use Aitchison's when NDs % > 50

Use Poisson Prediction Limit when Non-Detects Percent > 90

Transformation

Use Ladder of Powers

Natural Log or No Transformation

Never Transform

Use Specific Transformation: Natural Log

Use Best W Statistic

Plot Transformed Values

Deseasonalize (Intra- and InterWell)

If Seasonality Is Detected

If Seasonality Is Detected Or Insufficient to Test

Always (When Sufficient Data) Never

Always Use Non-Parametric

Facility

Statistical Evaluations per Year:

Constituents Analyzed:

Downgradient (Compliance) Wells:

Sampling Plan

Comparing Individual Observations

1 of 1 1 of 2 1 of 3 1 of 4

2 of 4 ("Modified California")

IntraWell Other

Stop if Background Trend Detected at Alpha = 0.05

Plot Background Data

Override Standard Deviation:

Override DF: Override Kappa:

Automatically Remove Background Outliers

2-Tailed Test Mode...

Show Deselected Data Lighter

Non-Parametric Limit = Highest Background Value

Non-Parametric Limit when 100% Non-Detects:

Highest/Second Highest Background Value

Most Recent PQL if available, or MDL

Most Recent Background Value (subst. method)

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- Use Modified Alpha...
- 2-Tailed Test Mode...
- Combine Background Wells on Mann-Whitney...

Outlier Tests

- EPA 1989 Outlier Screening (fixed alpha of 0.05)
- Dixon's at $\alpha=$ or if $n >$ Rosner's at $\alpha=$ Use EPA Screening to establish Suspected Outliers
- Tukey's Outlier Screening, with IQR Multiplier = Use Ladder of Powers to achieve Best W Stat
- Test For Normality using Shapiro-Wilk/Francia at Alpha =
 - Stop if Non-Normal
 - Continue with Parametric Test if Non-Normal
 - Tukey's if Non-Normal, with IQR Multiplier = Use Ladder of Powers to achieve Best W Stat
- No Outlier If Less Than Times Median
- Apply Rules found in Ohio Guidance Document 0715
- Combine Background Wells on the Outlier Report...

Piper, Stiff Diagram

- Combine Wells
- Combine Dates
- Use Default Constituent Names
- Use Constituent Definition File
- Label Constituents
- Label Axes
- Note Cation-Anion Balance (Piper only)

Appendix E.2

Fall 2021 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

April 1, 2022

**To: Sibley Generating Station
33200 E Johnson Road
Sibley, Missouri 64088
Evergny Missouri West, Inc.**



From: SCS Engineers

**RE: Determination of Statistically Significant Increases - CCR Landfill
Fall 2021 Semiannual Detection Monitoring 40 CFR 257.94**

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Sibley Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated October 12, 2017. Detection monitoring groundwater samples were collected on November 15, 2021. Review and validation of the results from the November 2021 Detection Monitoring Event was completed on January 7, 2022, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on February 1, 2022 and March 2, 2022.

The completed statistical evaluation identified one Appendix III constituent above its prediction limit established for upgradient monitoring well MW-505, two Appendix III constituents above their respective prediction limits established for monitoring well MW-506, and three Appendix III constituents above their respective prediction limits established for monitoring well MW-512.

Monitoring Well Constituent	*UPL	Observation November 15, 2021	1st Verification February 1, 2022	2nd Verification March 2, 2022
MW-505				
Total Dissolved Solids	180.3	181	182	185
MW-506				
Chloride	7.578	7.78	7.96	8.10
Sulfate	76.83	89.8	92.9	92.9
MW-512				
Chloride	5.094	9.69	9.14	6.61
Total Dissolved Solids	466.4	527	516	513
Sulfate	44.8	93.1	104	86.8

*UPL – Upper Prediction Limit

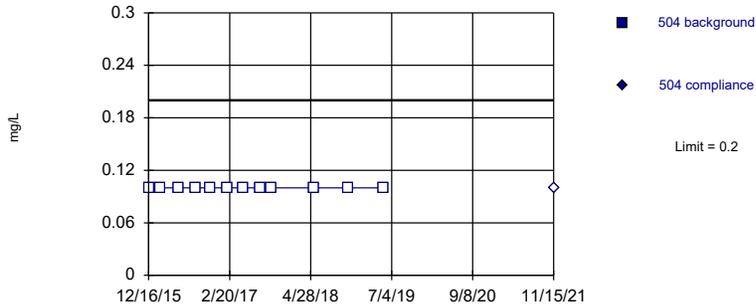
Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
April 1, 2022

ATTACHMENT 1

Sanitas™ Output

Within Limit

Prediction Limit Intrawell Non-parametric

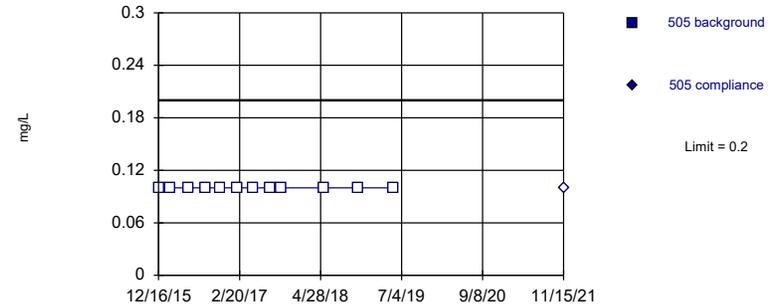


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

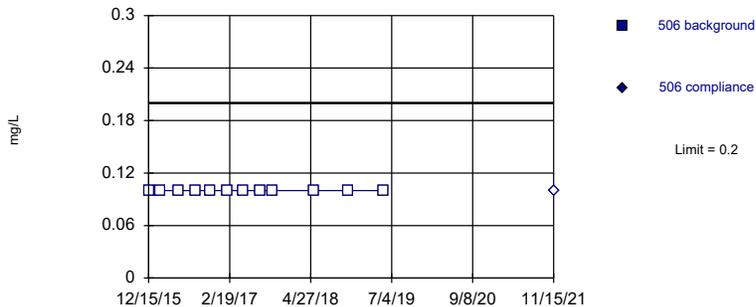


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

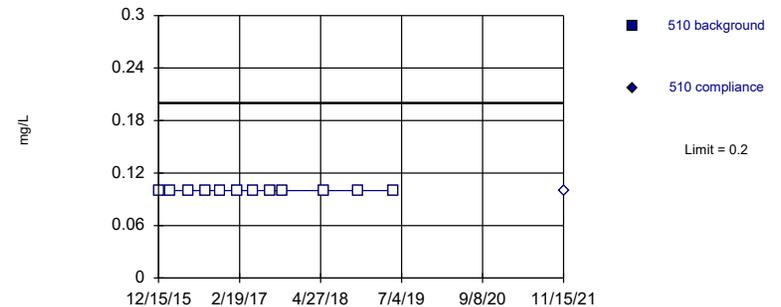


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

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 = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

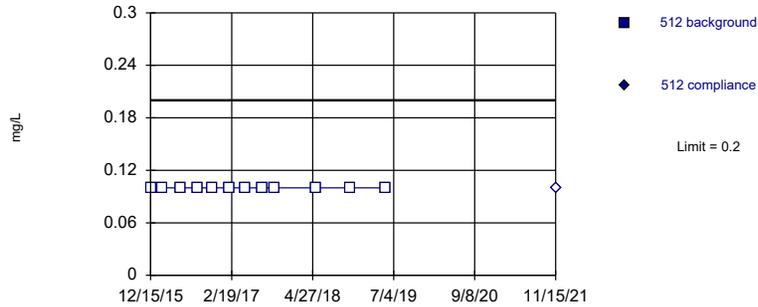
Constituent: Boron Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					<0.2		<0.2	
12/16/2015	<0.2		<0.2					
2/18/2016	<0.2		<0.2		<0.2		<0.2	
5/25/2016	<0.2		<0.2		<0.2		<0.2	
8/23/2016	<0.2		<0.2		<0.2		<0.2	
11/10/2016							<0.2	
11/11/2016	<0.2		<0.2		<0.2			
2/8/2017	<0.2		<0.2		<0.2		<0.2	
5/3/2017							<0.2	
5/4/2017	<0.2		<0.2		<0.2			
8/1/2017	<0.2		<0.2				<0.2	
8/4/2017					<0.2			
10/3/2017	<0.2		<0.2		<0.2		<0.2	
5/17/2018	<0.2		<0.2		<0.2		<0.2	
11/15/2018	<0.2		<0.2		<0.2		<0.2	
5/22/2019	<0.2		<0.2		<0.2		<0.2	
11/15/2021		<0.2		<0.2		<0.2		<0.2

Within Limit

Prediction Limit
Intrawell Non-parametric

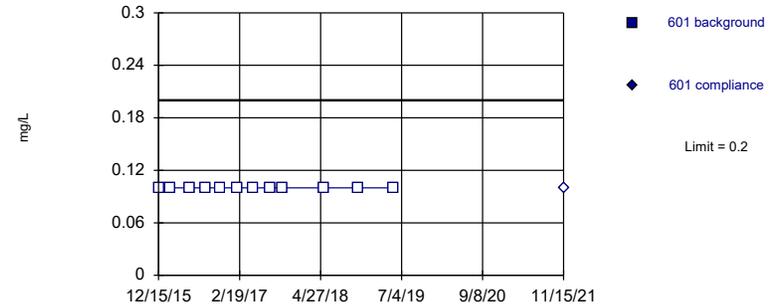


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

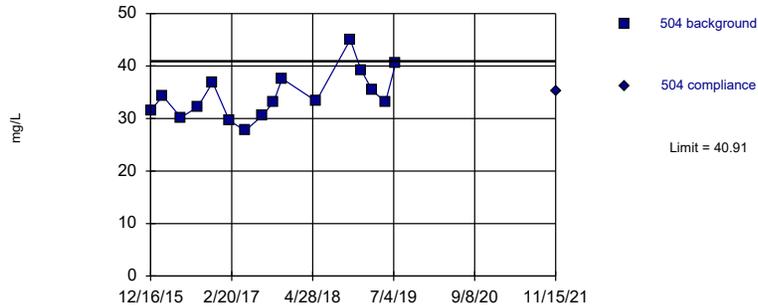


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=34.4, Std. Dev.=4.551, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=25.96, Std. Dev.=2.346, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9775, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

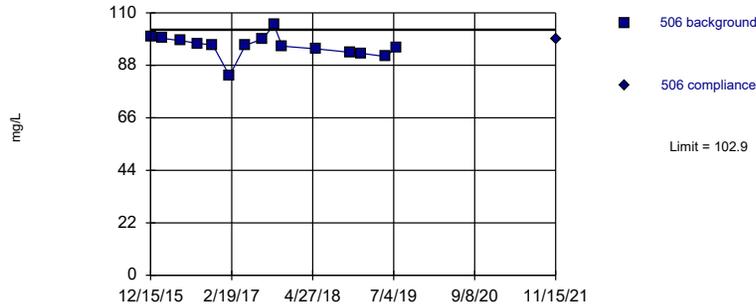
Prediction Limit

Constituent: Boron, Calcium Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	<0.2		<0.2					
12/16/2015					31.5		28	
2/18/2016	<0.2		<0.2		34.3		25.4	
5/25/2016	<0.2				30.2		24.6	
5/26/2016			<0.2					
8/23/2016	<0.2		<0.2		32.2		25.7	
11/11/2016	<0.2		<0.2		36.9		21.6	
2/8/2017	<0.2		<0.2		29.6		23.5	
5/3/2017	<0.2		<0.2					
5/4/2017					27.7		23.2	
8/1/2017	<0.2		<0.2		30.5		25.1	
10/3/2017	<0.2		<0.2		33.2		26.6	
11/16/2017					37.6		26	
5/17/2018	<0.2		<0.2		33.3		28.2	
6/27/2018							25.8	
11/15/2018	<0.2		<0.2		45		30.8	
1/11/2019					39.3		29.5	
3/12/2019					35.4		24.9	
5/22/2019	<0.2		<0.2		33.1		26.4	
7/16/2019					40.6			
11/15/2021		<0.2		<0.2		35.3		27.7

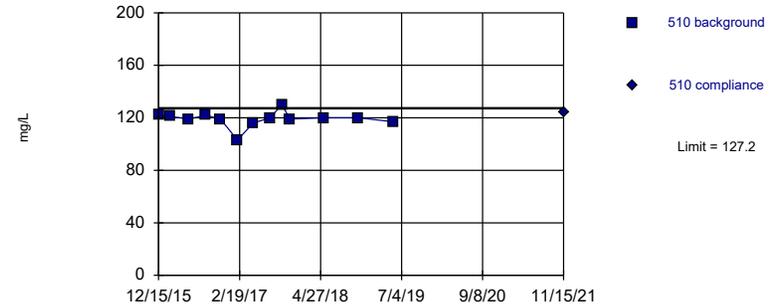
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=95.97, Std. Dev.=4.734, n=15. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9252, critical = 0.835. Kappa = 1.458 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

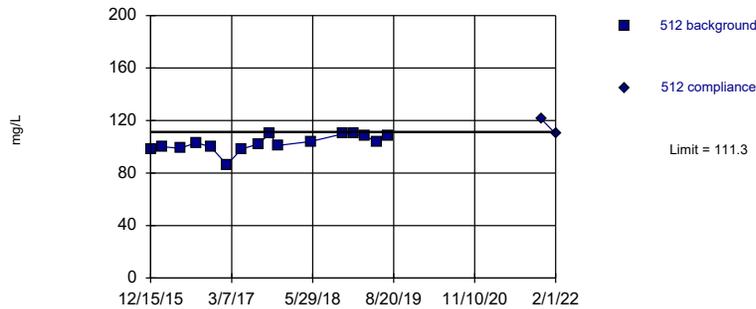
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary (based on cube transformation): Mean=1699613, Std. Dev.=238011, n=13. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8274, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

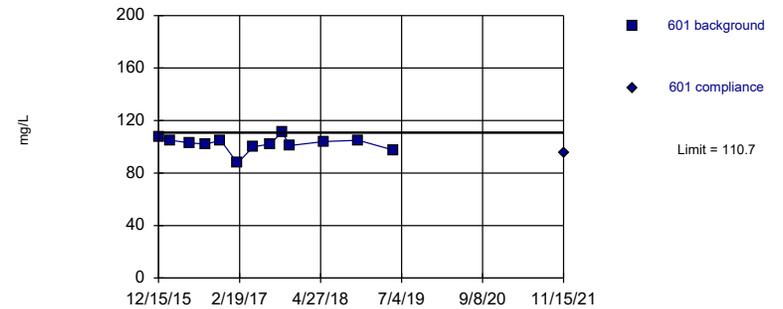
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=102.6, Std. Dev.=6.094, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.892, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=102.3, Std. Dev.=5.577, n=13. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8789, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

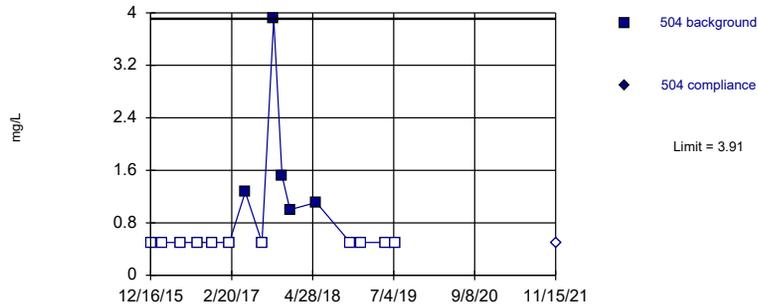
Constituent: Calcium Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	100		122		98.1		107	
2/18/2016	99.3		121		100		105	
5/25/2016	98.3		119		98.9			
5/26/2016							103	
8/23/2016	97.2		122		103		102	
11/10/2016			119					
11/11/2016	96.5				100		105	
2/8/2017	83.6		103		86.4		87.5	
5/3/2017			116		98.4		100	
5/4/2017	96.4							
8/1/2017			120		102		102	
8/4/2017	99							
10/3/2017	105		130		110		111	
11/16/2017	96		119		101		101	
5/17/2018	94.9		120		104		104	
11/15/2018	93.4		120		110		105	
1/11/2019	93				110			
3/12/2019					108			
5/22/2019	91.7		117		104		97.4	
7/16/2019	95.3				108			
11/15/2021		98.8		124		121		95.6
2/1/2022						110	1st Verification	

Within Limit

Prediction Limit
Intrawell Non-parametric

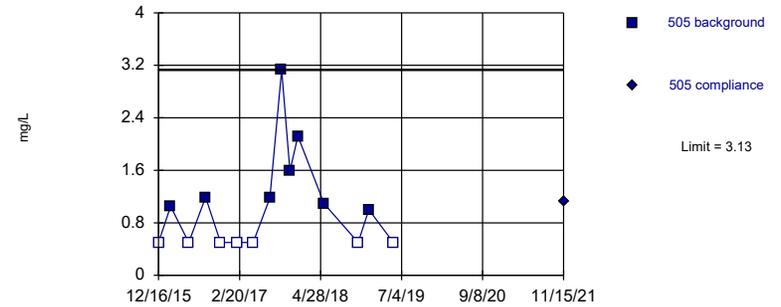


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 68.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

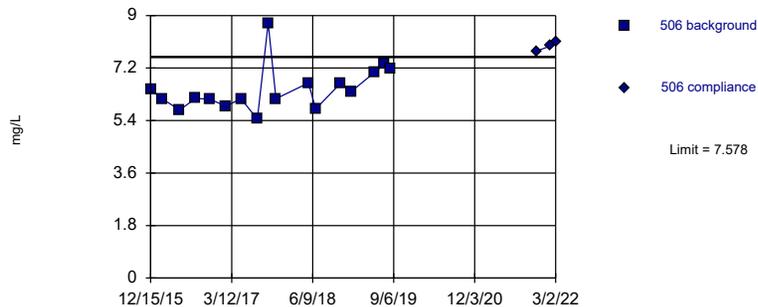


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. 46.67% NDs. Well-constituent pair annual alpha = 0.002624. Individual comparison alpha = 0.001313 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric

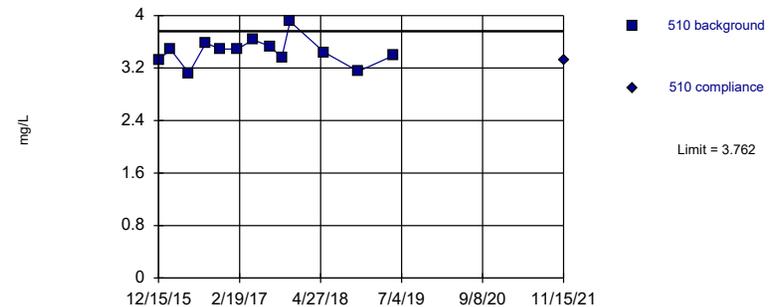


Background Data Summary: Mean=6.479, Std. Dev.=0.7774, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8712, critical = 0.851. Kappa = 1.413 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=3.454, Std. Dev.=0.2034, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

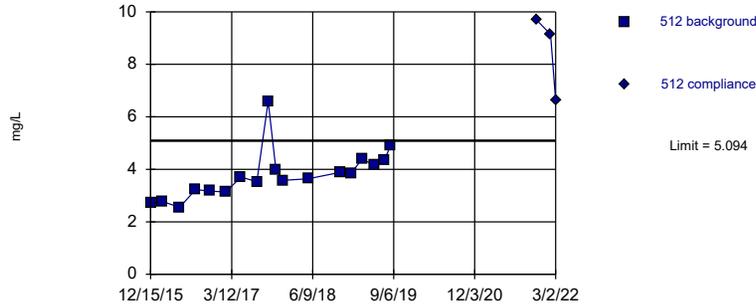
Constituent: Chloride Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					6.45		3.33	
12/16/2015	<1		<1					
2/18/2016	<1		1.05		6.15		3.48	
5/25/2016	<1		<1		5.76		3.12	
8/23/2016	<1		1.19		6.16		3.58	
11/10/2016							3.49	
11/11/2016	<1		<1		6.13			
2/8/2017	<1		<1		5.89		3.49	
5/3/2017							3.63	
5/4/2017	1.27		<1		6.15			
8/1/2017	<1		1.18				3.53	
8/4/2017					5.45			
10/3/2017	3.91		3.13		8.74		3.36	
11/16/2017	1.52		1.59		6.15		3.91	
12/28/2017	1		2.12					
5/17/2018	1.11		1.09		6.69		3.44	
6/27/2018					5.8			
11/15/2018	<1		<1		6.69		3.15	
1/11/2019	<1		1		6.39			
5/22/2019	<1		<1		7.05		3.39	
7/16/2019	<1				7.33			
8/21/2019					7.17			
11/15/2021		<1		1.13		7.78		3.33
2/1/2022						7.96	1st Verification	
3/2/2022						8.1	2nd Verification	

Exceeds Limit

Prediction Limit
Intrawell Parametric

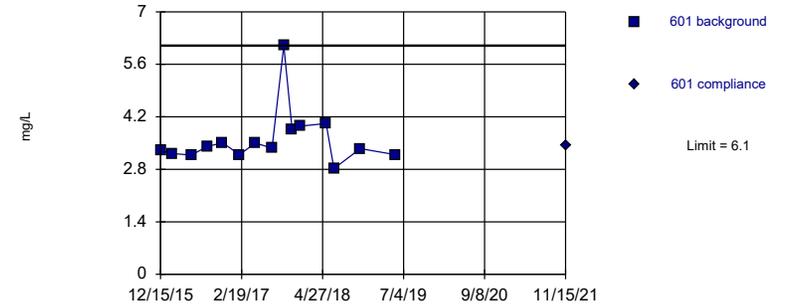


Background Data Summary: Mean=3.786, Std. Dev.=0.9366, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8846, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

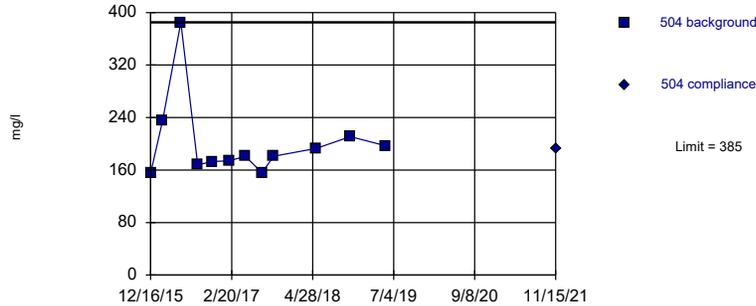


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. Well-constituent pair annual alpha = 0.002624. Individual comparison alpha = 0.001313 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric



Prediction Limit

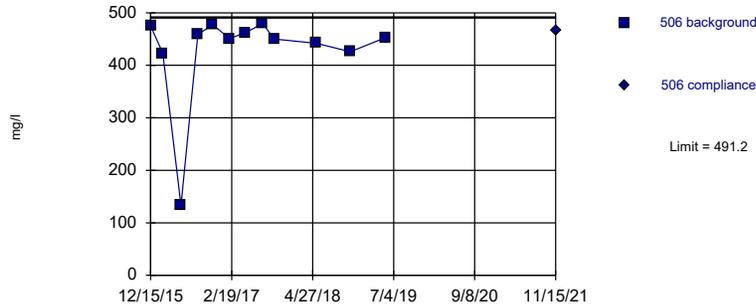
Constituent: Chloride, Dissolved Solids Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	2.72		3.3					
12/16/2015					155		162	
2/18/2016	2.78		3.22		236		148	
5/25/2016	2.55				385		172	
5/26/2016			3.18					
8/23/2016	3.23		3.41		168		182	
11/11/2016	3.17		3.51		173		152	
2/8/2017	3.14		3.19		174		151	
5/3/2017	3.7		3.5					
5/4/2017					181		159	
8/1/2017	3.53		3.37		156		156	
10/3/2017	6.59		6.1		181		158	
11/16/2017	3.97		3.87					
12/28/2017	3.58		3.95					
5/17/2018	3.64		4.02		193		170	
6/27/2018			2.82					
11/15/2018	3.89		3.35		211		167	
1/11/2019	3.85							
3/12/2019	4.38							
5/22/2019	4.17		3.19		197		180	
7/16/2019	4.35							
8/21/2019	4.91							
11/15/2021		9.69		3.44		192		181
2/1/2022		9.14	1st Verification					182 1st Verification
3/2/2022		6.61	2nd Verification					185 2nd Verification

Within Limit

Prediction Limit
Intrawell Parametric

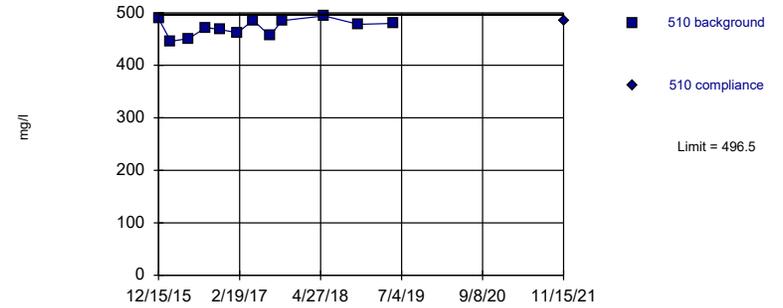


Background Data Summary (based on x^5 transformation): Mean=1.8e13, Std. Dev.=6.8e12, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8456, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

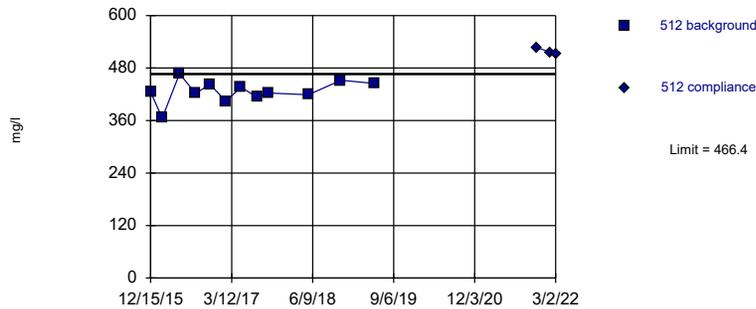


Background Data Summary: Mean=472.3, Std. Dev.=15.74, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric

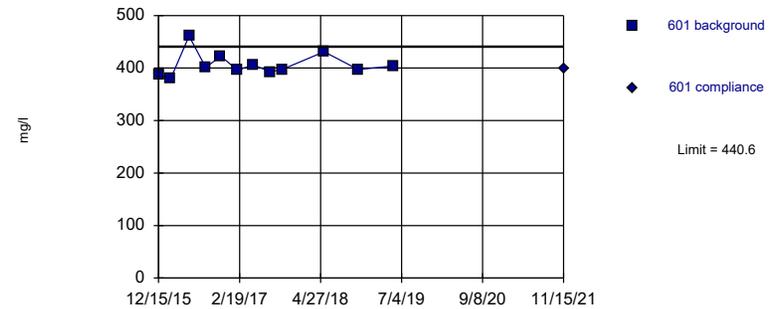


Background Data Summary: Mean=426.3, Std. Dev.=25.95, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9454, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=406.3, Std. Dev.=22.23, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8601, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

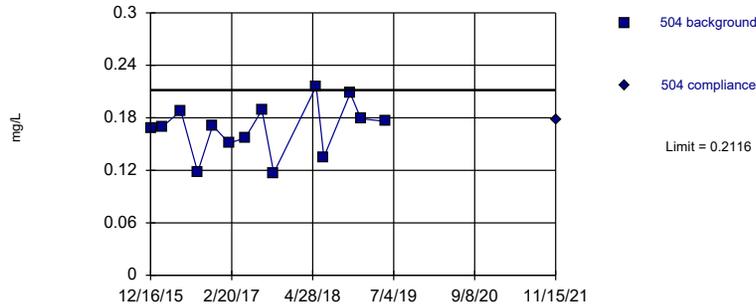
Constituent: Dissolved Solids Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	475		489		425		387	
2/18/2016	423		446		366		380	
5/25/2016	133		451		467			
5/26/2016							461	
8/23/2016	459		472		422		401	
11/10/2016			468					
11/11/2016	477				443		423	
2/8/2017	451		462		404		396	
5/3/2017			486		436		406	
5/4/2017	462							
8/1/2017			456		414		393	
8/4/2017	480							
10/3/2017	450		485		423		397	
5/17/2018	442		494		419		431	
11/15/2018	426		478		452		397	
5/22/2019	453		480		445		404	
11/15/2021		466		486		527		399
2/1/2022						516	1st Verification	
3/2/2022						513	2nd Verification	

Within Limit

Prediction Limit
Intrawell Parametric

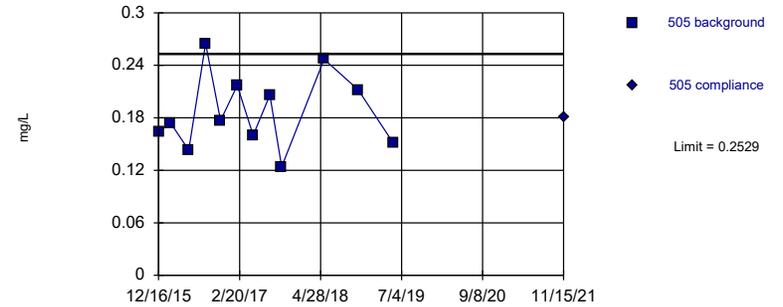


Background Data Summary: Mean=0.1674, Std. Dev.=0.02979, n=14. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.825. Kappa = 1.486 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

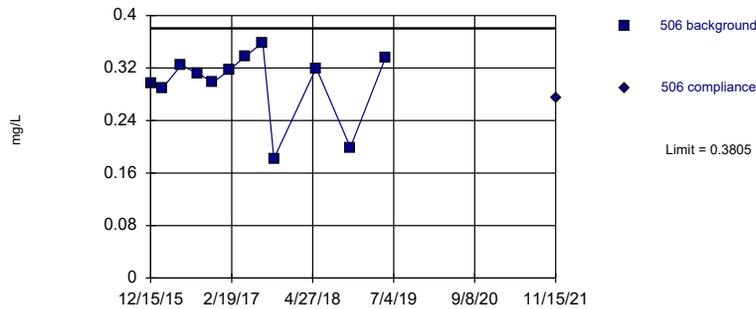


Background Data Summary: Mean=0.1867, Std. Dev.=0.04296, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9585, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

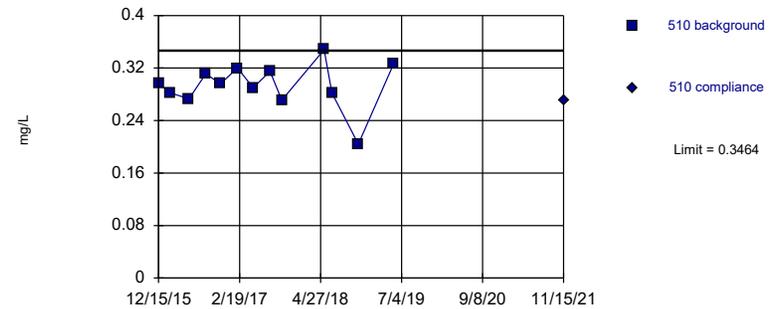


Background Data Summary: Mean=0.2976, Std. Dev.=0.05377, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8104, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=0.2934, Std. Dev.=0.03503, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9129, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

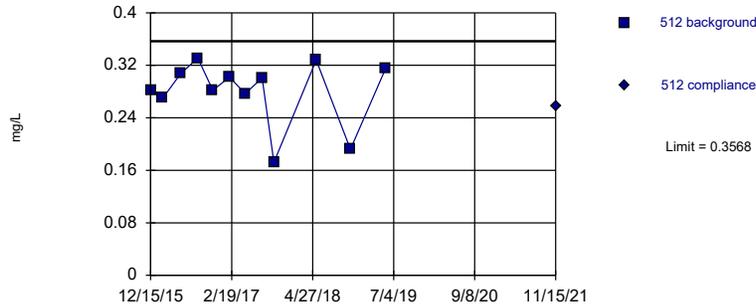
Prediction Limit

Constituent: Fluoride Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					0.296		0.296	
12/16/2015	0.168		0.164					
2/18/2016	0.17		0.174		0.29		0.282	
5/25/2016	0.188		0.143		0.324		0.273	
8/23/2016	0.118		0.265		0.312		0.311	
11/10/2016							0.296	
11/11/2016	0.171		0.177		0.298			
2/8/2017	0.151		0.217		0.317		0.32	
5/3/2017							0.29	
5/4/2017	0.157		0.16		0.338			
8/1/2017	0.189		0.206				0.315	
8/4/2017					0.359			
10/3/2017	0.117		0.124		0.182		0.271	
5/17/2018	0.216		0.247		0.32		0.348	
6/27/2018	0.135						0.282	
11/15/2018	0.208		0.212		0.199		0.204	
1/11/2019	0.179							
5/22/2019	0.176		0.151		0.336		0.326	
11/15/2021		0.178		0.181		0.275		0.271

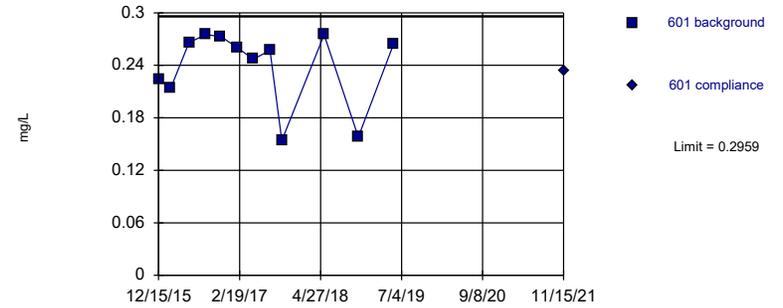
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=0.2799, Std. Dev.=0.04987, n=12. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8252, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

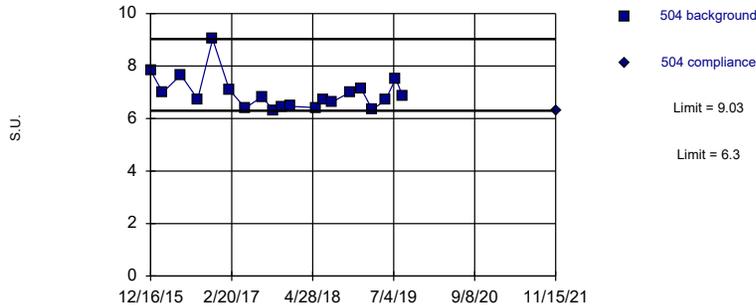
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary (based on square transformation): Mean=0.0588, Std. Dev.=0.01866, n=12. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8225, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

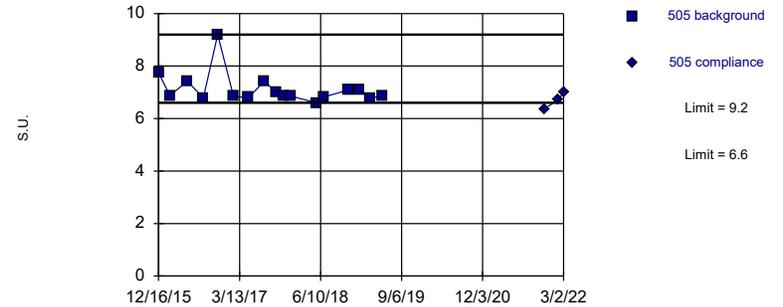
Within Limits Prediction Limit
Intrawell Non-parametric



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. Limits are highest and lowest of 20 background values. Well-constituent pair annual alpha = 0.00225. Individual comparison alpha = 0.001125 (1 of 3). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limits 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. Limits are highest and lowest of 17 background values. Well-constituent pair annual alpha = 0.003639. Individual comparison alpha = 0.00182 (1 of 3). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 3/30/2022 4:10 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

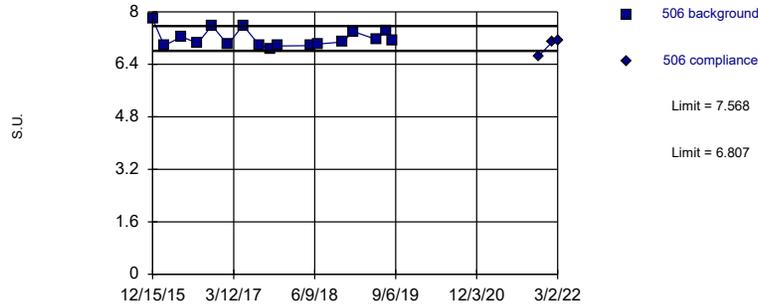
Constituent: Fluoride, pH Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	0.281		0.224					
12/16/2015					7.83		7.74	
2/18/2016	0.27		0.214		6.99		6.88	
5/25/2016	0.308				7.66		7.42	
5/26/2016			0.266					
8/23/2016	0.331		0.275		6.74		6.79	
11/11/2016	0.282		0.273		9.03		9.2	
2/8/2017	0.302		0.26		7.09		6.84	
5/3/2017	0.277		0.247					
5/4/2017					6.4		6.8	
8/1/2017	0.301		0.257		6.83		7.44	
10/3/2017	0.172		0.154		6.3		6.98	
11/16/2017					6.45		6.84	
12/28/2017					6.47		6.85	
5/17/2018	0.328		0.275		6.41		6.6	
6/27/2018					6.7		6.82	
8/8/2018					6.62			
11/15/2018	0.192		0.158		7.01		7.09	
1/11/2019					7.15		7.08	
3/12/2019					6.34		6.78	
5/22/2019	0.315		0.264		6.7		6.85	
7/16/2019					7.53			
8/21/2019					6.85			
11/15/2021		0.257		0.234		6.31		6.37
2/1/2022							6.72	1st Verification
3/2/2022							7.01	Extra Sample

Within Limits

Prediction Limit
Intrawell Parametric

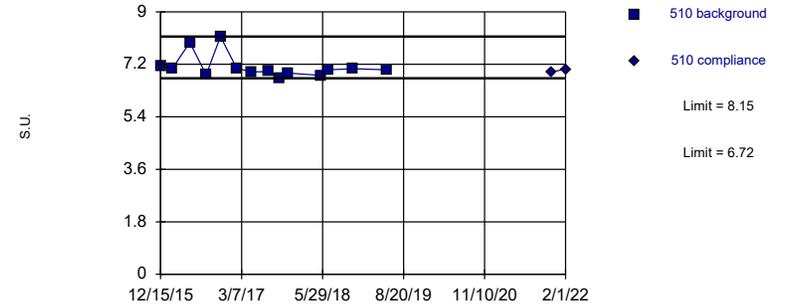


Background Data Summary: Mean=7.188, Std. Dev.=0.2694, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8664, critical = 0.851. Kappa = 1.413 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limits

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. Limits are highest and lowest of 14 background values. Well-constituent pair annual alpha = 0.006393. Individual comparison alpha = 0.003199 (1 of 3). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limits

Prediction Limit
Intrawell Parametric

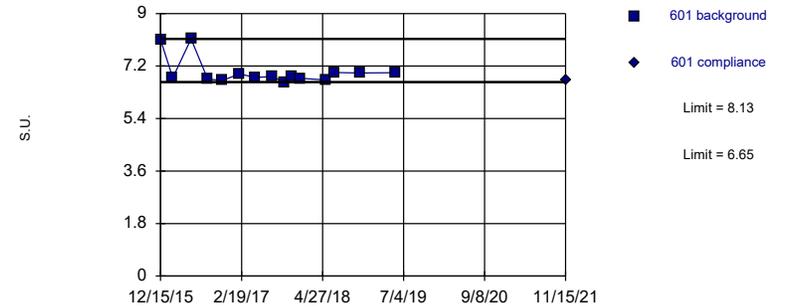


Background Data Summary: Mean=7.071, Std. Dev.=0.2785, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8734, critical = 0.868. Kappa = 1.362 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limits

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. Limits are highest and lowest of 15 background values. Well-constituent pair annual alpha = 0.005248. Individual comparison alpha = 0.002625 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

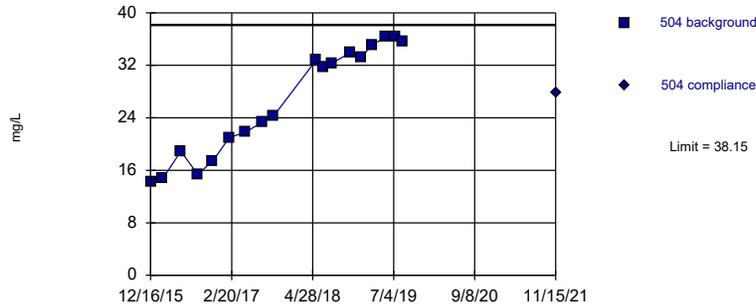
Constituent: pH Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	7.78		7.14		7.29		8.11	
2/18/2016	6.97		7.05		7		6.8	
5/25/2016	7.24		7.95		7.18			
5/26/2016							8.13	
8/23/2016	7.04		6.84		6.77		6.75	
11/10/2016			8.15					
11/11/2016	7.58				6.8		6.71	
2/8/2017	7		7.06		7.7		6.93	
5/3/2017			6.94		6.92			
5/4/2017	7.59						6.81	
8/1/2017			6.95		6.97		6.84	
8/4/2017	6.98							
10/3/2017	6.88		6.72		6.79		6.65	
11/16/2017	6.96		6.9		6.92		6.84	
12/28/2017					6.88		6.78	
5/17/2018	6.97		6.82		6.85		6.72	
6/27/2018	7.02		7.01		6.95		6.98	
8/8/2018					6.78			
11/15/2018	7.08		7.05		7.09		6.96	
1/11/2019	7.4				7.34			
3/12/2019					7.23			
5/22/2019	7.16		7.01		7.25		6.97	
7/16/2019	7.43				7.7			
8/21/2019	7.11				7.01			
11/15/2021		6.65		6.94		6.25		6.71
2/1/2022		7.09	1st Verification	7.03	Extra Sample	7	1st Verification	
3/2/2022		7.11	Extra Sample			6.83	Extra Sample	

Within Limit

Prediction Limit
Intrawell Parametric

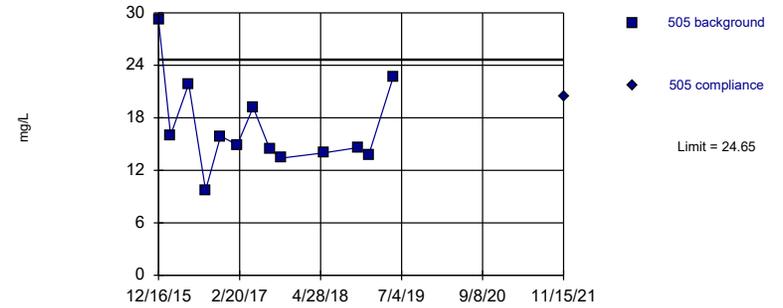


Background Data Summary: Mean=26.58, Std. Dev.=8.293, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8677, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

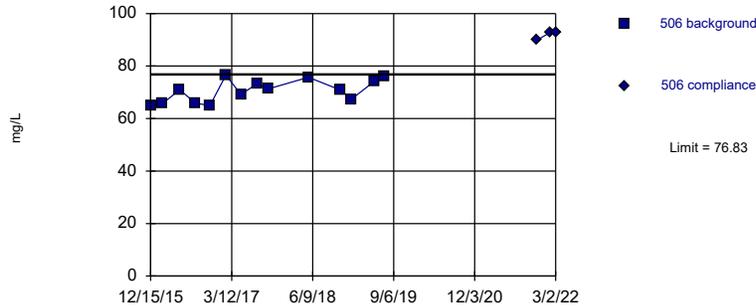


Background Data Summary: Mean=16.9, Std. Dev.=5.117, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8783, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric

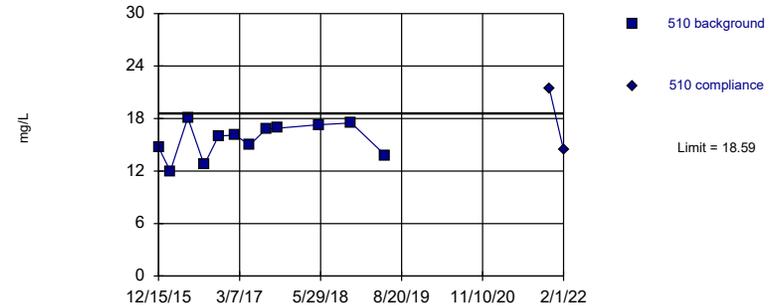


Background Data Summary: Mean=70.47, Std. Dev.=4.276, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9125, critical = 0.825. Kappa = 1.486 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=15.58, Std. Dev.=1.955, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9362, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

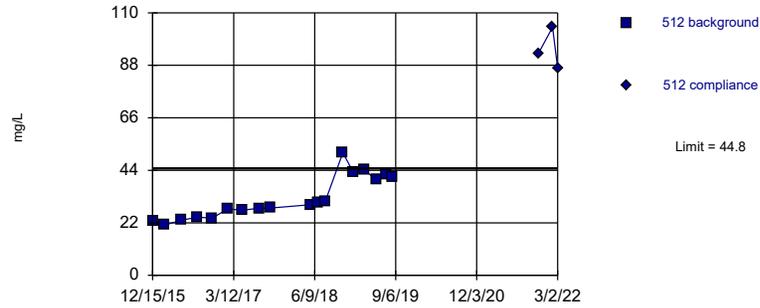
Constituent: Sulfate Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510	
12/15/2015					64.8		14.7		
12/16/2015	14.3		29.2						
2/18/2016	14.7		16		65.6		12		
5/25/2016	18.9		21.9		71		18.1		
8/23/2016	15.4		9.73		65.8		12.7		
11/10/2016							16		
11/11/2016	17.4		15.9		65				
2/8/2017	21		14.9		76.5		16.1		
5/3/2017							15		
5/4/2017	21.8		19.2		69.2				
8/1/2017	23.3		14.4				16.8		
8/4/2017					73.3				
10/3/2017	24.3		13.4		71.3		16.9		
5/17/2018	32.8		14		75.7		17.3		
6/27/2018	31.8								
8/8/2018	32.3								
11/15/2018	33.9		14.6		70.8		17.5		
1/11/2019	33.2		13.8		67.3				
3/12/2019	35.1								
5/22/2019	36.3		22.7		74.2		13.8		
7/16/2019	36.3				76.1				
8/21/2019	35.6								
11/15/2021		27.9		20.4		89.8		21.4	
2/1/2022						92.9	1st Verification	14.4	1st Verification
3/2/2022						92.9	2nd Verification		

Exceeds Limit

Prediction Limit
Intrawell Parametric

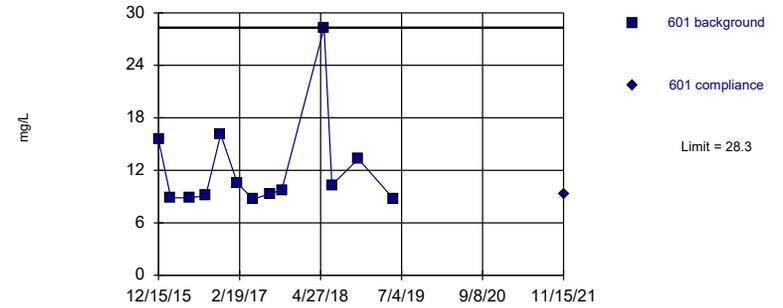


Background Data Summary: Mean=32.21, Std. Dev.=9.019, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8926, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

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 13 background values. Well-constituent pair annual alpha = 0.003769. Individual comparison alpha = 0.001886 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Sulfate Analysis Run 3/30/2022 4:11 PM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 3/30/2022 4:28 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	512	512	601	601
12/15/2015	23		15.5	
2/18/2016	21		8.87	
5/25/2016	23.1			
5/26/2016			8.85	
8/23/2016	24.4		9.11	
11/11/2016	24		16.1	
2/8/2017	27.8		10.5	
5/3/2017	27.3		8.71	
8/1/2017	28.1		9.33	
10/3/2017	28.2		9.76	
5/17/2018	29.6		28.3	
6/27/2018	30.3		10.3	
8/8/2018	30.9			
11/15/2018	51.4		13.3	
1/11/2019	43.3			
3/12/2019	44.2			
5/22/2019	40.1		8.74	
7/16/2019	42.1			
8/21/2019	41			
11/15/2021		93.1		9.32
2/1/2022		104	1st Verification	
3/2/2022		86.8	2nd Verification	

Prediction Limit

Sibley Client: SCS Engineers Data: Sibley Printed 3/30/2022, 4:28 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>
Boron (mg/L)	504	0.2	n/a	11/15/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	505	0.2	n/a	11/15/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	506	0.2	n/a	11/15/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	510	0.2	n/a	11/15/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	512	0.2	n/a	11/15/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	601	0.2	n/a	11/15/2021	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Calcium (mg/L)	504	40.91	n/a	11/15/2021	35.3	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	505	29.31	n/a	11/15/2021	27.7	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	506	102.9	n/a	11/15/2021	98.8	No	15	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	510	127.2	n/a	11/15/2021	124	No	13	0	x^3	0.00188	Param Intra 1 of 3
Calcium (mg/L)	512	111.3	n/a	2/1/2022	110	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	601	110.7	n/a	11/15/2021	95.6	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	504	3.91	n/a	11/15/2021	0.5ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Chloride (mg/L)	505	3.13	n/a	11/15/2021	1.13	No	15	46.67	n/a	0.001313	NP Intra (normality) ...
Chloride (mg/L)	506	7.578	n/a	3/2/2022	8.1	Yes	17	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	510	3.762	n/a	11/15/2021	3.33	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	512	5.094	n/a	3/2/2022	6.61	Yes	18	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	601	6.1	n/a	11/15/2021	3.44	No	15	0	n/a	0.001313	NP Intra (normality) ...
Dissolved Solids (mg/l)	504	385	n/a	11/15/2021	192	No	12	0	n/a	0.002173	NP Intra (normality) ...
Dissolved Solids (mg/l)	505	180.3	n/a	3/2/2022	185	Yes	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	506	491.2	n/a	11/15/2021	466	No	12	0	x^5	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	510	496.5	n/a	11/15/2021	486	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	512	466.4	n/a	3/2/2022	513	Yes	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	601	440.6	n/a	11/15/2021	399	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	504	0.2116	n/a	11/15/2021	0.178	No	14	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	505	0.2529	n/a	11/15/2021	0.181	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	506	0.3805	n/a	11/15/2021	0.275	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	510	0.3464	n/a	11/15/2021	0.271	No	13	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	512	0.3568	n/a	11/15/2021	0.257	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	601	0.2959	n/a	11/15/2021	0.234	No	12	0	x^2	0.00188	Param Intra 1 of 3
pH (S.U.)	504	9.03	6.3	11/15/2021	6.31	No	20	0	n/a	0.001125	NP Intra (normality) ...
pH (S.U.)	505	9.2	6.6	3/2/2022	7.01	No	17	0	n/a	0.00182	NP Intra (normality) ...
pH (S.U.)	506	7.568	6.807	3/2/2022	7.11	No	17	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	510	8.15	6.72	2/1/2022	7.03	No	14	0	n/a	0.003199	NP Intra (normality) ...
pH (S.U.)	512	7.45	6.692	3/2/2022	6.83	No	20	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	601	8.13	6.65	11/15/2021	6.71	No	15	0	n/a	0.002625	NP Intra (normality) ...
Sulfate (mg/L)	504	38.15	n/a	11/15/2021	27.9	No	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	505	24.65	n/a	11/15/2021	20.4	No	13	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	506	76.83	n/a	3/2/2022	92.9	Yes	14	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	510	18.59	n/a	2/1/2022	14.4	No	12	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	512	44.8	n/a	3/2/2022	86.8	Yes	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	601	28.3	n/a	11/15/2021	9.32	No	13	0	n/a	0.001886	NP Intra (normality) ...

Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
April 1, 2022

ATTACHMENT 2

Sanitas™ Configuration Settings

Exclude data flags:

Data Reading Options

- Individual Observations
- Mean of Each: Month
- Median of Each: Season

Automatically Process Resamples...

- Black and White Output
- Four Plots Per Page
 - Always Combine Data Pages...
 - Include Tick Marks on Data Page
 - Use Constituent Name for Graph Title
- Draw Border Around Text Reports and Data Pages
- Enlarge/Reduce Fonts (Graphs):
- Enlarge/Reduce Fonts (Data/Text Reports):
- Wide Margins (on reports without explicit setting)
- Use CAS# (Not Const. Name)
- Truncate File Names to Characters
- Include Limit Lines when found in Database...
- Show Deselected Data on Time Series ▾
- Show Deselected Data on all Data Pages ▾

- Prompt to Overwrite/Append Summary Tables
- Round Limits to Sig. Digits (when not set in data file)
- User-Set Scale
- Indicate Background Data
- Show Exact Dates
- Thick Plot Lines

Zoom Factor: ▾

- Output Decimal Precision
- Less Precision
 - Normal Precision
 - More Precision

Store Print Jobs in Multiple Constituent Mode

Printer: ▾

Use Modified Alpha... 0.02

Test Residuals For Normality (Parametric test only) using Shapiro-Wilk/Francia at Alpha = 0.01

Continue Parametric if Unable to Normalize

Transformation (Parametric test only)

- Use Ladder of Powers
- Natural Log or No Transformation
- Never Transform
- Use Specific Transformation:

▼

- Use Best W Statistic
- Plot Transformed Values

Use Non-Parametric Test (Sen's Slope/Mann-Kendall) when Non-Detects Percent > 75

Include 95% Confidence Interval around Trend Line

Automatically Remove Outliers (Parametric test only)

Note: there is no "Always Use Non-Parametric" checkbox on this tab because, for consistency with prior versions, Sen's Slope / Mann-Kendall (the non-parametric alternative) is available as a report in its own right, under Analysis->Intrawell->Trend.

Test for Normality using Shapiro-Wilk/Francia at Alpha = 0.01

Use Non-Parametric Test when Non-Detects Percent > 50

Use Aitchison's Adjustment when Non-Detects Percent > 15

Optional Further Refinement: Use Aitchison's when NDs % > 50

Use Poisson Prediction Limit when Non-Detects Percent > 90

Transformation

Use Ladder of Powers

Natural Log or No Transformation

Never Transform

Use Specific Transformation: Natural Log

Use Best W Statistic

Plot Transformed Values

Deseasonalize (Intra- and InterWell)

If Seasonality Is Detected

If Seasonality Is Detected Or Insufficient to Test

Always (When Sufficient Data) Never

Always Use Non-Parametric

Facility

Statistical Evaluations per Year:

Constituents Analyzed:

Downgradient (Compliance) Wells:

Sampling Plan

Comparing Individual Observations

1 of 1 1 of 2 1 of 3 1 of 4

2 of 4 ("Modified California")

IntraWell Other

Stop if Background Trend Detected at Alpha = 0.05

Plot Background Data

Override Standard Deviation:

Override DF: Override Kappa:

Automatically Remove Background Outliers

2-Tailed Test Mode...

Show Deselected Data Lighter

Non-Parametric Limit = Highest Background Value

Non-Parametric Limit when 100% Non-Detects:

Highest/Second Highest Background Value

Most Recent PQL if available, or MDL

Most Recent Background Value (subst. method)

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- Use Modified Alpha...
- 2-Tailed Test Mode...
- Combine Background Wells on Mann-Whitney...

Outlier Tests

- EPA 1989 Outlier Screening (fixed alpha of 0.05)
- Dixon's at $\alpha=$ or if $n >$ Rosner's at $\alpha=$ Use EPA Screening to establish Suspected Outliers
- Tukey's Outlier Screening, with IQR Multiplier = Use Ladder of Powers to achieve Best W Stat
- Test For Normality at Alpha =
 - Stop if Non-Normal
 - Continue with Parametric Test if Non-Normal
 - Tukey's if Non-Normal, with IQR Multiplier = Use Ladder of Powers to achieve Best W Stat
- No Outlier If Less Than Times Median
- Apply Rules found in Ohio Guidance Document 0715
- Combine Background Wells on the Outlier Report...

Piper, Stiff Diagram

- Combine Wells
- Combine Dates
- Use Default Constituent Names
- Use Constituent Definition File
- Label Constituents
- Label Axes
- Note Cation-Anion Balance (Piper only)

APPENDIX E.3

Spring 2022 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

September 28, 2022

**To: Sibley Generating Station
33200 E Johnson Road
Sibley, Missouri 64088
Evergy Missouri West, Inc.**



From: SCS Engineers

**RE: Determination of Statistically Significant Increases - CCR Landfill
Spring 2022 Semiannual Detection Monitoring 40 CFR 257.94**

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Sibley Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated October 12, 2017. Detection monitoring groundwater samples were collected on May 12, 2022. Review and validation of the results from the May 2022 Detection Monitoring Event was completed on July 1, 2022, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on July 15, 2022 and August 18, 2022.

The completed statistical evaluation identified two Appendix III constituents above their prediction limits established for monitoring well MW-506.

Monitoring Well Constituent	*UPL	Observation May 12, 2022	1st Verification July 15, 2022	2nd Verification August 18, 2022
MW-506				
Chloride	7.578	8.39	8.5	12.5/8.54**
Sulfate	76.83	99	102	95.5

*UPL – Upper Prediction Limit

**Duplicate Sample Result

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified two SSIs above the background prediction limits. These include chloride and sulfate at monitoring well MW-506.

Attached to this memorandum are the following backup information:

Attachment 1: Sanitas™ Output:

Statistical evaluation output from Sanitas™ for the prediction limit analysis. This includes prediction limit plots, prediction limit background data, detection sample results, 1st verification re-sample results (when applicable), 2nd verification re-sample results

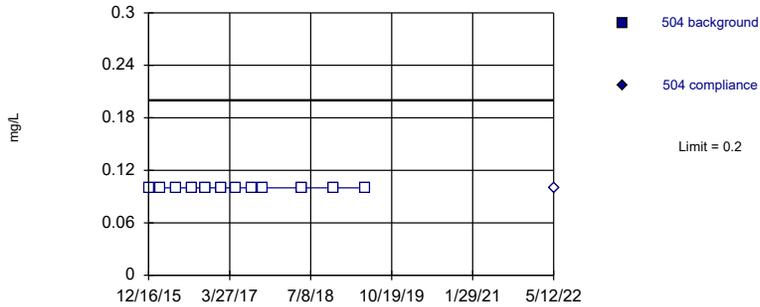
Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
September 28, 2022

ATTACHMENT 1

Sanitas™ Output

Within Limit

Prediction Limit Intrawell Non-parametric

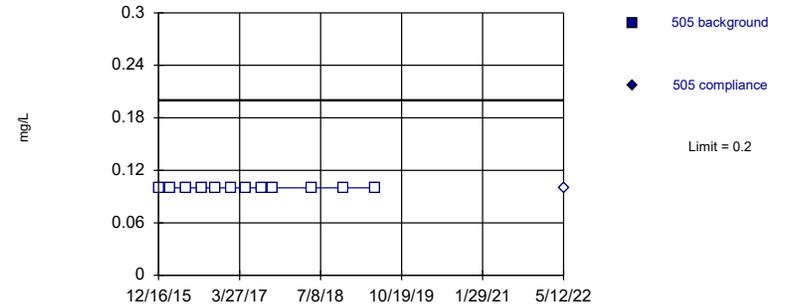


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

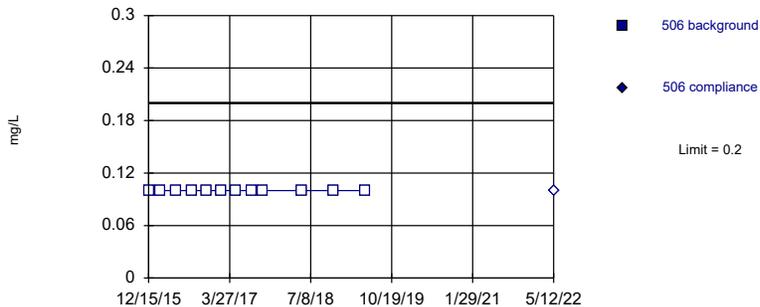


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Non-parametric

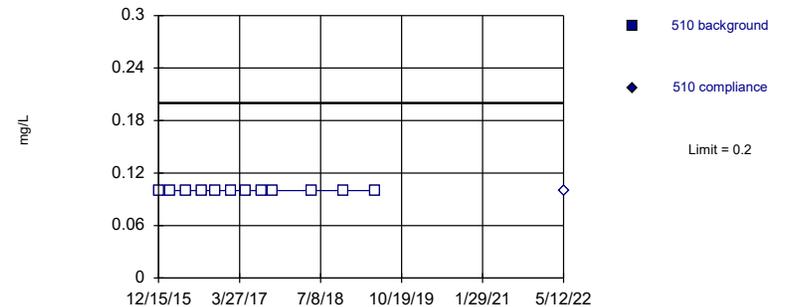


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

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 = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

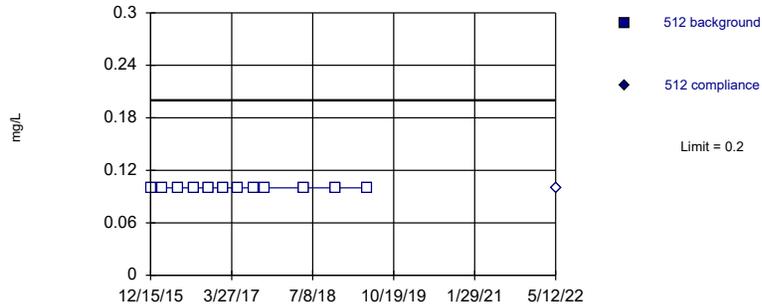
Prediction Limit

Constituent: Boron Analysis Run 9/6/2022 6:14 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					<0.2		<0.2	
12/16/2015	<0.2		<0.2					
2/18/2016	<0.2		<0.2		<0.2		<0.2	
5/25/2016	<0.2		<0.2		<0.2		<0.2	
8/23/2016	<0.2		<0.2		<0.2		<0.2	
11/10/2016							<0.2	
11/11/2016	<0.2		<0.2		<0.2			
2/8/2017	<0.2		<0.2		<0.2		<0.2	
5/3/2017							<0.2	
5/4/2017	<0.2		<0.2		<0.2			
8/1/2017	<0.2		<0.2				<0.2	
8/4/2017					<0.2			
10/3/2017	<0.2		<0.2		<0.2		<0.2	
5/17/2018	<0.2		<0.2		<0.2		<0.2	
11/15/2018	<0.2		<0.2		<0.2		<0.2	
5/22/2019	<0.2		<0.2		<0.2		<0.2	
5/12/2022		<0.2		<0.2		<0.2		<0.2

Within Limit

Prediction Limit
Intrawell Non-parametric

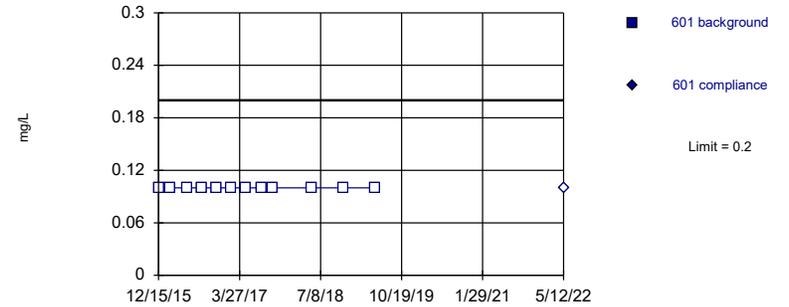


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

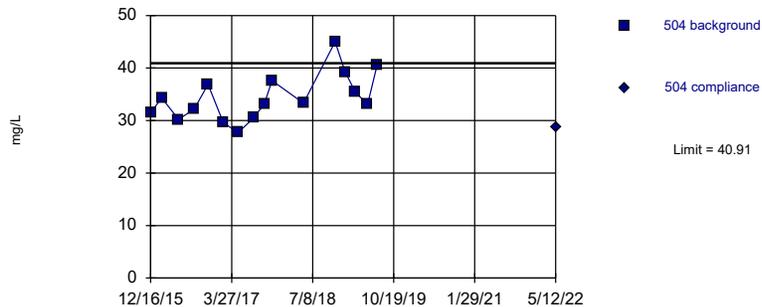


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Boron Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=34.4, Std. Dev.=4.551, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=25.96, Std. Dev.=2.346, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9775, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

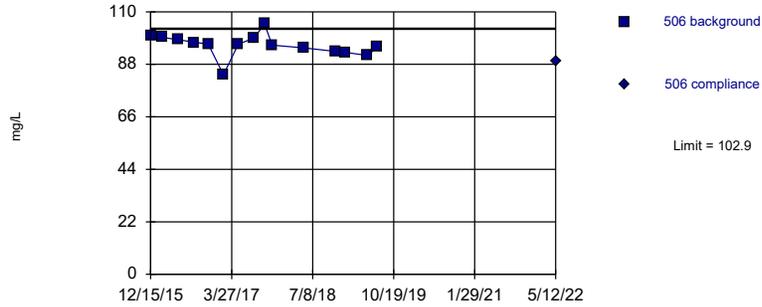
Constituent: Calcium Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron, Calcium Analysis Run 9/6/2022 6:14 PM View: LF III
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	<0.2		<0.2					
12/16/2015					31.5		28	
2/18/2016	<0.2		<0.2		34.3		25.4	
5/25/2016	<0.2				30.2		24.6	
5/26/2016			<0.2					
8/23/2016	<0.2		<0.2		32.2		25.7	
11/11/2016	<0.2		<0.2		36.9		21.6	
2/8/2017	<0.2		<0.2		29.6		23.5	
5/3/2017	<0.2		<0.2					
5/4/2017					27.7		23.2	
8/1/2017	<0.2		<0.2		30.5		25.1	
10/3/2017	<0.2		<0.2		33.2		26.6	
11/16/2017					37.6		26	
5/17/2018	<0.2		<0.2		33.3		28.2	
6/27/2018							25.8	
11/15/2018	<0.2		<0.2		45		30.8	
1/11/2019					39.3		29.5	
3/12/2019					35.4		24.9	
5/22/2019	<0.2		<0.2		33.1		26.4	
7/16/2019					40.6			
5/12/2022		<0.2		<0.2		28.7		28.9

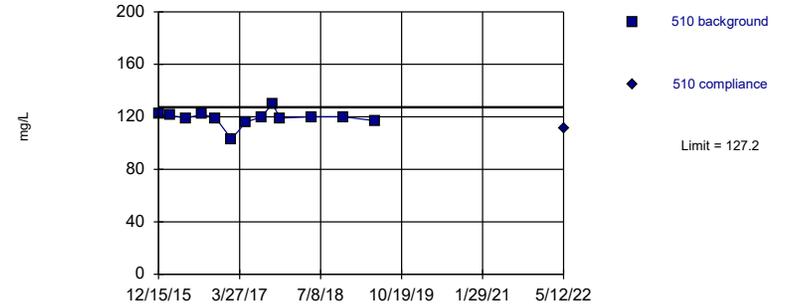
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=95.97, Std. Dev.=4.734, n=15. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9252, critical = 0.835. Kappa = 1.458 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary (based on cube transformation): Mean=1699613, Std. Dev.=238011, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8274, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

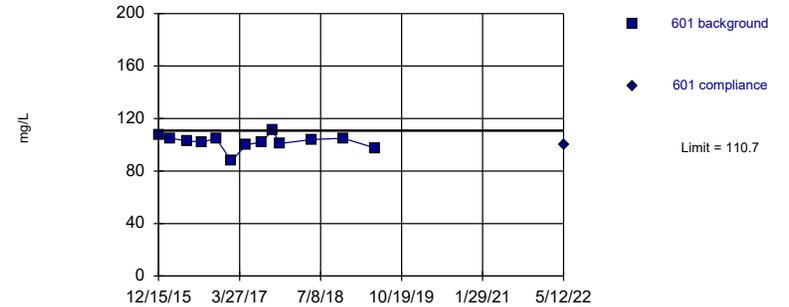
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=102.6, Std. Dev.=6.094, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.892, critical = 0.844. Kappa = 1.43 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=102.3, Std. Dev.=5.577, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8789, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

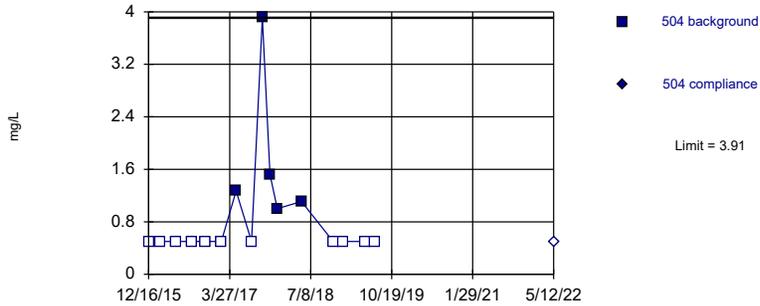
Prediction Limit

Constituent: Calcium Analysis Run 9/6/2022 6:14 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	100		122		98.1		107	
2/18/2016	99.3		121		100		105	
5/25/2016	98.3		119		98.9			
5/26/2016							103	
8/23/2016	97.2		122		103		102	
11/10/2016			119					
11/11/2016	96.5				100		105	
2/8/2017	83.6		103		86.4		87.5	
5/3/2017			116		98.4		100	
5/4/2017	96.4							
8/1/2017			120		102		102	
8/4/2017	99							
10/3/2017	105		130		110		111	
11/16/2017	96		119		101		101	
5/17/2018	94.9		120		104		104	
11/15/2018	93.4		120		110		105	
1/11/2019	93				110			
3/12/2019					108			
5/22/2019	91.7		117		104		97.4	
7/16/2019	95.3				108			
5/12/2022		89.4		111		111		100

Within Limit

Prediction Limit
Intrawell Non-parametric

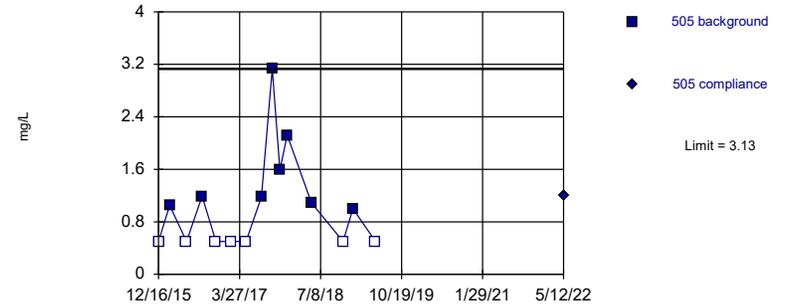


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 68.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Non-parametric

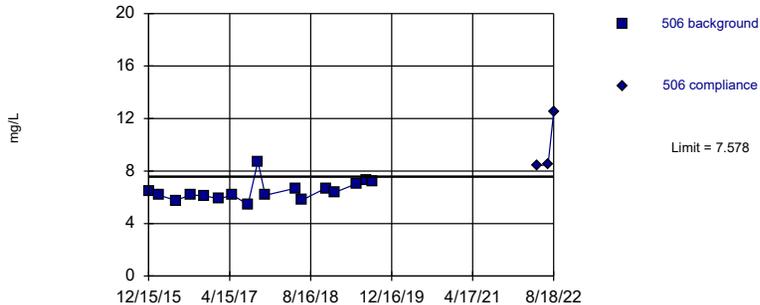


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. 46.67% NDs. Well-constituent pair annual alpha = 0.002624. Individual comparison alpha = 0.001313 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Exceeds Limit

Prediction Limit
Intrawell Parametric

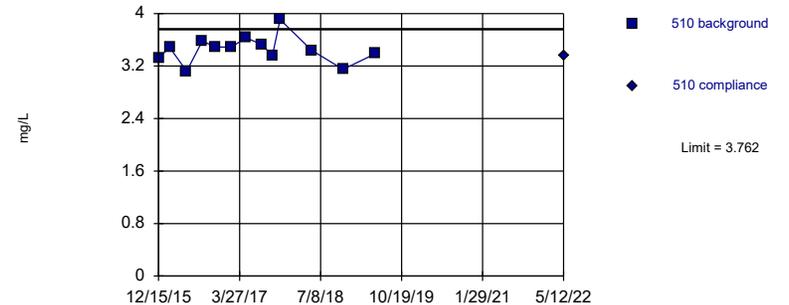


Background Data Summary: Mean=6.479, Std. Dev.=0.7774, n=17. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8712, critical = 0.851. Kappa = 1.413 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=3.454, Std. Dev.=0.2034, n=13. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.814. Kappa = 1.514 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

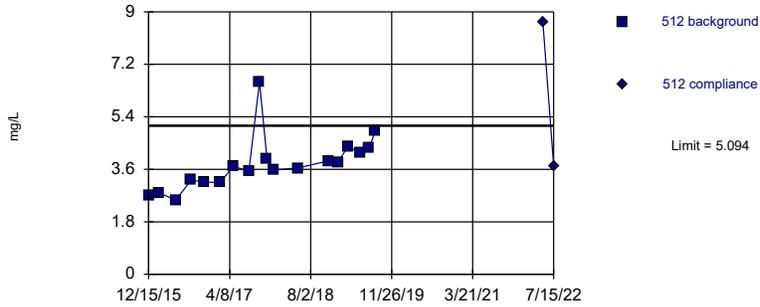
Constituent: Chloride Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride Analysis Run 9/6/2022 6:14 PM View: LF III
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					6.45		3.33	
12/16/2015	<1		<1					
2/18/2016	<1		1.05		6.15		3.48	
5/25/2016	<1		<1		5.76		3.12	
8/23/2016	<1		1.19		6.16		3.58	
11/10/2016							3.49	
11/11/2016	<1		<1		6.13			
2/8/2017	<1		<1		5.89		3.49	
5/3/2017							3.63	
5/4/2017	1.27		<1		6.15			
8/1/2017	<1		1.18				3.53	
8/4/2017					5.45			
10/3/2017	3.91		3.13		8.74		3.36	
11/16/2017	1.52		1.59		6.15		3.91	
12/28/2017	1		2.12					
5/17/2018	1.11		1.09		6.69		3.44	
6/27/2018					5.8			
11/15/2018	<1		<1		6.69		3.15	
1/11/2019	<1		1		6.39			
5/22/2019	<1		<1		7.05		3.39	
7/16/2019	<1				7.33			
8/21/2019					7.17			
5/12/2022		<1		1.2		8.39		3.35
7/15/2022						8.5	1st Verification	
8/18/2022						12.5	2nd Verification	

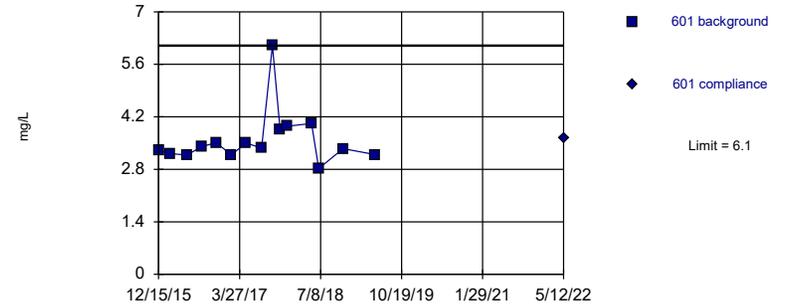
Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=3.786, Std. Dev.=0.9366, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8846, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

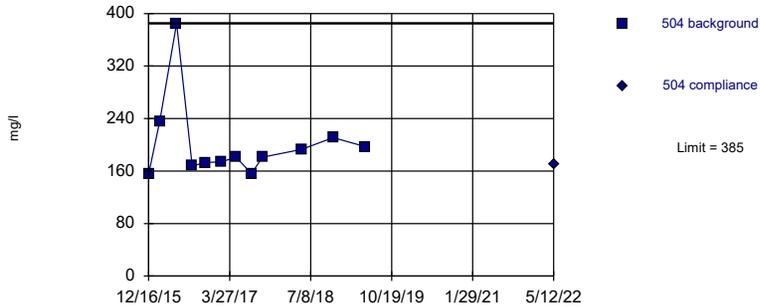
Within Limit Prediction Limit
Intrawell Non-parametric



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 15 background values. Well-constituent pair annual alpha = 0.002624. Individual comparison alpha = 0.001313 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chloride Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

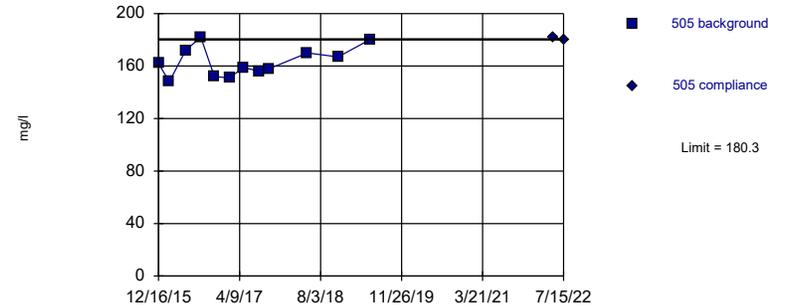
Within Limit Prediction Limit
Intrawell Non-parametric



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 12 background values. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Dissolved Solids Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit Prediction Limit
Intrawell Parametric



Background Data Summary: Mean=163.1, Std. Dev.=11.19, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9461, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/6/2022 6:10 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride, Dissolved Solids Analysis Run 9/6/2022 6:14 PM View: LF III
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	2.72		3.3					
12/16/2015					155		162	
2/18/2016	2.78		3.22		236		148	
5/25/2016	2.55				385		172	
5/26/2016			3.18					
8/23/2016	3.23		3.41		168		182	
11/11/2016	3.17		3.51		173		152	
2/8/2017	3.14		3.19		174		151	
5/3/2017	3.7		3.5					
5/4/2017					181		159	
8/1/2017	3.53		3.37		156		156	
10/3/2017	6.59		6.1		181		158	
11/16/2017	3.97		3.87					
12/28/2017	3.58		3.95					
5/17/2018	3.64		4.02		193		170	
6/27/2018			2.82					
11/15/2018	3.89		3.35		211		167	
1/11/2019	3.85							
3/12/2019	4.38							
5/22/2019	4.17		3.19		197		180	
7/16/2019	4.35							
8/21/2019	4.91							
5/12/2022		8.66		3.64		171		182
7/15/2022		3.71	1st Verification				180	1st Verification

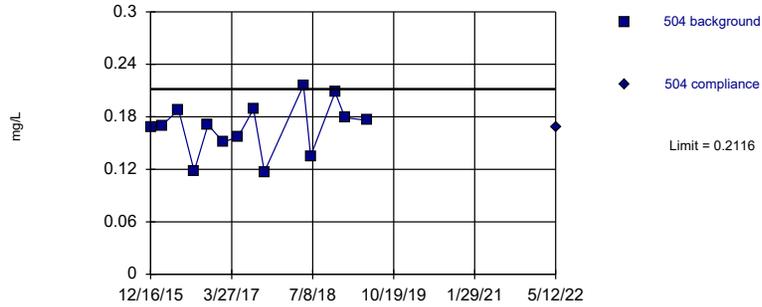
Prediction Limit

Constituent: Dissolved Solids Analysis Run 9/6/2022 6:14 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	475		489		425		387	
2/18/2016	423		446		366		380	
5/25/2016	133		451		467			
5/26/2016							461	
8/23/2016	459		472		422		401	
11/10/2016			468					
11/11/2016	477				443		423	
2/8/2017	451		462		404		396	
5/3/2017			486		436		406	
5/4/2017	462							
8/1/2017			456		414		393	
8/4/2017	480							
10/3/2017	450		485		423		397	
5/17/2018	442		494		419		431	
11/15/2018	426		478		452		397	
5/22/2019	453		480		445		404	
5/12/2022		463		475		548		394
7/15/2022					394	1st Verification		

Within Limit

Prediction Limit Intrawell Parametric

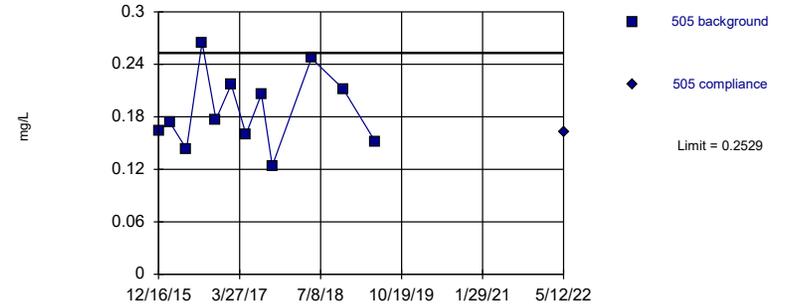


Background Data Summary: Mean=0.1674, Std. Dev.=0.02979, n=14. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.825. Kappa = 1.486 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Parametric

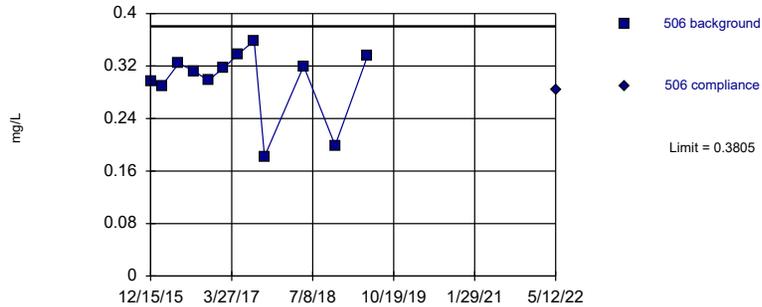


Background Data Summary: Mean=0.1867, Std. Dev.=0.04296, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9585, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit Intrawell Parametric



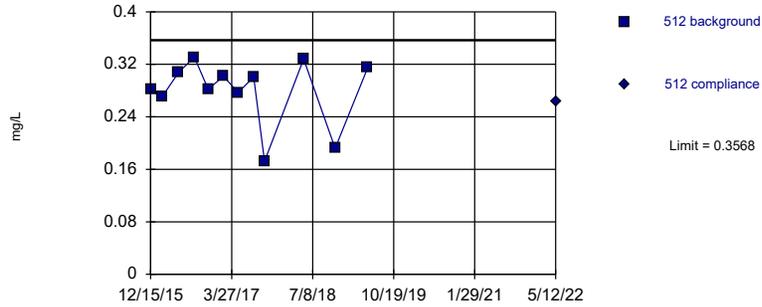
Prediction Limit

Constituent: Fluoride Analysis Run 9/6/2022 6:14 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					0.296		0.296	
12/16/2015	0.168		0.164					
2/18/2016	0.17		0.174		0.29		0.282	
5/25/2016	0.188		0.143		0.324		0.273	
8/23/2016	0.118		0.265		0.312		0.311	
11/10/2016							0.296	
11/11/2016	0.171		0.177		0.298			
2/8/2017	0.151		0.217		0.317		0.32	
5/3/2017							0.29	
5/4/2017	0.157		0.16		0.338			
8/1/2017	0.189		0.206				0.315	
8/4/2017					0.359			
10/3/2017	0.117		0.124		0.182		0.271	
5/17/2018	0.216		0.247		0.32		0.348	
6/27/2018	0.135						0.282	
11/15/2018	0.208		0.212		0.199		0.204	
1/11/2019	0.179							
5/22/2019	0.176		0.151		0.336		0.326	
5/12/2022		0.168		0.162		0.284		0.285

Within Limit

Prediction Limit
Intrawell Parametric

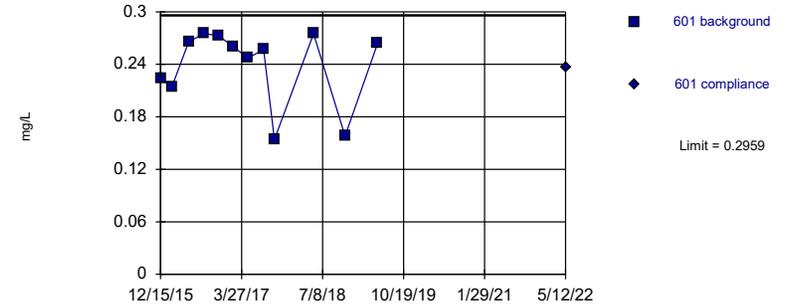


Background Data Summary: Mean=0.2799, Std. Dev.=0.04987, n=12. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8252, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limit

Prediction Limit
Intrawell Parametric

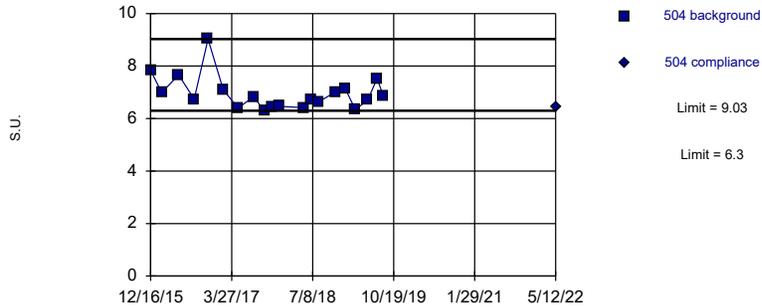


Background Data Summary (based on square transformation): Mean=0.0588, Std. Dev.=0.01866, n=12. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8225, critical = 0.805. Kappa = 1.542 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limits

Prediction Limit
Intrawell Non-parametric

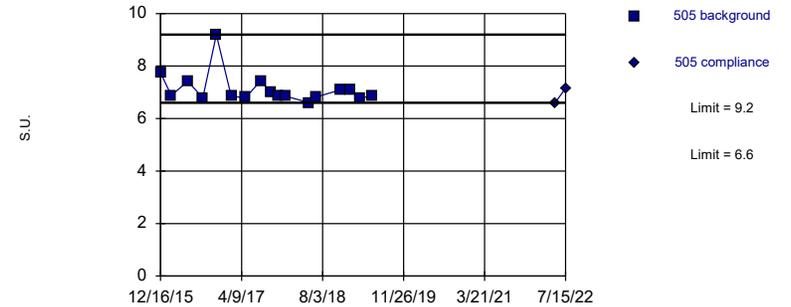


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 20 background values. Well-constituent pair annual alpha = 0.00225. Individual comparison alpha = 0.001125 (1 of 3). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limits

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. Limits are highest and lowest of 17 background values. Well-constituent pair annual alpha = 0.003639. Individual comparison alpha = 0.00182 (1 of 3). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

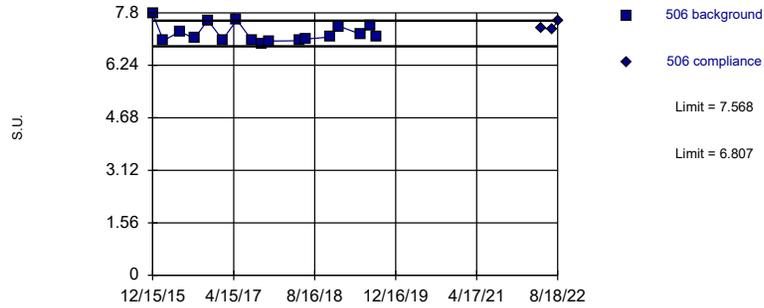
Prediction Limit

Constituent: Fluoride, pH Analysis Run 9/6/2022 6:14 PM View: LF III
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	512	512	601	601	504	504	505	505
12/15/2015	0.281		0.224					
12/16/2015					7.83		7.74	
2/18/2016	0.27		0.214		6.99		6.88	
5/25/2016	0.308				7.66		7.42	
5/26/2016			0.266					
8/23/2016	0.331		0.275		6.74		6.79	
11/11/2016	0.282		0.273		9.03		9.2	
2/8/2017	0.302		0.26		7.09		6.84	
5/3/2017	0.277		0.247					
5/4/2017					6.4		6.8	
8/1/2017	0.301		0.257		6.83		7.44	
10/3/2017	0.172		0.154		6.3		6.98	
11/16/2017					6.45		6.84	
12/28/2017					6.47		6.85	
5/17/2018	0.328		0.275		6.41		6.6	
6/27/2018					6.7		6.82	
8/8/2018					6.62			
11/15/2018	0.192		0.158		7.01		7.09	
1/11/2019					7.15		7.08	
3/12/2019					6.34		6.78	
5/22/2019	0.315		0.264		6.7		6.85	
7/16/2019					7.53			
8/21/2019					6.85			
5/12/2022		0.264		0.237		6.43		6.58
7/15/2022							7.15	1st Verification

Within Limits

Prediction Limit
Intrawell Parametric

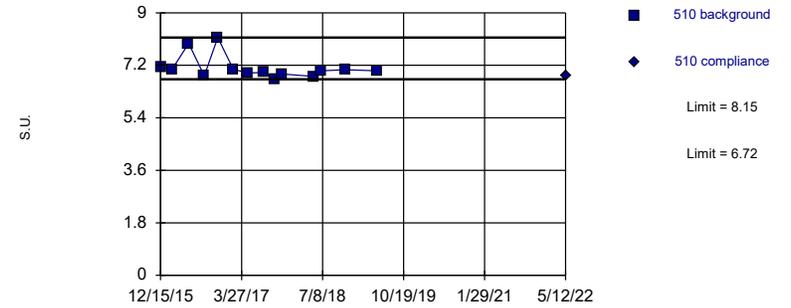


Background Data Summary: Mean=7.188, Std. Dev.=0.2694, n=17. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8664, critical = 0.851. Kappa = 1.413 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limits

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. Limits are highest and lowest of 14 background values. Well-constituent pair annual alpha = 0.006393. Individual comparison alpha = 0.003199 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limits

Prediction Limit
Intrawell Parametric

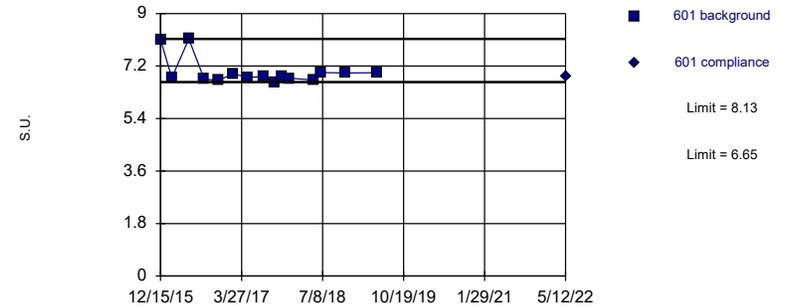


Background Data Summary: Mean=7.071, Std. Dev.=0.2785, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8734, critical = 0.868. Kappa = 1.362 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Within Limits

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. Limits are highest and lowest of 15 background values. Well-constituent pair annual alpha = 0.005248. Individual comparison alpha = 0.002625 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

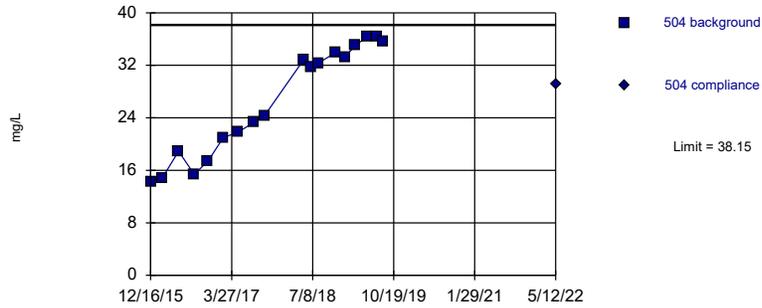
Constituent: pH Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: pH Analysis Run 9/6/2022 6:14 PM View: LF III
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	506	506	510	510	512	512	601	601
12/15/2015	7.78		7.14		7.29		8.11	
2/18/2016	6.97		7.05		7		6.8	
5/25/2016	7.24		7.95		7.18			
5/26/2016							8.13	
8/23/2016	7.04		6.84		6.77		6.75	
11/10/2016			8.15					
11/11/2016	7.58				6.8		6.71	
2/8/2017	7		7.06		7.7		6.93	
5/3/2017			6.94		6.92			
5/4/2017	7.59						6.81	
8/1/2017			6.95		6.97		6.84	
8/4/2017	6.98							
10/3/2017	6.88		6.72		6.79		6.65	
11/16/2017	6.96		6.9		6.92		6.84	
12/28/2017					6.88		6.78	
5/17/2018	6.97		6.82		6.85		6.72	
6/27/2018	7.02		7.01		6.95		6.98	
8/8/2018					6.78			
11/15/2018	7.08		7.05		7.09		6.96	
1/11/2019	7.4				7.34			
3/12/2019					7.23			
5/22/2019	7.16		7.01		7.25		6.97	
7/16/2019	7.43				7.7			
8/21/2019	7.11				7.01			
5/12/2022		7.35		6.83		6.89		6.84
7/15/2022		7.31	Extra Sample					
8/18/2022		7.56	Extra Sample					

Within Limit Prediction Limit
Intrawell Parametric



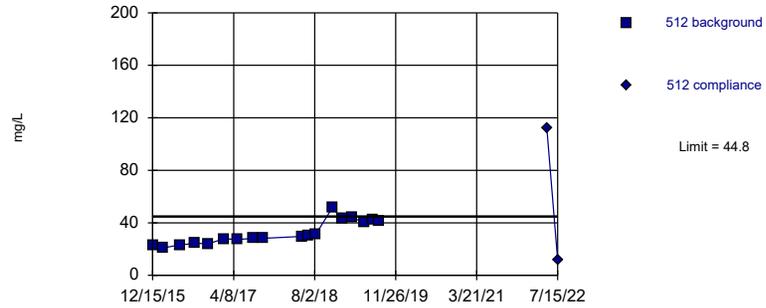
Prediction Limit

Constituent: Sulfate Analysis Run 9/6/2022 6:14 PM View: LF III
 Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	504	504	505	505	506	506	510	510
12/15/2015					64.8		14.7	
12/16/2015	14.3		29.2					
2/18/2016	14.7		16		65.6		12	
5/25/2016	18.9		21.9		71		18.1	
8/23/2016	15.4		9.73		65.8		12.7	
11/10/2016							16	
11/11/2016	17.4		15.9		65			
2/8/2017	21		14.9		76.5		16.1	
5/3/2017							15	
5/4/2017	21.8		19.2		69.2			
8/1/2017	23.3		14.4				16.8	
8/4/2017					73.3			
10/3/2017	24.3		13.4		71.3		16.9	
5/17/2018	32.8		14		75.7		17.3	
6/27/2018	31.8							
8/8/2018	32.3							
11/15/2018	33.9		14.6		70.8		17.5	
1/11/2019	33.2		13.8		67.3			
3/12/2019	35.1							
5/22/2019	36.3		22.7		74.2		13.8	
7/16/2019	36.3				76.1			
8/21/2019	35.6							
5/12/2022		29.1		27.2		99		15
7/15/2022				14 1st Verification		102 1st Verification		
8/18/2022						95.5 2nd Verification		

Within Limit

Prediction Limit
Intrawell Parametric

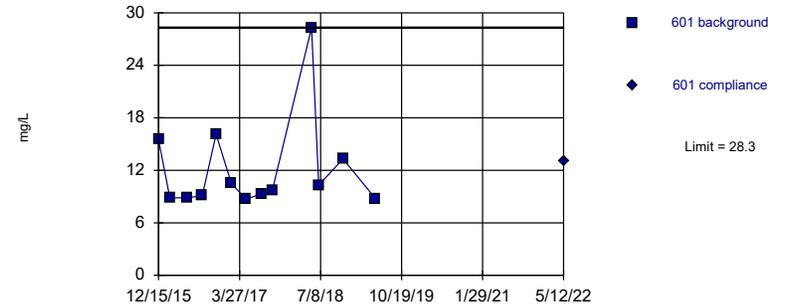


Background Data Summary: Mean=32.21, Std. Dev.=9.019, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8926, critical = 0.858. Kappa = 1.396 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

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 13 background values. Well-constituent pair annual alpha = 0.003769. Individual comparison alpha = 0.001886 (1 of 3). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: Sulfate Analysis Run 9/6/2022 6:11 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 9/6/2022 6:14 PM View: LF III
Sibley Generating Station UWL Client: SCS Engineers Data: Sibley

	512	512	601	601
12/15/2015	23		15.5	
2/18/2016	21		8.87	
5/25/2016	23.1			
5/26/2016			8.85	
8/23/2016	24.4		9.11	
11/11/2016	24		16.1	
2/8/2017	27.8		10.5	
5/3/2017	27.3		8.71	
8/1/2017	28.1		9.33	
10/3/2017	28.2		9.76	
5/17/2018	29.6		28.3	
6/27/2018	30.3		10.3	
8/8/2018	30.9			
11/15/2018	51.4		13.3	
1/11/2019	43.3			
3/12/2019	44.2			
5/22/2019	40.1		8.74	
7/16/2019	42.1			
8/21/2019	41			
5/12/2022		112		13.1
7/15/2022		11.7		

Prediction Limit

Sibley Generating Station UWL Client: SCS Engineers Data: Sibley Printed 9/6/2022, 6:14 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>
Boron (mg/L)	504	0.2	n/a	5/12/2022	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	505	0.2	n/a	5/12/2022	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	506	0.2	n/a	5/12/2022	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	510	0.2	n/a	5/12/2022	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	512	0.2	n/a	5/12/2022	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	601	0.2	n/a	5/12/2022	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Calcium (mg/L)	504	40.91	n/a	5/12/2022	28.7	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	505	29.31	n/a	5/12/2022	28.9	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	506	102.9	n/a	5/12/2022	89.4	No	15	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	510	127.2	n/a	5/12/2022	111	No	13	0	x^3	0.00188	Param Intra 1 of 3
Calcium (mg/L)	512	111.3	n/a	5/12/2022	111	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	601	110.7	n/a	5/12/2022	100	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	504	3.91	n/a	5/12/2022	0.5ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Chloride (mg/L)	505	3.13	n/a	5/12/2022	1.2	No	15	46.67	n/a	0.001313	NP Intra (normality) ...
Chloride (mg/L)	506	7.578	n/a	8/18/2022	12.5	Yes	17	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	510	3.762	n/a	5/12/2022	3.35	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	512	5.094	n/a	7/15/2022	3.71	No	18	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	601	6.1	n/a	5/12/2022	3.64	No	15	0	n/a	0.001313	NP Intra (normality) ...
Dissolved Solids (mg/l)	504	385	n/a	5/12/2022	171	No	12	0	n/a	0.002173	NP Intra (normality) ...
Dissolved Solids (mg/l)	505	180.3	n/a	7/15/2022	180	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	506	491.2	n/a	5/12/2022	463	No	12	0	x^5	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	510	496.5	n/a	5/12/2022	475	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	512	466.4	n/a	7/15/2022	394	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	601	440.6	n/a	5/12/2022	394	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	504	0.2116	n/a	5/12/2022	0.168	No	14	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	505	0.2529	n/a	5/12/2022	0.162	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	506	0.3805	n/a	5/12/2022	0.284	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	510	0.3464	n/a	5/12/2022	0.285	No	13	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	512	0.3568	n/a	5/12/2022	0.264	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	601	0.2959	n/a	5/12/2022	0.237	No	12	0	x^2	0.00188	Param Intra 1 of 3
pH (S.U.)	504	9.03	6.3	5/12/2022	6.43	No	20	0	n/a	0.001125	NP Intra (normality) ...
pH (S.U.)	505	9.2	6.6	7/15/2022	7.15	No	17	0	n/a	0.00182	NP Intra (normality) ...
pH (S.U.)	506	7.568	6.807	8/18/2022	7.56	No	17	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	510	8.15	6.72	5/12/2022	6.83	No	14	0	n/a	0.003199	NP Intra (normality) ...
pH (S.U.)	512	7.45	6.692	5/12/2022	6.89	No	20	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	601	8.13	6.65	5/12/2022	6.84	No	15	0	n/a	0.002625	NP Intra (normality) ...
Sulfate (mg/L)	504	38.15	n/a	5/12/2022	29.1	No	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	505	24.65	n/a	7/15/2022	14	No	13	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	506	76.83	n/a	8/18/2022	95.5	Yes	14	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	510	18.59	n/a	5/12/2022	15	No	12	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	512	44.8	n/a	7/15/2022	11.7	No	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	601	28.3	n/a	5/12/2022	13.1	No	13	0	n/a	0.001886	NP Intra (normality) ...

Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
September 28, 2022

ATTACHMENT 2

Sanitas™ Configuration Settings

Exclude data flags:

Data Reading Options

- Individual Observations
- Mean of Each: Month
- Median of Each: Season

Automatically Process Resamples...

- Black and White Output
- Four Plots Per Page
 - Always Combine Data Pages...
 - Include Tick Marks on Data Page
 - Use Constituent Name for Graph Title
- Draw Border Around Text Reports and Data Pages
- Enlarge/Reduce Fonts (Graphs):
- Enlarge/Reduce Fonts (Data/Text Reports):
- Wide Margins (on reports without explicit setting)
- Use CAS# (Not Const. Name)
- Truncate File Names to Characters
- Include Limit Lines when found in Database...
- Show Deselected Data on Time Series ▾
- Show Deselected Data on all Data Pages ▾

- Prompt to Overwrite/Append Summary Tables
- Round Limits to Sig. Digits (when not set in data file)
- User-Set Scale
- Indicate Background Data
- Show Exact Dates
- Thick Plot Lines

Zoom Factor: ▾

- Output Decimal Precision
- Less Precision
 - Normal Precision
 - More Precision

Store Print Jobs in Multiple Constituent Mode

Printer: ▾

Use Modified Alpha... 0.02

Test Residuals For Normality (Parametric test only) using Shapiro-Wilk/Francia at Alpha = 0.01

Continue Parametric if Unable to Normalize

Transformation (Parametric test only)

- Use Ladder of Powers
- Natural Log or No Transformation
- Never Transform
- Use Specific Transformation:

[Dropdown menu]

- Use Best W Statistic
- Plot Transformed Values

Use Non-Parametric Test (Sen's Slope/Mann-Kendall) when Non-Detects Percent > 75

Include 95% Confidence Interval around Trend Line

Automatically Remove Outliers (Parametric test only)

Note: there is no "Always Use Non-Parametric" checkbox on this tab because, for consistency with prior versions, Sen's Slope / Mann-Kendall (the non-parametric alternative) is available as a report in its own right, under Analysis->Intrawell->Trend.

Test for Normality using Shapiro-Wilk/Francia at Alpha = 0.01

Use Non-Parametric Test when Non-Detects Percent > 50

Use Aitchison's Adjustment when Non-Detects Percent > 15

Optional Further Refinement: Use Aitchison's when NDs % > 50

Use Poisson Prediction Limit when Non-Detects Percent > 90

Transformation

Use Ladder of Powers

Natural Log or No Transformation

Never Transform

Use Specific Transformation: Natural Log

Use Best W Statistic

Plot Transformed Values

Deseasonalize (Intra- and InterWell)

If Seasonality Is Detected

If Seasonality Is Detected Or Insufficient to Test

Always (When Sufficient Data) Never

Always Use Non-Parametric

Facility

Statistical Evaluations per Year:

Constituents Analyzed:

Downgradient (Compliance) Wells:

Sampling Plan

Comparing Individual Observations

1 of 1 1 of 2 1 of 3 1 of 4

2 of 4 ("Modified California")

IntraWell Other

Stop if Background Trend Detected at Alpha = 0.05

Plot Background Data

Override Standard Deviation:

Override DF: Override Kappa:

Automatically Remove Background Outliers

2-Tailed Test Mode...

Show Deselected Data Lighter

Non-Parametric Limit = Highest Background Value

Non-Parametric Limit when 100% Non-Detects:

Highest/Second Highest Background Value

Most Recent PQL if available, or MDL

Most Recent Background Value (subst. method)

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- Use Modified Alpha...
- 2-Tailed Test Mode...
- Combine Background Wells on Mann-Whitney...

Outlier Tests

- EPA 1989 Outlier Screening (fixed alpha of 0.05)
- Dixon's at $\alpha=$ or if $n >$ Rosner's at $\alpha=$ Use EPA Screening to establish Suspected Outliers
- Tukey's Outlier Screening, with IQR Multiplier = Use Ladder of Powers to achieve Best W Stat
- Test For Normality using Shapiro-Wilk/Francia at Alpha =
 - Stop if Non-Normal
 - Continue with Parametric Test if Non-Normal
 - Tukey's if Non-Normal, with IQR Multiplier = Use Ladder of Powers to achieve Best W Stat
- No Outlier If Less Than Times Median
- Apply Rules found in Ohio Guidance Document 0715
- Combine Background Wells on the Outlier Report...

Piper, Stiff Diagram

- Combine Wells Label Constituents
- Combine Dates Label Axes
- Use Default Constituent Names Note Cation-Anion Balance (Piper only)
- Use Constituent Definition File