2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CCR LANDFILL
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

Presented To:
Evergy Missouri West, Inc.

SCS ENGINEERS

27213169.20 | January 2021
Revision 1, April 2021
Revision 2, December 16, 2022

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

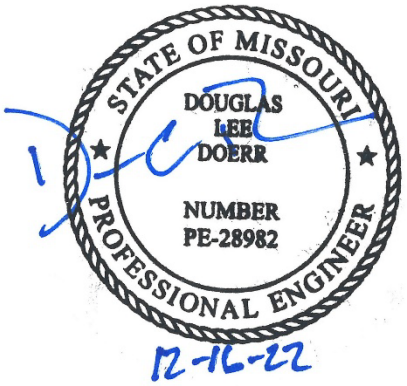
CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2020 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 2020 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

Revision Number	Revision Date	Revision Sections	Summary of Revisions
0	January 2021	NA	Original
1	April 7, 2021	Table of Contents Appendix A	Addition of Potentiometric Surface Maps to Appendix A
2	December 16, 2022	Addendum 1	Added Addendum 1

Table of Contents

Appendices

1 INTRODUCTION

This 2020 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 2020 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, 2020), 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, 2020), 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 2019	MW-512	Sulfate	Successful
Spring 2020	MW-505	Calcium	Successful
Spring 2020	MW-512	Chloride	Successful
Spring 2020	MW-512	Total Dissolved Solids	Successful
Spring 2020	MW-506	Sulfate	Successful

Monitoring Event	Monitoring Well	Constituent	ASD
Spring 2020	MW-512	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 2020.

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 (2020). Samples collected in 2020 were collected and analyzed for Appendix III detection monitoring constituents. Additionally, Appendix IV constituents were analyzed with the spring event for potential future updating of background data in conformance with EPA Unified Guidance and industry standards. Results of the sampling events are provided in **Appendix B**, **Table 1** (Appendix III with Supplemental Appendix IV Detection Monitoring Results), and **Table 2** (Detection Monitoring Field Measurements). These tables include Fall 2019 semiannual detection monitoring event verification sample data collected and analyzed in 2020; Spring 2020 semiannual detection monitoring data, verification sample data, and supplementary

Appendix IV sample data; and, the initial Fall 2020 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 2020. Only detection monitoring was conducted in 2020.

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 2019 verification sampling and analyses per the certified statistical method,

b. completion of the statistical evaluation of the Fall 2019 semiannual detection monitoring sampling and analysis event per the certified statistical method,

c. completion of the 2019 Annual Groundwater Monitoring and Corrective Action Report,

d. completion of a successful alternative source demonstration for the Fall 2019 semiannual detection monitoring sampling and analysis event,

e. completion of the Spring 2020 semiannual detection monitoring sampling and analysis event with subsequent verification sampling per the certified statistical method, and supplemental Appendix IV sample analysis,

f. completion of the statistical evaluation of the Spring 2020 semiannual detection monitoring sampling and analysis event per the certified statistical method,

g. completion of a successful alternative source demonstration for the Spring 2020 semiannual detection monitoring sampling and analysis event, and

h. initiation of the Fall 2020 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 (2021).

Completion of verification sampling and data analysis, and the statistical evaluation of Fall 2020 detection monitoring sampling and analysis event. Semiannual Spring and Fall 2021 groundwater sampling and analysis. Completion of the statistical evaluation of the Spring 2021 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 2019 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (June 2020).

C.2 CCR Groundwater Monitoring Alternative Source Demonstration Report May 2020 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (December 2020).

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 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 2020)

Figure 3: Potentiometric Surface Map (November 2020)

LEGEND:

- 601 — CCR GROUNDWATER MONITORING SYSTEM WELLS
- UTILITY WASTE LANDFILL UNIT BOUNDARY
- PERMITTED LANDFILL EXPANSION AERA

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. APRIL 2020.
3. BOUNDARY AND MONITORING WELL LOCATIONS SHOWN ARE APPROXIMATE.

200 0 200 400
SCALE FEET

REV.	DATE
-	-

SHEET TITLE
SITE MAP
CCR LANDFILL
CCR GROUNDWATER MONITORING SYSTEM

PROJECT TITLE
2020 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CLIENT
EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St, Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

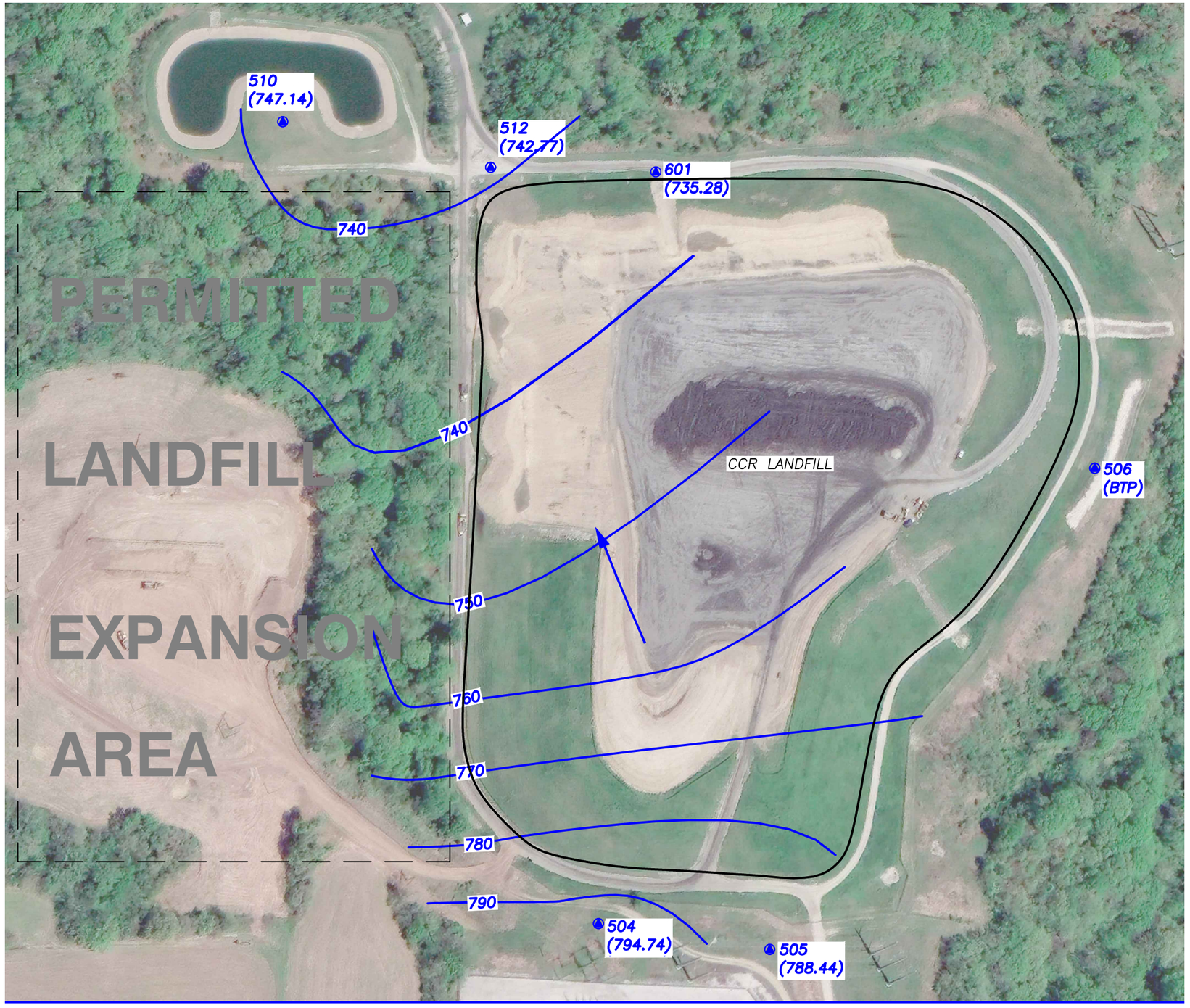
PROJ. NO.	DWN. BY:	Q/A RVW BY:
27213167.20	ALR	JRR
CSM. BY:	CHK. BY:	PROJ. MGR
ALR	JRR	JRF

CADD FILE:
20 - NOVEMBER_GW.DWG

DATE:
1/5/21

FIGURE NO.
1

N:\KCPL\Projects\Groundwater\DWG\Sibley\Annual CCR Reporting\2020\20 - NOVEMBER_GW.dwg Jan 15, 2021 - 1:19pm Layout Name: Fig 2 By: 4415alr



LEGEND:

- 760 — GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- 601 (734.55) — GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
- CCR 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. APRIL 2020.
3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.

200 0 200 400
SCALE FEET

REV.	DATE
-	-

SHEET TITLE: POTENTIOMETRIC SURFACE MAP (MAY 2020) CCR LANDFILL

PROJECT TITLE: SIBLEY GROUNDWATER 2020

CLIENT: EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St, Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

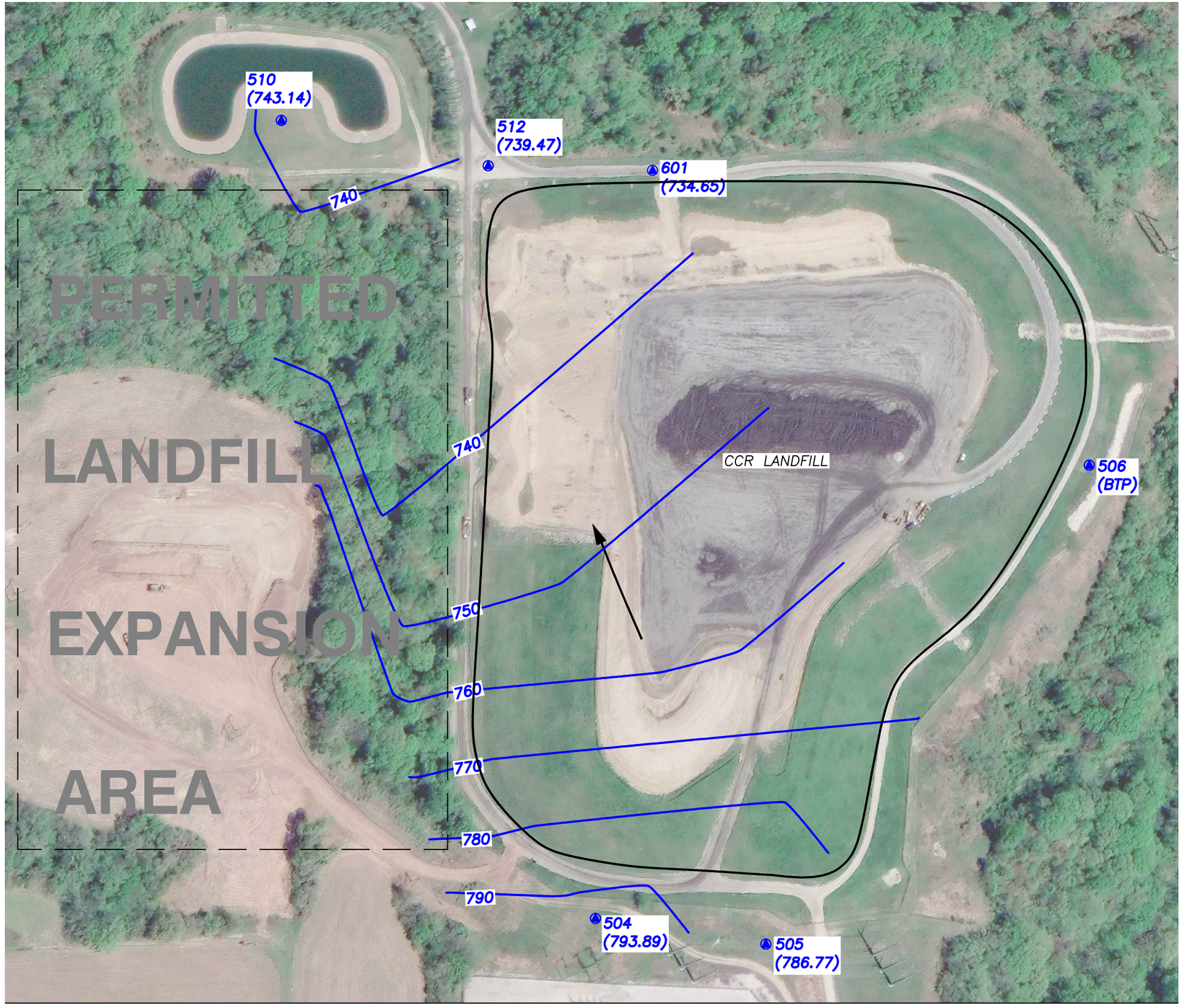
PROJ. NO. 27213167.20	DWN. BY: MBJ	Q/A RVW BY: JRR	
CSM. BY: TGW	CHK. BY: JRR	PROJ. MGR: JRF	

CADD FILE: 20 - MAY_GW V1.DWG

DATE: 4/6/21

FIGURE NO. 2

N:\KCPL\Projects\Groundwater\DWG\Sibley\2020\GW\20 - MAY_GW V1.dwg Apr 06, 2021 - 12:47pm Layout Name: Fig 2A By: 4415alr



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:

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. APRIL 2020.
3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.

200 0 200 400
SCALE FEET

REV.	DATE
-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP (NOVEMBER 2020) CCR LANDFILL

PROJECT TITLE
SIBLEY GROUNDWATER 2020

CLIENT
EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St, Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

PROJ. NO.	DWN. BY:	CHK. BY:	QA/QC BY:	PROJ. MGR.
27231167.20	MBJ	JRR	JRR	JRF
DSN. BY: TGW				

CADD FILE:
20 - NOVEMBER_GW V1.DWG

DATE:
4/6/21

FIGURE NO.
3

APPENDIX B

TABLES

Table 1: Appendix III with Supplemental Appendix IV Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

Table 1
CCR Landfill
Appendix III with Supplemental Appendix IV Detection Monitoring Results
Evergy Sibley Generating Station

		Appendix III Constituents							Appendix IV Constituents														
Well Number	Sample Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Thallium (mg/L)	Radium Combined (pCi/L)
MW-504	5/18/2020	<0.200	37.2	<1.00	0.182	6.55	34.8	205	<0.00400	<0.00200	0.126	<0.00200	<0.00100	<0.0100	<0.0100	0.182	<0.00500	<0.0150	<0.000200	<0.00500	0.00356	<0.00200	0.469
MW-504	11/11/2020	<0.200	36.3	<1.00	0.172	6.85	33.1	201	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-505	5/18/2020	<0.200	30.5	1.06	0.202	6.26	16.3	179	<0.00400	<0.00200	0.105	<0.00200	<0.00100	<0.0100	<0.0100	0.202	<0.00500	<0.0150	<0.000200	<0.00500	0.00276	<0.00200	0.27
MW-505	7/14/2020	---	*32.4	---	---	*6.79	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-505	8/26/2020	---	*30.3	---	---	**6.96	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-505	11/11/2020	<0.200	29.1	<1.00	0.18	6.75	19.3	175	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-506	5/18/2020	<0.200	92.7	7.11	0.308	6.76	80.0	444	<0.00400	<0.00200	0.221	<0.00200	<0.00100	<0.0180	<0.0180	0.308	<0.00500	<0.0150	<0.000200	<0.00500	0.0175	<0.00200	0.37
MW-506	7/14/2020	---	---	---	---	*7.16	*78.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-506	8/26/2020	---	---	---	---	**7.17	*79.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-506	11/11/2020	<0.200	93.4	7.28	0.303	7.25	87.0	451	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-510	5/18/2020	<0.200	119	3.30	0.293	6.95	12.3	474	<0.00400	<0.00200	0.369	<0.00200	<0.00100	<0.0100	<0.0100	0.293	<0.00500	<0.0150	<0.000200	<0.00500	0.00201	<0.00200	0.198
MW-510	11/11/2020	<0.200	120	3.26	0.290	7.18	13.7	475	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-512	1/13/2020	---	---	---	---	**7.13	*57.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-512	2/3/2020	---	---	---	---	**6.93	*61.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-512	5/18/2020	<0.200	110	7.69	0.286	6.86	71.6	481	<0.00400	<0.00200	0.393	<0.00200	<0.00100	0.0141	<0.0100	0.286	<0.00500	<0.0150	<0.000200	<0.00500	0.00736	<0.00200	1.52
MW-512	7/14/2020	---	---	*8.83	---	**6.94	*77.6	*501	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-512	8/26/2020	---	---	*8.79	---	**7.02	*80.1	*493	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-512	11/11/2020	<0.200	115	9.75	0.265	7.18	92.6	508	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-601	5/18/2020	<0.200	99.6	3.13	0.252	6.77	9.00	396	<0.00400	<0.00200	0.331	<0.00200	<0.00100	<0.0100	<0.0100	0.252	<0.00500	<0.0150	<0.000200	<0.00500	0.00631	<0.00200	3.36
MW-601	11/11/2020	<0.200	100	3.19	0.235	7.12	9.39	397	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* 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 - miligrams per liter
pCi/L - picocuries 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	5/18/2020	6.55	323	14.24	0.0	215	0.00	21.58	794.74
MW-504	11/11/2020	6.85	239	14.36	0.0	170	1.03	22.43	793.89
MW-505	5/18/2020	6.26	276	14.29	0.0	237	0.00	26.53	788.44
MW-505	7/14/2020	*6.79	244	16.61	0.0	93	6.62	27.12	787.85
MW-505	8/26/2020	**6.96	256	27.63	0.0	151	7.72	26.40	788.57
MW-505	11/11/2020	6.75	253	14.70	0.0	178	1.95	28.20	786.77
MW-506	5/18/2020	6.76	715	14.59	0.0	214	0.00	BTP	NA
MW-506	7/14/2020	*7.16	713	19.49	0.0	82	5.82	BTP	NA
MW-506	8/26/2020	**7.17	671	31.59	0.0	97	4.03	BTP	NA
MW-506	11/11/2020	7.25	748	11.22	10.6	-34	5.35	BTP	NA
MW-510	5/18/2020	6.95	879	14.45	4.5	6	0.00	38.65	747.14
MW-510	11/11/2020	7.18	810	14.25	0.0	157	2.39	42.65	743.14
MW-512	1/13/2020	**7.13	782	12.54	7.1	154	2.50	28.99	741.14
MW-512	2/3/2020	**6.93	823	15.19	0.0	214	3.91	26.86	743.27
MW-512	5/18/2020	6.86	789	14.97	0.0	145	0.00	27.36	742.77
MW-512	7/14/2020	**6.94	766	17.50	0.0	242	0.90	28.89	741.24
MW-512	8/26/2020	**7.02	752	23.61	0.0	79	3.16	28.59	741.54
MW-512	11/11/2020	7.18	773	15.20	0.0	130	2.16	30.66	739.47
MW-601	5/18/2020	6.77	695	14.53	0.0	148	0.00	45.62	735.28
MW-601	11/11/2020	7.12	661	14.43	0.0	66	1.28	46.25	734.65

* 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 2019 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (June 2020)

C.2 Groundwater Monitoring Alternative Source Demonstration Report May 2020 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (December 2020)

C.1 Groundwater Monitoring Alternative Source Demonstration Report November 2019 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (June 2020)

CCR GROUNDWATER MONITORING
ALTERNATIVE SOURCE DEMONSTRATION REPORT
NOVEMBER 2019 GROUNDWATER MONITORING EVENT

CCR LANDFILL
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

Presented To:

Evergy Missouri West, Inc.

Presented By:

SCS ENGINEERS

8575 West 110th Street, Suite 100

Overland Park, Kansas 66210

June 2020

File No. 27213169.20

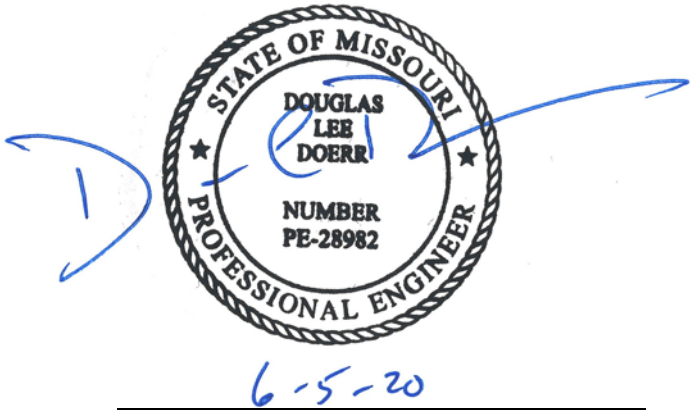
CERTIFICATIONS

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**

Appendices

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 6, 2019. Review and validation of the results from the November 2019 Detection Monitoring Event was completed on December 16, 2019, 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 January 13, 2020 and February 3, 2020.

The completed statistical evaluation identified one Appendix III constituent above the prediction limit established for monitoring well MW-512.

Constituent/Monitoring Well	*UPL	Observation November 6, 2019	1st Verification January 13, 2020	2nd Verification February 3, 2020
Sulfate				
MW-512	44.8	45.0	57.5	61.6

*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 an SSI above the background prediction limit for sulfate in 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 SSI for the CCR Landfill at the Sibley Generating Station, there are multiple lines of supporting evidence to indicate the above SSI was not caused by a release from the CCR Landfill. Select multiple lines of supporting evidence are described as follows.

3.1 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 sulfate in monitoring well MW-512 was compared to box and whisker 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-512 are well within or below expected concentration levels for non-impacted groundwater 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 that has not been impacted by the landfill, and exhibit variability that includes sulfate concentrations similar to those seen at 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 SSI over the background level, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots for sulfate are provided in **Appendix B**.

3.2 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 well MW-504, downgradient MW-512, and landfill leachate is provided in **Appendix C** along with analytical results and indicates the groundwater from these two 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 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.

3.3 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 times series plot for sulfate in monitoring well MW-512 was 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. The sulfate concentrations in both upgradient well MW-504 and downgradient well MW-512 exhibit similar trends, are well within expected concentration levels for non-impacted groundwater in the vicinity of the CCR Landfill, and are even below observed concentrations in side-gradient non-CCR monitoring system well MW-516. This indicates there are natural fluctuations in concentration levels for many of the wells in the vicinity of the CCR Landfill.

These time series plots demonstrate 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. Time series plots for sulfate are provided in **Appendix D**.

3.4 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™. Sulfate data from December 2015 through the most recent data for upgradient well MW-504 and downgradient well MW-512 were used for the trend analysis. The trend analysis indicates the both upgradient well MW-504 and downgradient well MW-512 have increasing trends with similar slopes. The upward trend for upgradient well MW-504 is 6.083 mg/L/year and the upward trend for downgradient well MW-512 is 6.63 mg/L/year. This indicates that sulfate levels in both upgradient and downgradient wells are increasing at similar rates. Since the upgradient well is increasing due to natural conditions not due to the unit, it is also likely the downgradient well is increasing due to natural conditions not due to the unit. These trend analyses demonstrate 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. Trend analyses for sulfate are provided in **Appendix E**.

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 SSI over the background level, or that the SSI 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.

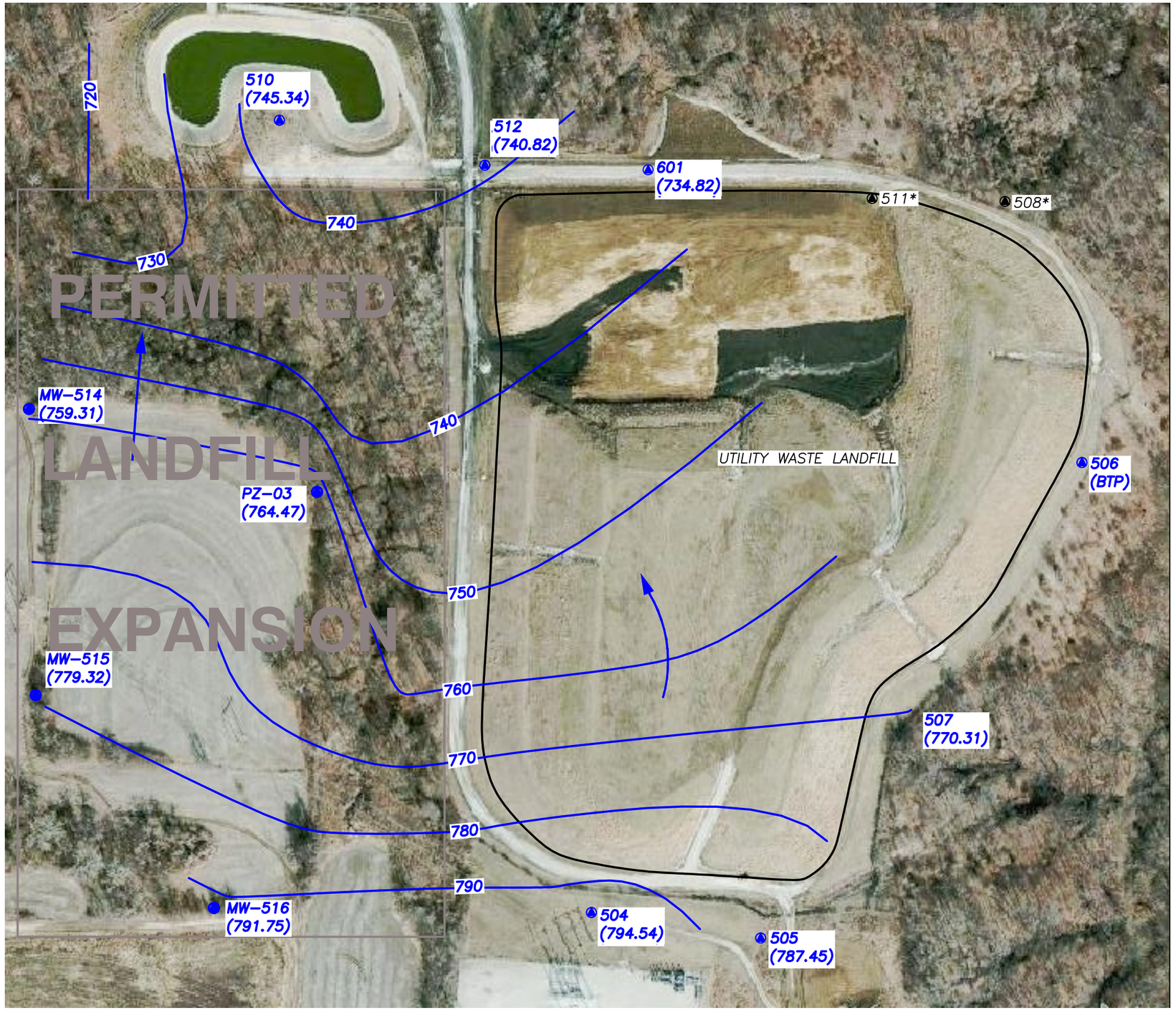
5 GENERAL COMMENTS

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



LEGEND:

760	GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
601 (738.07)	GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
	CCR LANDFILL UNIT BOUNDARY
	GROUNDWATER FLOW DIRECTION
*	WELL(S) ABANDONED APRIL 2017 DUE TO INSUFFICIENT WATER
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.

200 0 200 400

SCALE FEET

REV.	DATE
-	-

SHEET TITLE: POTENTIOMETRIC SURFACE MAP (NOVEMBER 2019) CCR LANDFILL

PROJECT TITLE: ALTERNATIVE SOURCE DEMONSTRATION

CLIENT: EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St, Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

PROJ. NO. 27213167.19
DSN. BY: TGW
DWN. BY: DAW
CHK. BY: JRR
QA RVW BY: JRR
PROJ. MGR.: JRF

CADD FILE: 19 – NOV_GW ALTERNATIVE SOURCE DEMONSTRATION.DWG

DATE: 1/7/2020

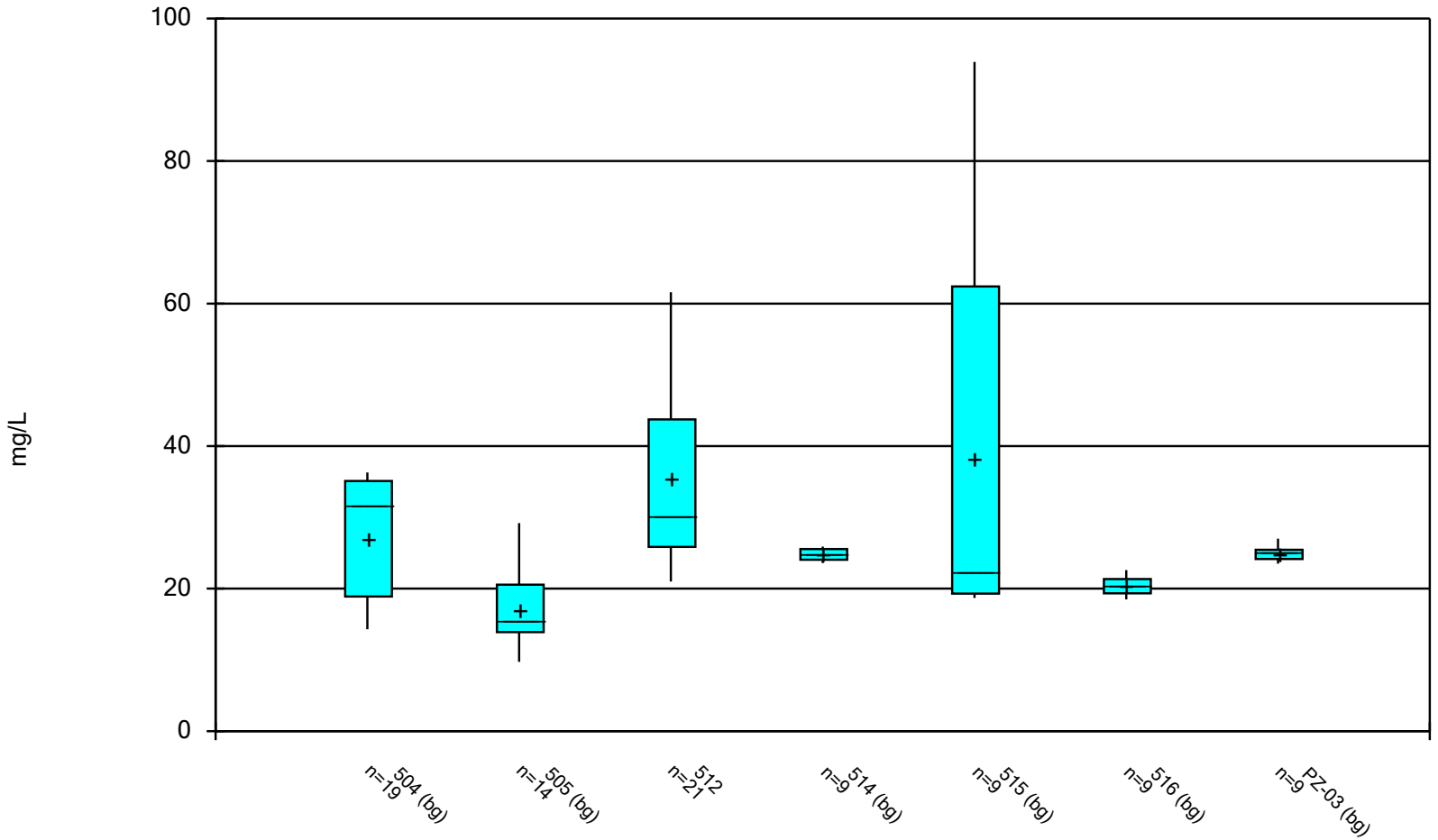
FIGURE NO. 1

N:\KCPL\Projects\Groundwater\DWG\Sibley\2019\GW\19 - NOV_GW Alternative Source Demonstration.dwg Jun 03, 2020 - 12:49pm Layout Name: 1 By: 4470daw

Appendix B

Box and Whiskers Plots

Box & Whiskers Plot



Constituent: Sulfate Analysis Run 3/13/2020 11:38 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Sibley Client: SCS Engineers Data: Sibley Printed 3/13/2020, 11:39 AM

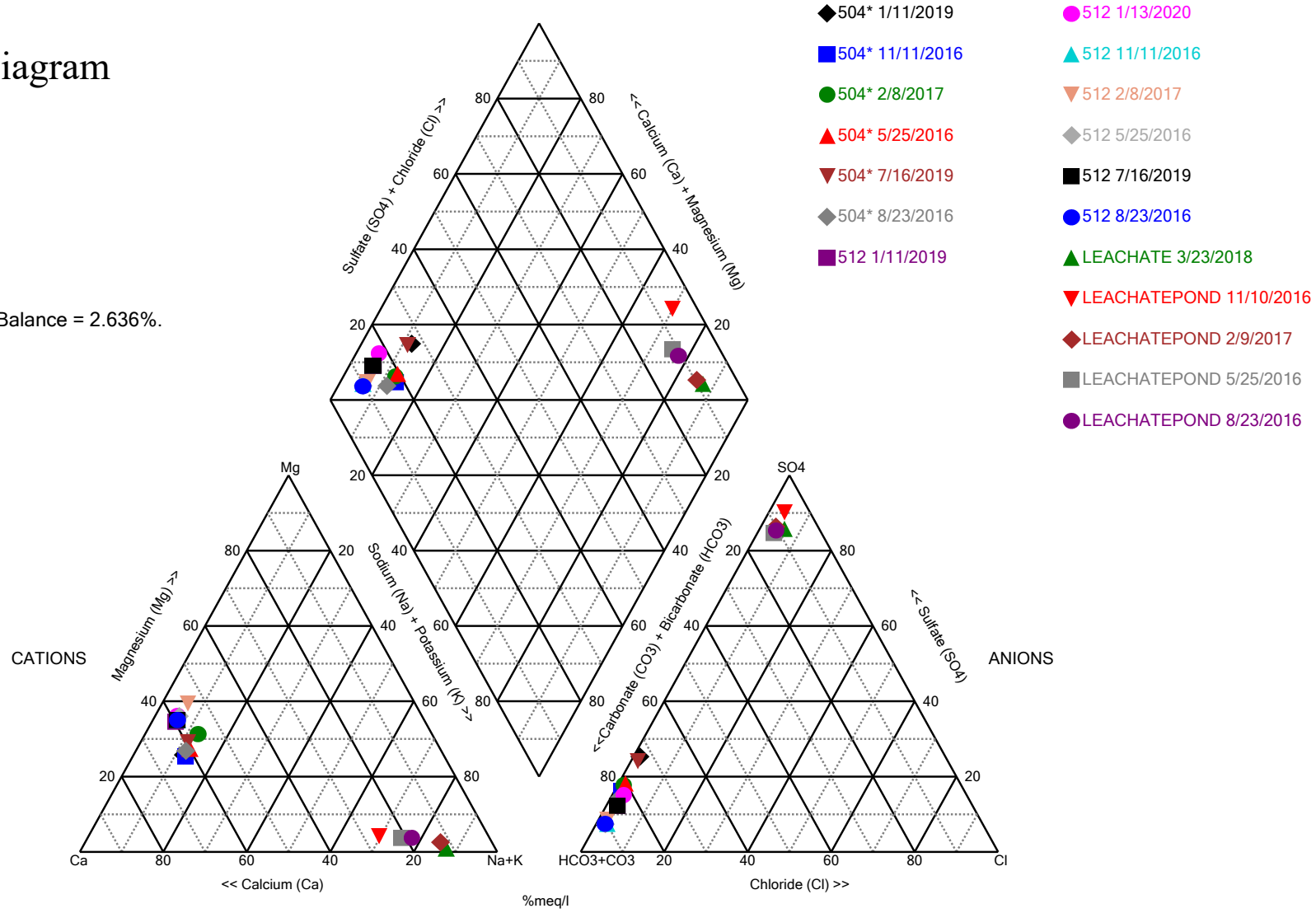
Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Sulfate (mg/L)	504 (bg)	19	27.04	8.309	1.906	31.8	14.3	36.3	0
Sulfate (mg/L)	505 (bg)	14	16.92	4.917	1.314	15.4	9.73	29.2	0
Sulfate (mg/L)	512	21	35.42	11.9	2.597	30.3	21	61.6	0
Sulfate (mg/L)	514 (bg)	9	24.77	0.8155	0.2718	24.7	23.6	25.9	0
Sulfate (mg/L)	515 (bg)	9	38.23	27.91	9.303	22.3	18.7	93.9	0
Sulfate (mg/L)	516 (bg)	9	20.38	1.3	0.4333	20.4	18.5	22.6	0
Sulfate (mg/L)	PZ-03 (bg)	9	24.96	1.013	0.3375	25.1	23.5	27	0

Appendix C

Piper Diagram Plots and Analytical Results

Piper Diagram

Cation-Anion Balance = 2.636%.



Analysis Run 3/13/2020 11:50 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Piper Diagram

Analysis Run 3/13/2020 11:51 AM View: LF III

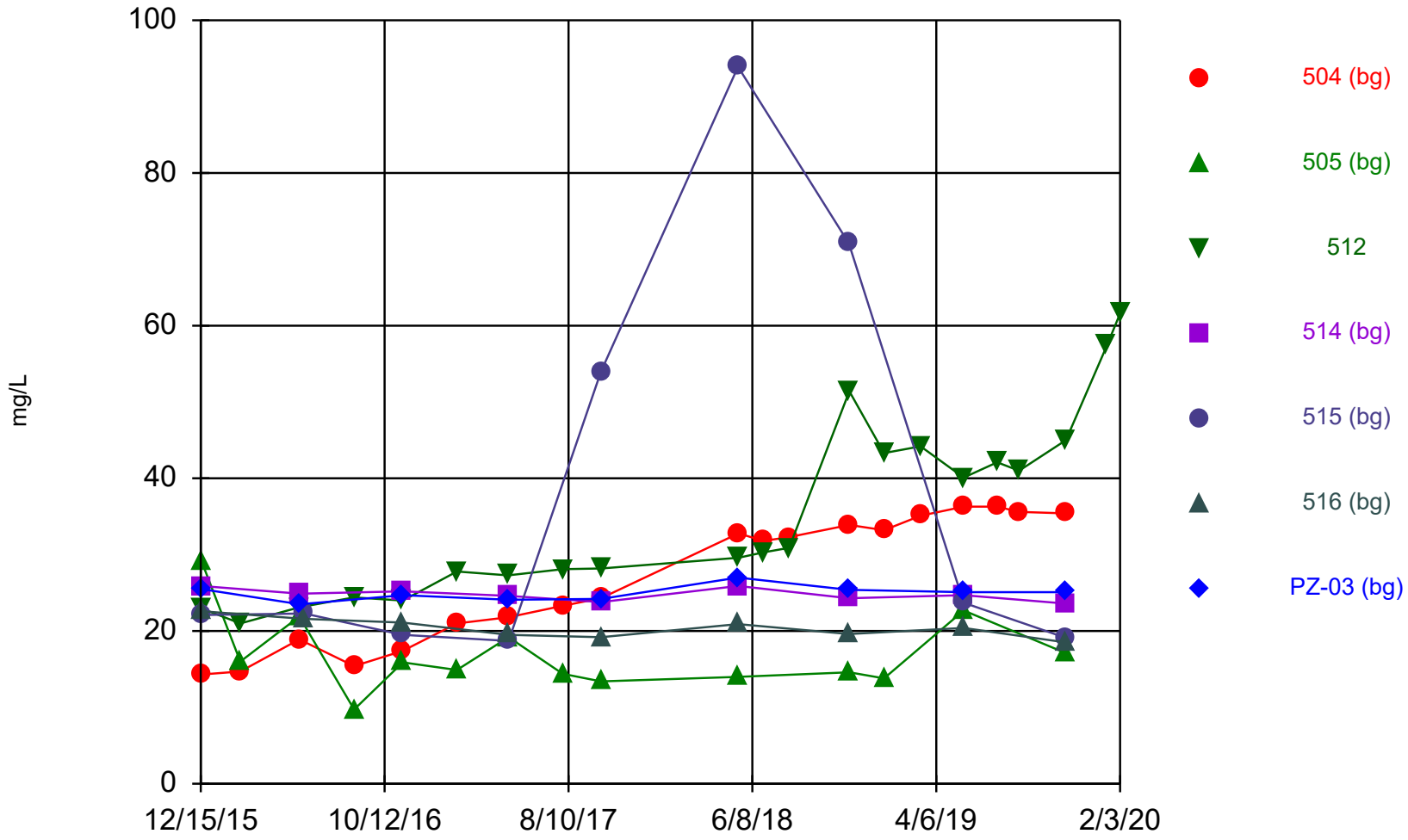
Sibley Client: SCS Engineers Data: Sibley

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* 2/8/2017	6.83	1.28	29.6	9.94	0.5	21	105	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
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 2/8/2017	10	2.35	86.4	37.9	3.14	27.8	358	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 1/13/2020	9.87	2.18	103	38.4	5.97	57.5	391	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

Appendix D

Time Series Plots

Time Series



Constituent: Sulfate Analysis Run 3/13/2020 11:40 AM View: LF III

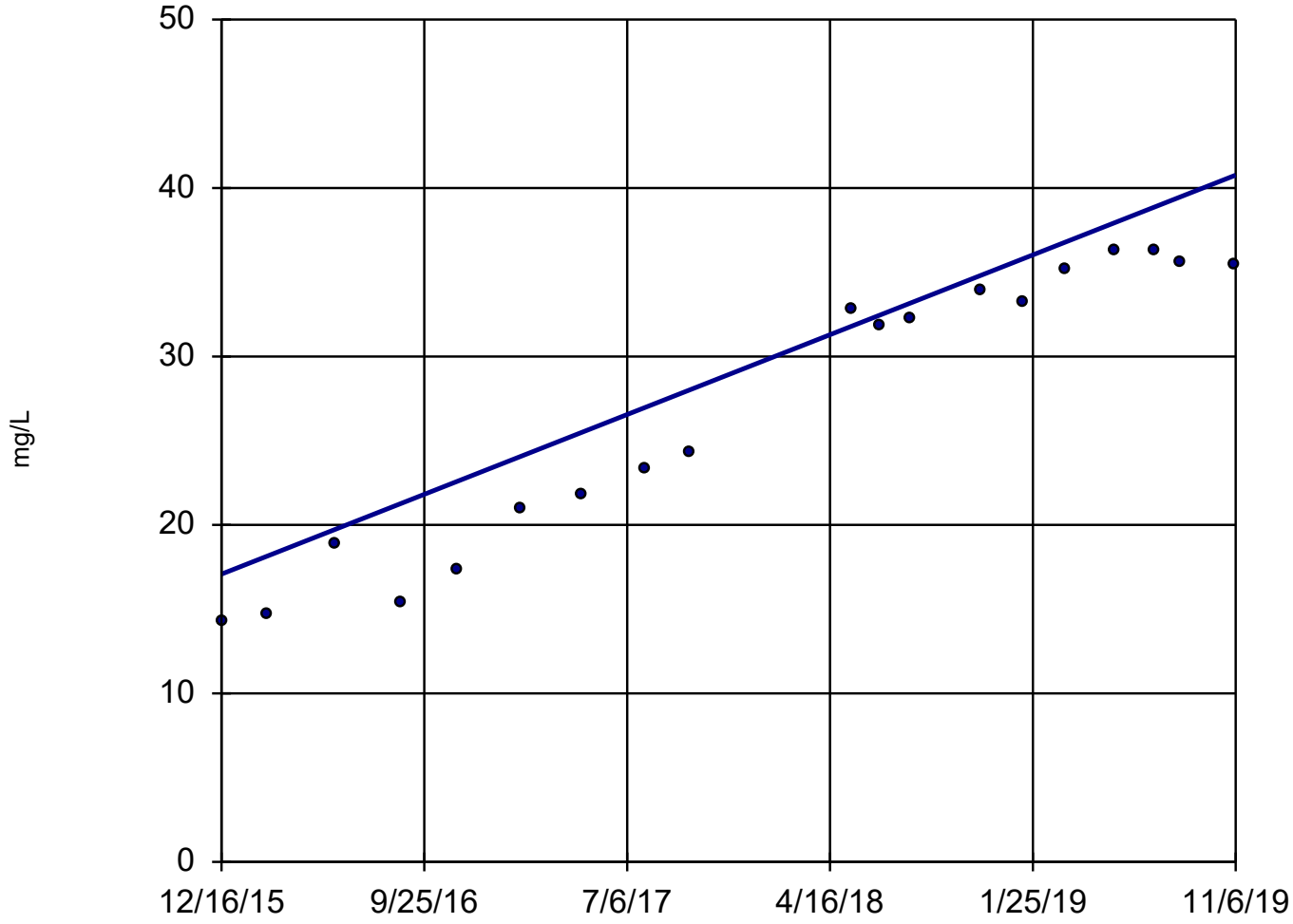
Sibley Client: SCS Engineers Data: Sibley

Appendix E

Trend Analysis

Sen's Slope Estimator

504 (bg)



n = 19

Slope = 6.083 units per year.

Mann-Kendall statistic = 150
critical = 68

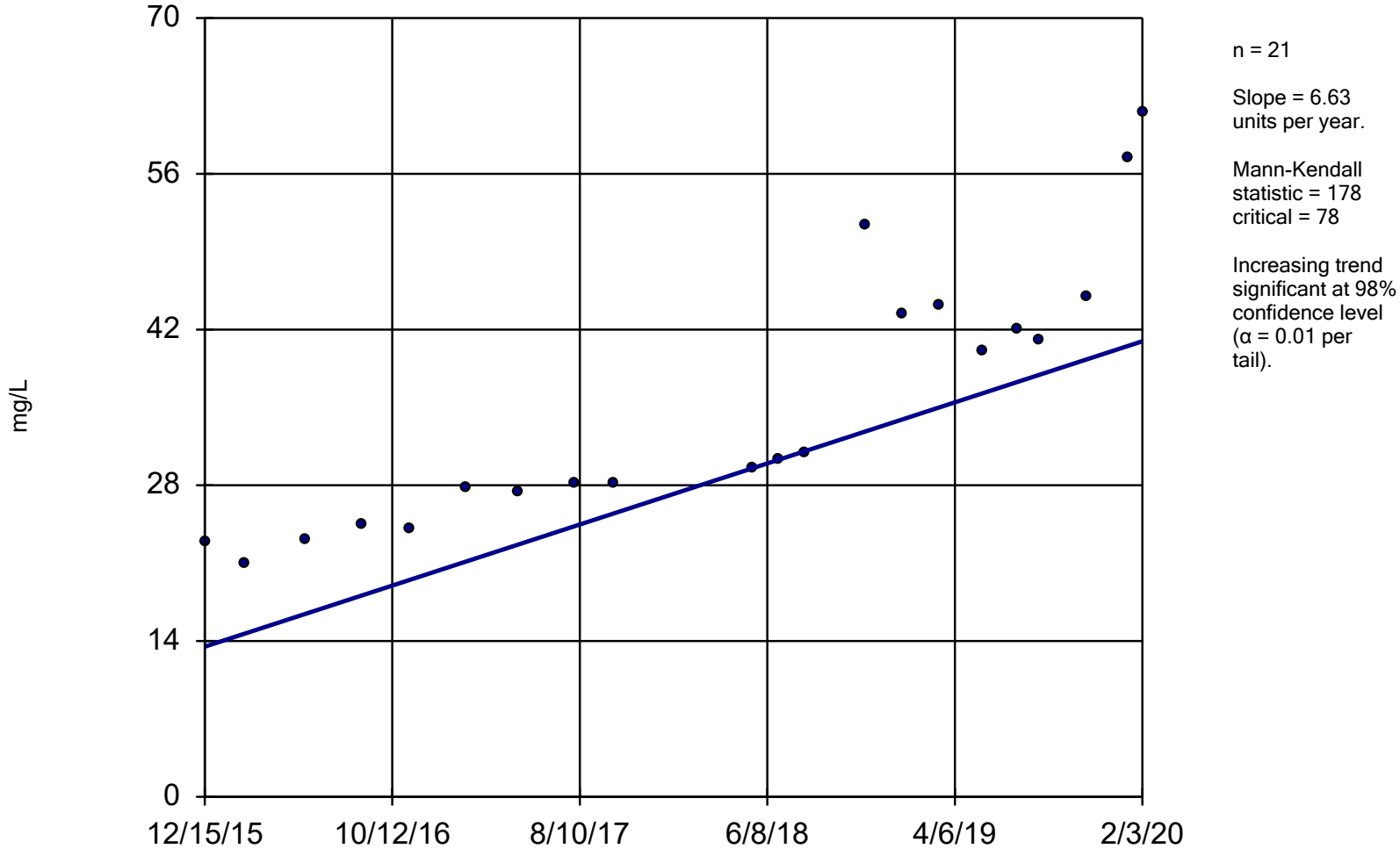
Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 3/13/2020 1:18 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Sen's Slope Estimator

512



n = 21

Slope = 6.63 units per year.

Mann-Kendall statistic = 178
critical = 78

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 3/13/2020 1:18 PM View: LF III Sibley Client: SCS Engineers Data: Sibley

Trend Test

Sibley Client: SCS Engineers Data: Sibley Printed 3/13/2020, 1:18 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Sulfate (mg/L)	**504 (bg)**	**6.083**	**150**	**68**	**Yes**	**19**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**512**	**6.63**	**178**	**78**	**Yes**	**21**	**0**	**n/a**	**n/a**	**0.02**	**NP**

C.2 Groundwater Monitoring Alternative Source Demonstration Report May 2020 Groundwater Monitoring Event, CCR Landfill, Sibley Generating Station (December 2020)

CCR GROUNDWATER MONITORING
ALTERNATIVE SOURCE DEMONSTRATION REPORT
MAY 2020 GROUNDWATER MONITORING EVENT

CCR LANDFILL
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

Presented To:

Evergy Missouri West, Inc.

Presented By:

SCS ENGINEERS

8575 West 110th Street, Suite 100

Overland Park, Kansas 66210

December 2020

File No. 27213169.20

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**

Appendices

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 18, 2020. Review and validation of the results from the May 2020 Detection Monitoring Event was completed on June 26, 2020, 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 14, 2020 and August 26, 2020.

The completed statistical evaluation identified one or more Appendix III constituents above the prediction limits established for monitoring wells MW-505, MW-506, and MW-512. Calcium was above its prediction limit for MW-505 and sulfate was above its prediction limit for MW-506. Chloride, total dissolved solids and sulfate were above prediction limits established for monitoring well MW-512.

Constituent/Monitoring Well	*UPL	Observation May 18, 2020	1st Verification July 14, 2020	2nd Verification August 26, 2020
Calcium				
MW-505	29.31	30.5	32.4	30.3
Chloride				
MW-512	5.094	7.69	8.83	8.79
Total Dissolved Solids				
MW-512	466.4	481	501	493

Constituent/Monitoring Well	*UPL	Observation May 18, 2020	1st Verification July 14, 2020	2nd Verification August 26, 2020
Sulfate				
MW-506	76.83	80.0	78.6	79.6
MW-512	44.8	71.6	77.6	80.1

*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 five SSIs above the background prediction limits. These include calcium in upgradient monitoring well MW-505, sulfate in monitoring well MW-506, and chloride, total dissolved solids, and sulfate in 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 calcium in upgradient monitoring well MW-505 was compared to the time series plot for calcium in upgradient monitoring well MW-504. Calcium comparisons indicate the concentrations in MW-505 are less than the concentrations in MW-504 demonstrating natural variability in upgradient groundwater not impacted by the landfill.

The time series plot for chloride in monitoring well MW-512 was 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. Chloride comparisons indicate the concentrations in MW-512 are well within or below expected concentration levels for non-impacted groundwater in the vicinity of the CCR Landfill.

The time series plot for TDS in monitoring well MW-512 was 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 MW-512 are within the range of concentration levels for non-impacted groundwater in the vicinity of the CCR Landfill.

Additionally, an increase in TDS occurred in all of the upgradient and side-gradient wells from November 2019 to May 2020 indicating the increase in MW-512 was not due to the landfill.

The time series plot for sulfate in monitoring well MW-512 was 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-512 are within the range of concentration levels for non-impacted groundwater in the vicinity of the CCR Landfill; specifically MW-515. There are increasing concentrations in well MW-504 and the large variations of concentrations in MW-515, both of which are not the result of the landfill. Additionally, a relatively large increase in sulfate occurred in MW-515 from November 2019 to May 2020 indicating that an increase of this type can occur naturally independent of the 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 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 resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Time series plots are provided in **Appendix B**.

3.2 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 wells MW-505, MW-506, MW-512, and landfill leachate is provided in **Appendix C** along with analytical results. The piper diagram indicates 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 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, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

3.3 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 calcium in upgradient monitoring well MW-505 was compared to the box and whiskers plot for calcium in upgradient monitoring well MW-504. Calcium comparisons indicate the concentrations in MW-505 are less than the concentrations in MW-504 demonstrating natural variability in upgradient groundwater not impacted by the landfill.

The box and whiskers plot for chloride in monitoring well MW-512 was 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-512 are well within or below expected concentration levels for non-impacted groundwater in the vicinity of the CCR Landfill.

The box and whiskers plot for TDS in monitoring well MW-512 was 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-512 are within the range of concentration levels for non-impacted groundwater in the vicinity of the CCR Landfill.

The box and whiskers plot for sulfate in monitoring well MW-512 was compared to box and whisker 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-512 are within the range of concentration levels for non-impacted groundwater 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 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 SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots are provided in **Appendix D**.

3.4 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 1.13 mg/L based on the sulfate mixing line and approximately 0.80 mg/L to 3.64 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 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 E**.

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 SSI over the background level, or that the SSI 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

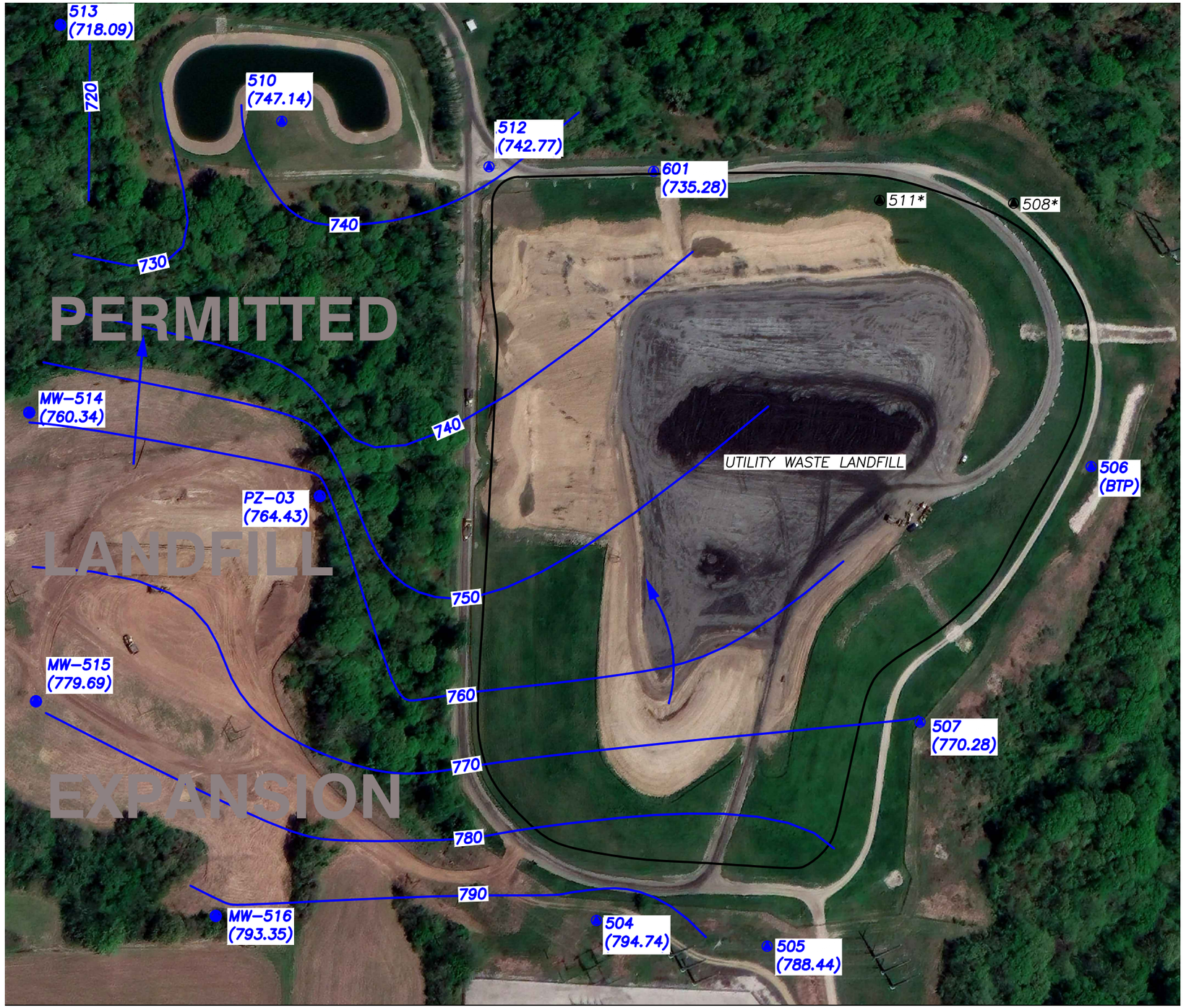
This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. 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



LEGEND:

760	GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
601 (738.07)	GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
	CCR LANDFILL UNIT BOUNDARY
	GROUNDWATER FLOW DIRECTION
*	WELL(S) ABANDONED APRIL 2017 DUE TO INSUFFICIENT WATER
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. APRIL 2020.
3. BOUNDARY AND MONITORING WELL LOCATIONS SHOWN ARE APPROXIMATE.

200 0 200 400
SCALE FEET

REV.	DATE
-	-

SHEET TITLE: POTENTIOMETRIC SURFACE MAP (MAY 2020) CCR LANDFILL

PROJECT TITLE: ALTERNATIVE SOURCE DEMONSTRATION (MAY 2020)

CLIENT: EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St. Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

PROJ. NO. 27213167.20 | DSN. BY: TGW | DWN. BY: ALR | CHK. BY: JRR | Q/A RVW BY: JRR | PROJ. MGR. JRF

CADD FILE: 20 – NOV_GW ALTERNATIVE SOURCE DEMONSTRATION.DWG

DATE: 12/22/20

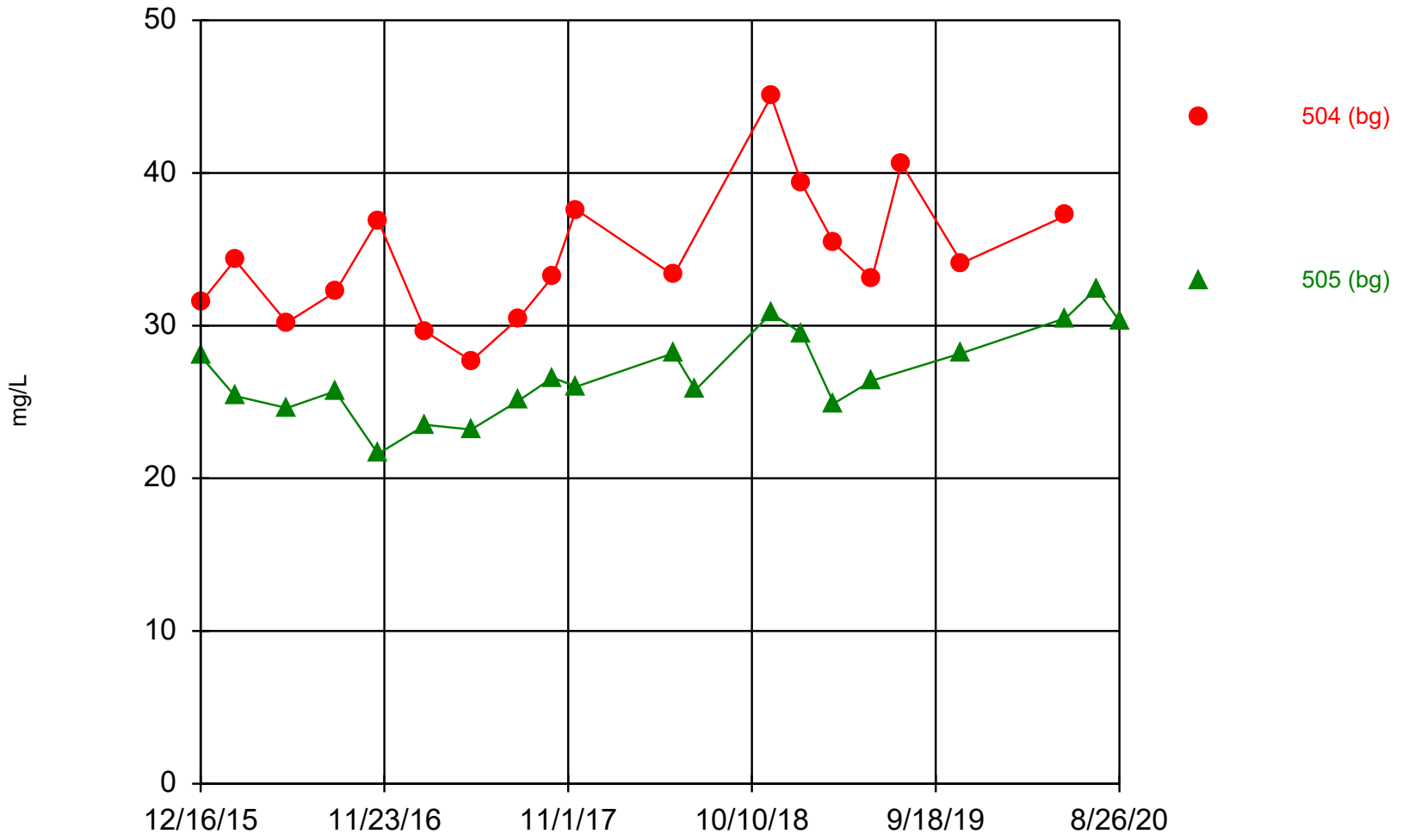
FIGURE NO. 1

N:\KCPL\Projects\Groundwater\DWG\Sibley\2020\ASD\20 - NOV_GW Alternative Source Demonstration.dwg Dec 22, 2020 - 1:57pm Layout Name: 1 By: 4415alr

Appendix B

Time Series Plots

Time Series

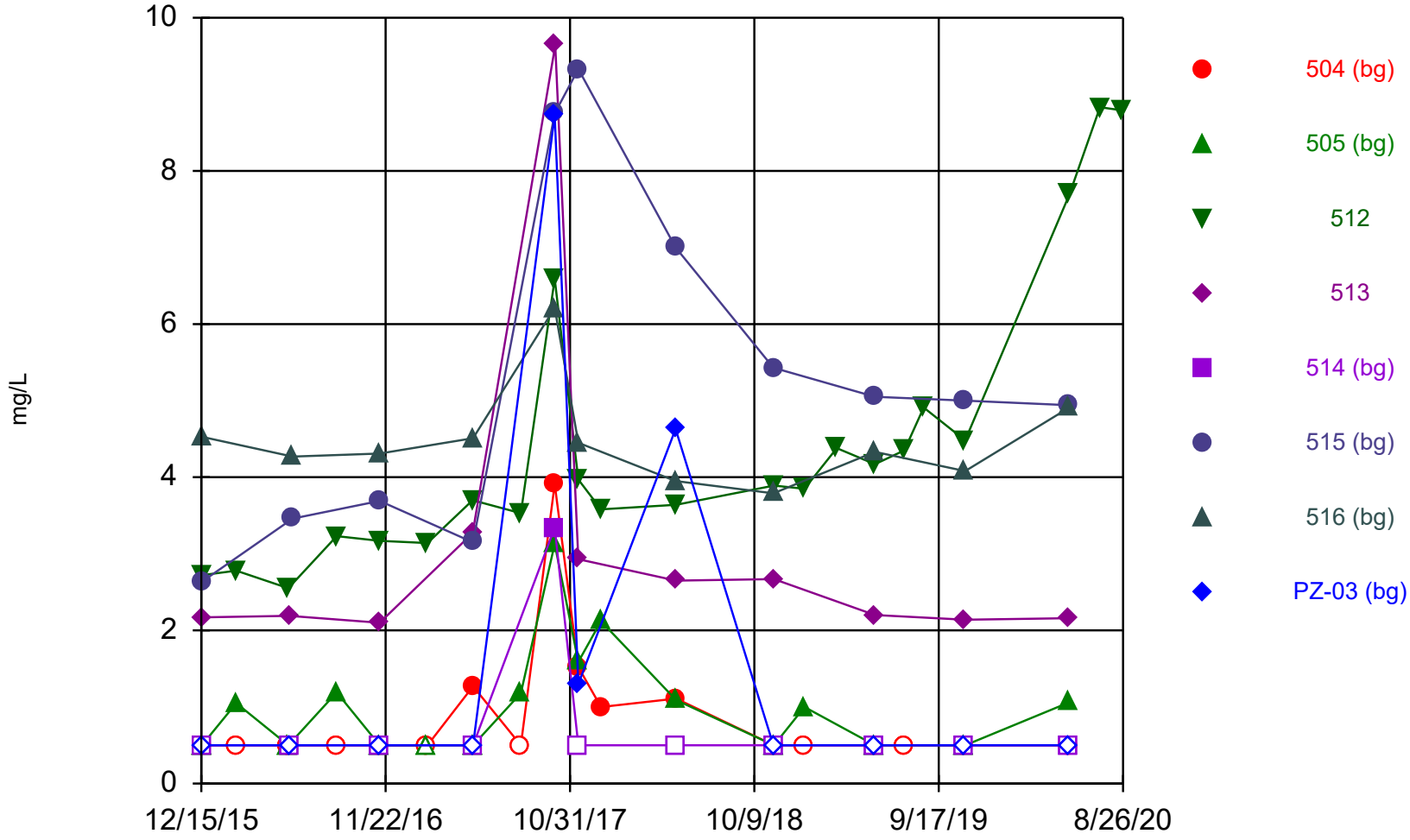


Constituent: Calcium Analysis Run 11/13/2020 8:07 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

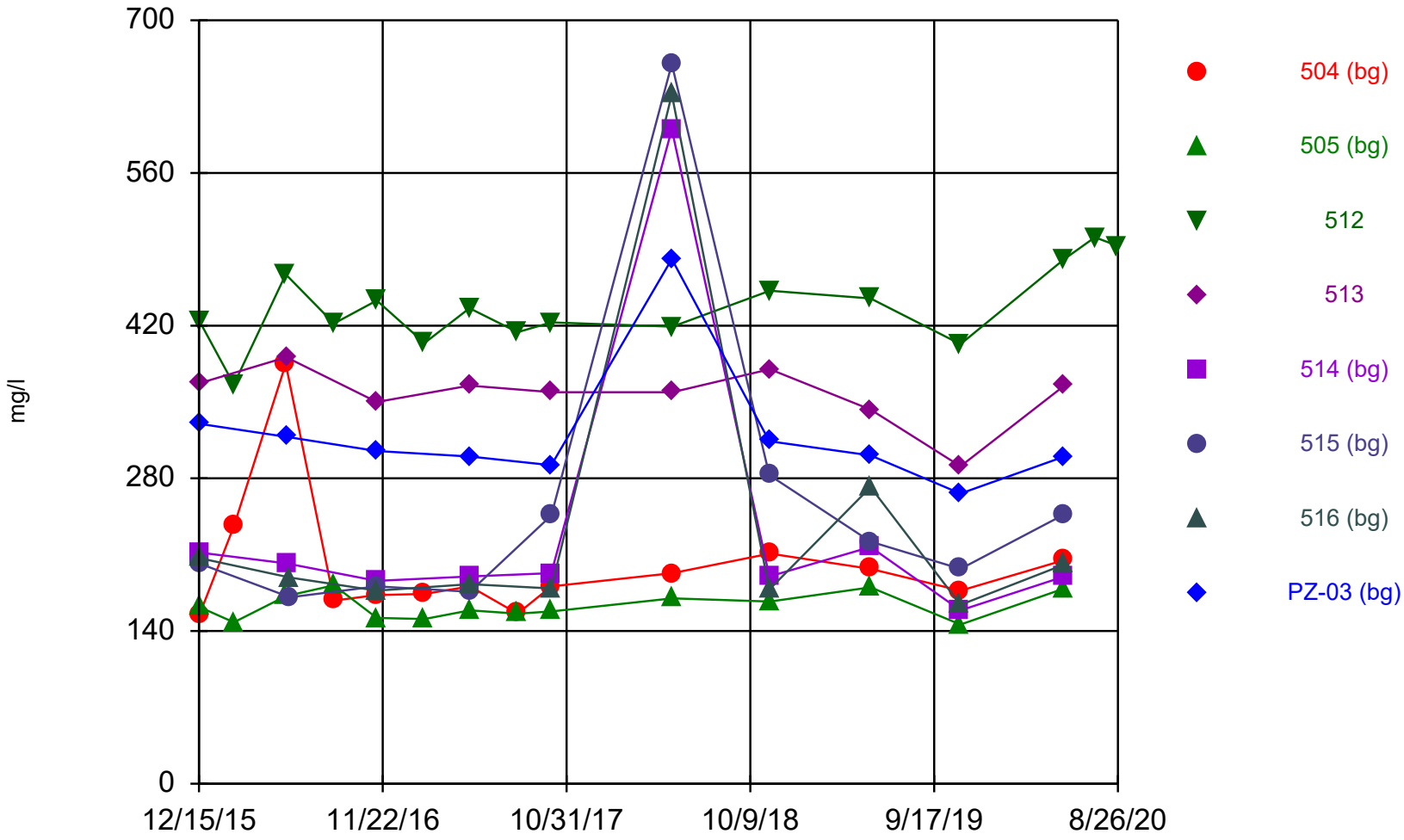
Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



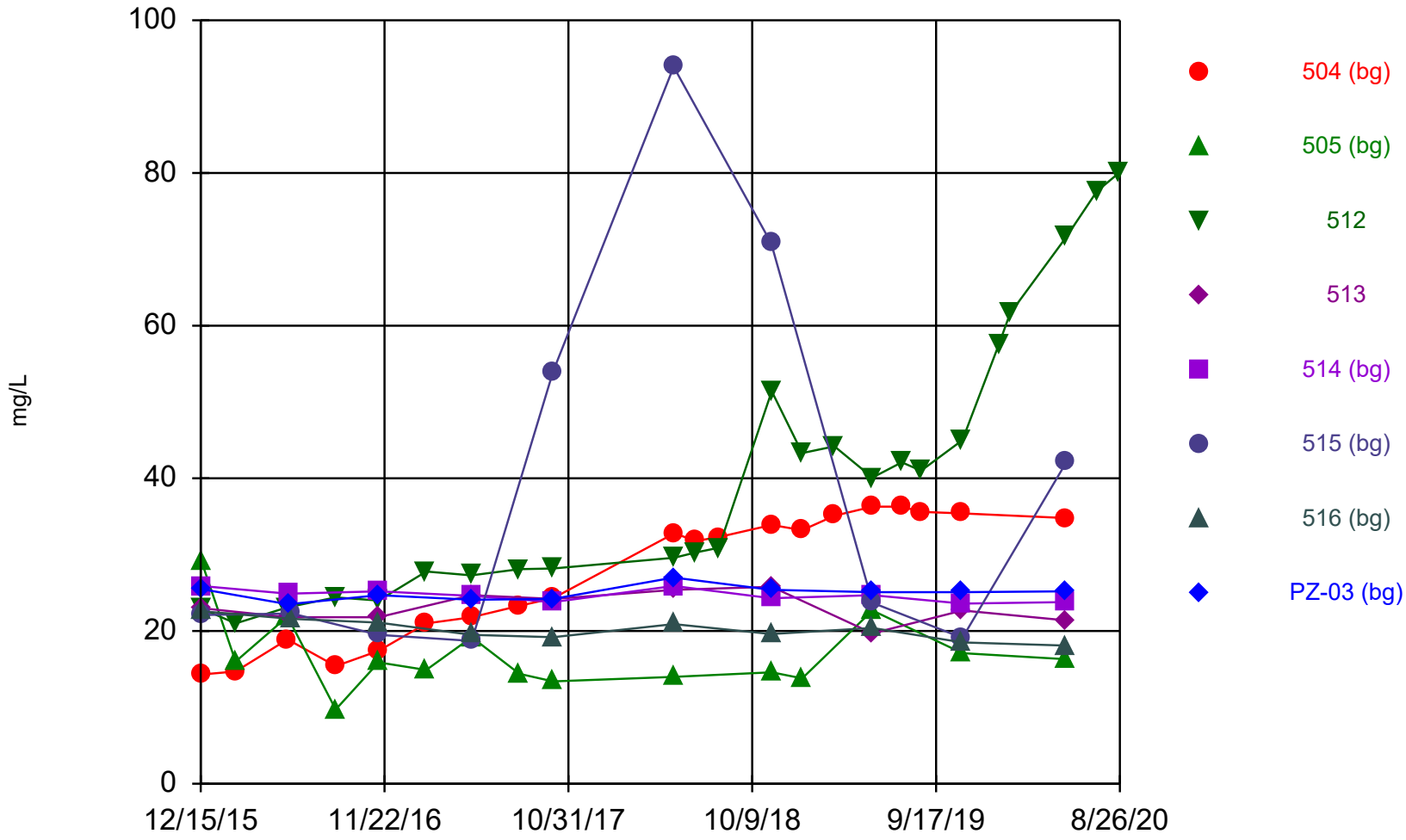
Constituent: Chloride Analysis Run 11/13/2020 8:20 AM View: LF III
Sibley Client: SCS Engineers Data: Sibley

Time Series



Constituent: Dissolved Solids Analysis Run 11/13/2020 8:32 AM View: LF III Sibley Client: SCS Engineers Data: Sibley

Time Series



Constituent: Sulfate Analysis Run 11/13/2020 10:41 AM View: LF III

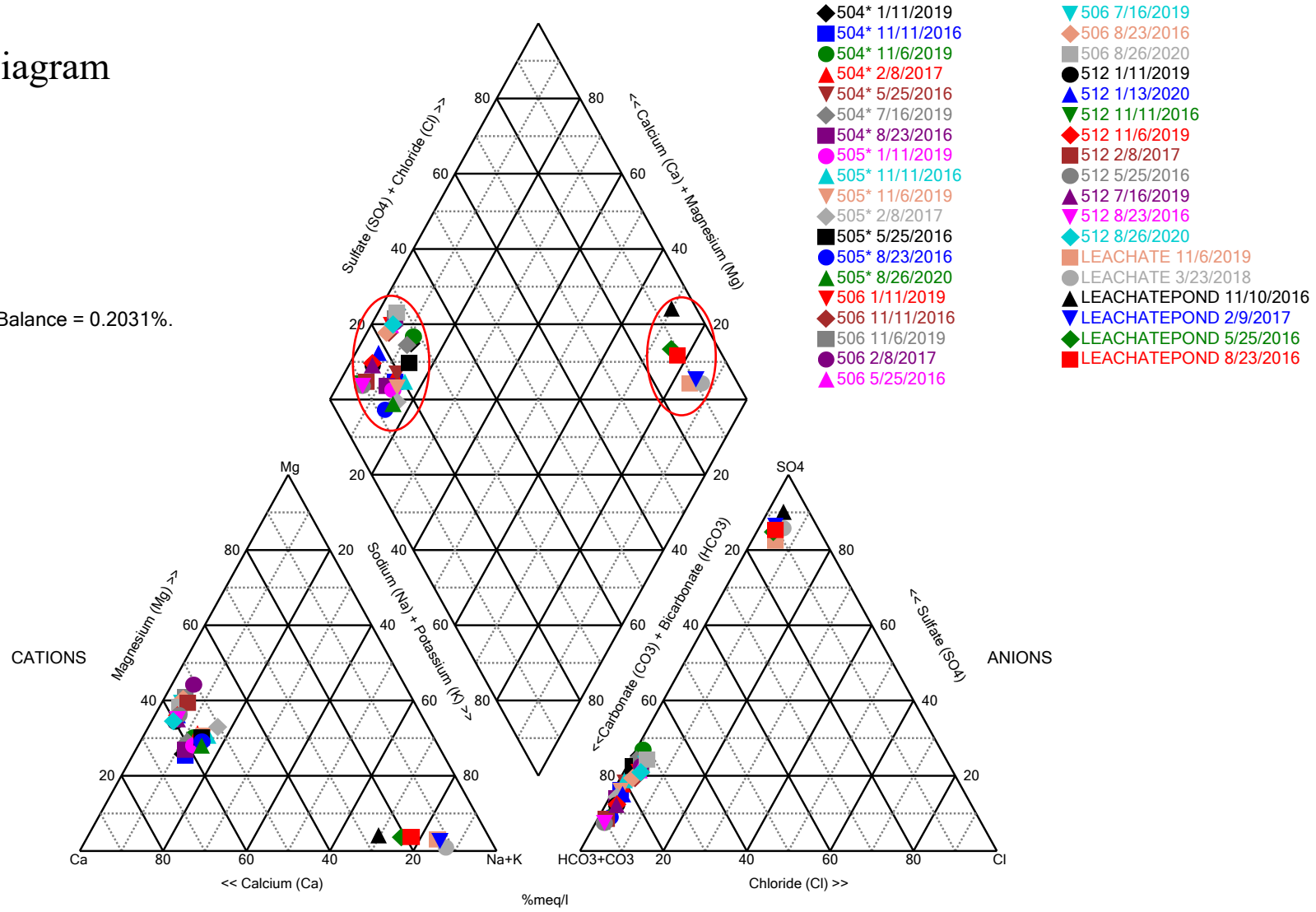
Sibley Client: SCS Engineers Data: Sibley

Appendix C

Piper Diagram Plots and Analytical Results

Piper Diagram

Cation-Anion Balance = 0.2031%.



Analysis Run 11/13/2020 11:48 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Piper Diagram

Analysis Run 11/13/2020 11:49 AM View: LF III

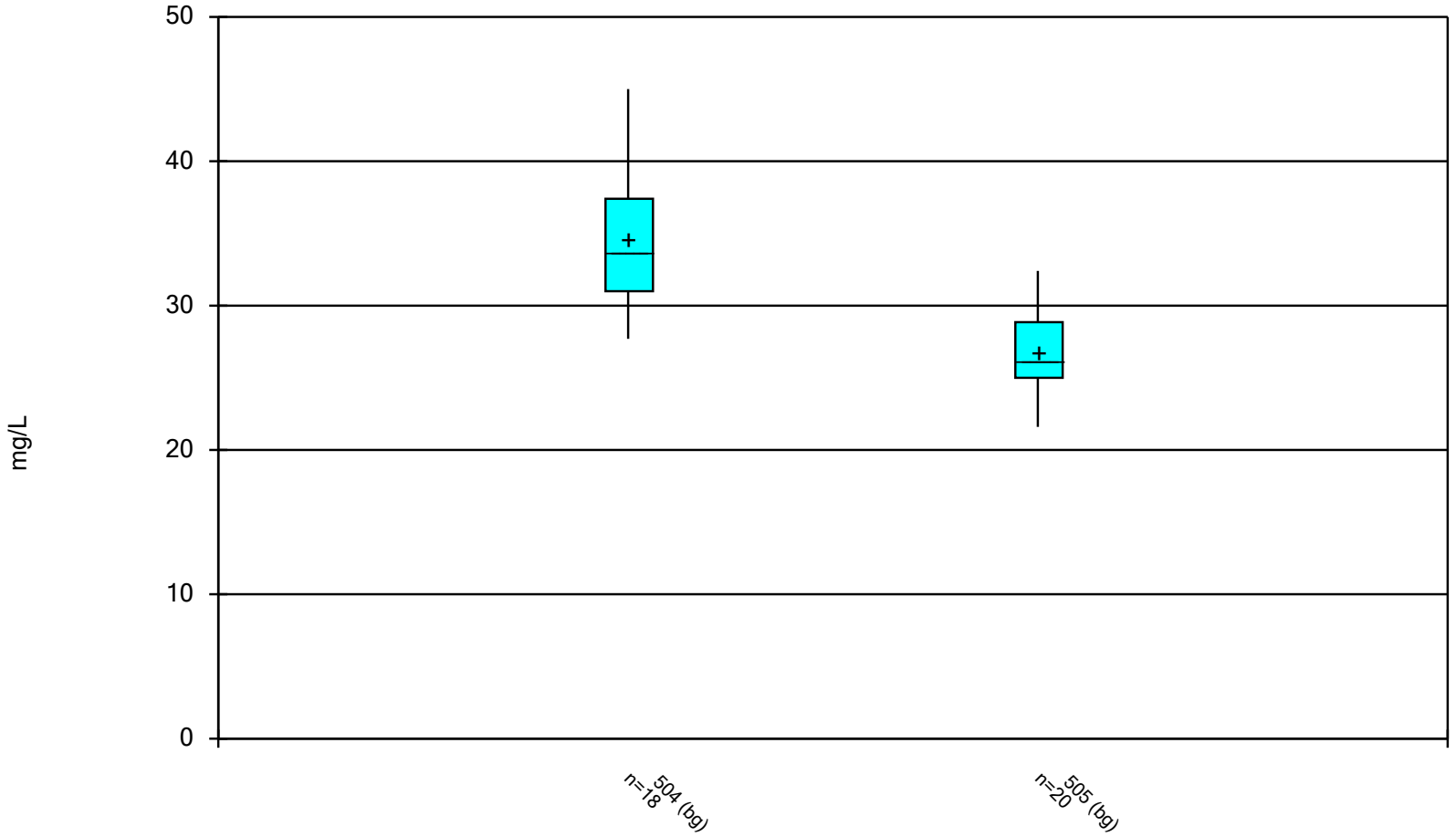
Sibley Client: SCS Engineers Data: Sibley

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* 2/8/2017	6.83	1.28	29.6	9.94	0.5	21	105	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* 2/8/2017	8.52	0.5	23.5	9.3	0.5	14.9	94	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
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 2/8/2017	8.25	2.04	83.6	43.9	5.89	76.5	307	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
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 2/8/2017	10	2.35	86.4	37.9	3.14	27.8	358	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
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 D

Box and Whiskers Plots

Box & Whiskers Plot



Constituent: Calcium Analysis Run 11/13/2020 8:07 AM View: LF III

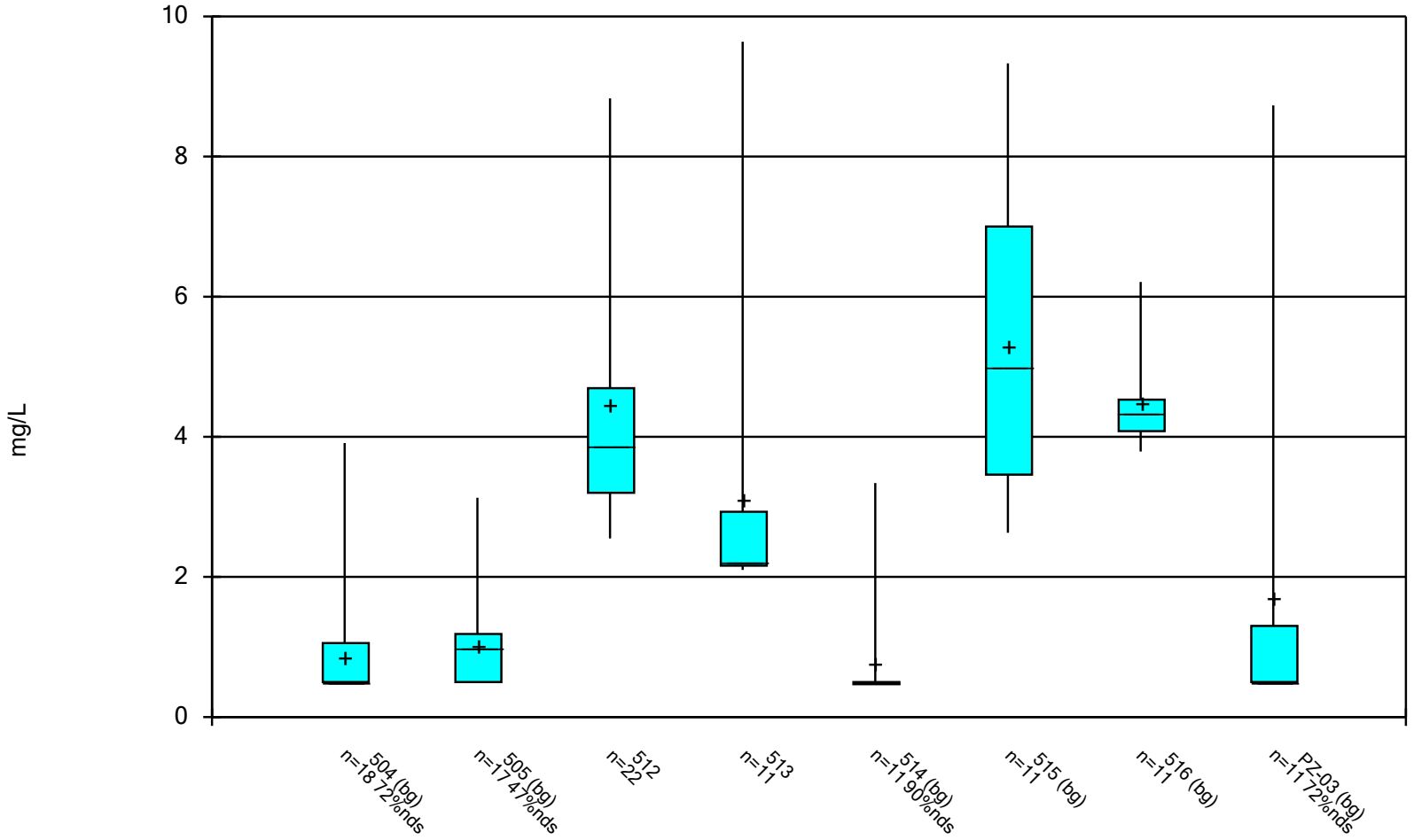
Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Sibley Client: SCS Engineers Data: Sibley Printed 11/13/2020, 8:07 AM

Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Calcium (mg/L)	504 (bg)	18	34.54	4.327	1.02	33.7	27.7	45	0
Calcium (mg/L)	505 (bg)	20	26.84	2.839	0.6349	26.2	21.6	32.4	0

Box & Whiskers Plot



Constituent: Chloride Analysis Run 11/13/2020 8:25 AM View: LF III

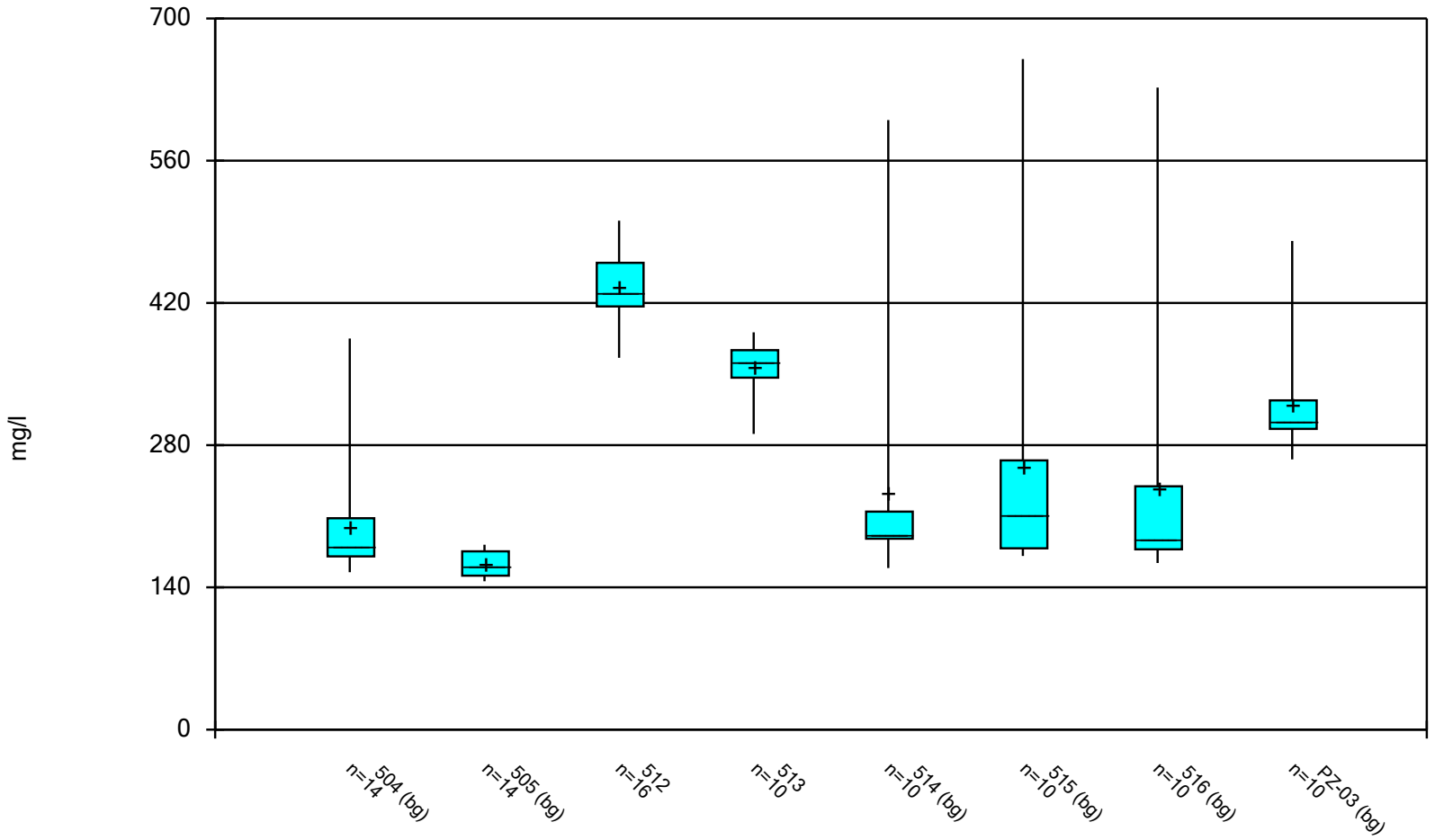
Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Sibley Client: SCS Engineers Data: Sibley Printed 11/13/2020, 8:27 AM

Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Chloride (mg/L)	504 (bg)	18	0.8506	0.8286	0.1953	0.5	0.5	3.91	72.22
Chloride (mg/L)	505 (bg)	17	1.024	0.7164	0.1738	1	0.5	3.13	47.06
Chloride (mg/L)	512	22	4.452	1.843	0.393	3.87	2.55	8.83	0
Chloride (mg/L)	513	11	3.102	2.203	0.6642	2.2	2.1	9.64	0
Chloride (mg/L)	514 (bg)	11	0.7582	0.8563	0.2582	0.5	0.5	3.34	90.91
Chloride (mg/L)	515 (bg)	11	5.312	2.215	0.6678	5	2.63	9.33	0
Chloride (mg/L)	516 (bg)	11	4.485	0.6476	0.1953	4.33	3.79	6.21	0
Chloride (mg/L)	PZ-03 (bg)	11	1.696	2.64	0.7959	0.5	0.5	8.73	72.73

Box & Whiskers Plot



Constituent: Dissolved Solids Analysis Run 11/13/2020 8:31 AM View: LF III

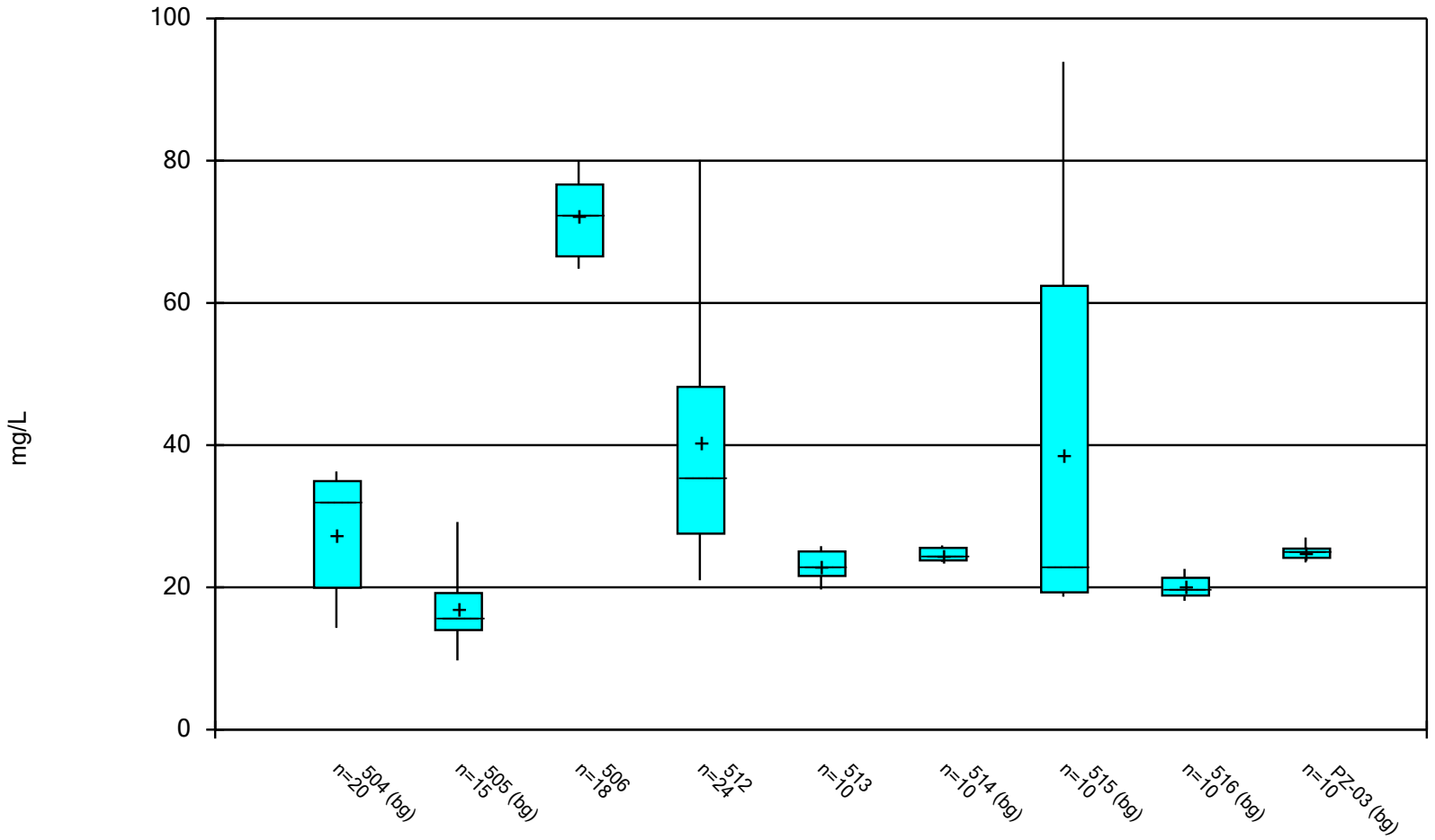
Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Sibley Client: SCS Engineers Data: Sibley Printed 11/13/2020, 8:32 AM

Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Dissolved Solids (mg/l)	504 (bg)	14	199.4	57.75	15.44	181	155	385	0
Dissolved Solids (mg/l)	505 (bg)	14	163	12.16	3.25	160.5	146	182	0
Dissolved Solids (mg/l)	512	16	437.1	35.68	8.92	430.5	366	501	0
Dissolved Solids (mg/l)	513	10	357	26.92	8.513	362	291	391	0
Dissolved Solids (mg/l)	514 (bg)	10	233.9	129.6	40.98	191.5	159	600	0
Dissolved Solids (mg/l)	515 (bg)	10	258.5	145.6	46.05	212	171	660	0
Dissolved Solids (mg/l)	516 (bg)	10	238.2	141.6	44.77	186	164	632	0
Dissolved Solids (mg/l)	PZ-03 (bg)	10	320.7	58.82	18.6	303	266	481	0

Box & Whiskers Plot



Constituent: Sulfate Analysis Run 11/13/2020 11:12 AM View: LF III

Sibley Client: SCS Engineers Data: Sibley

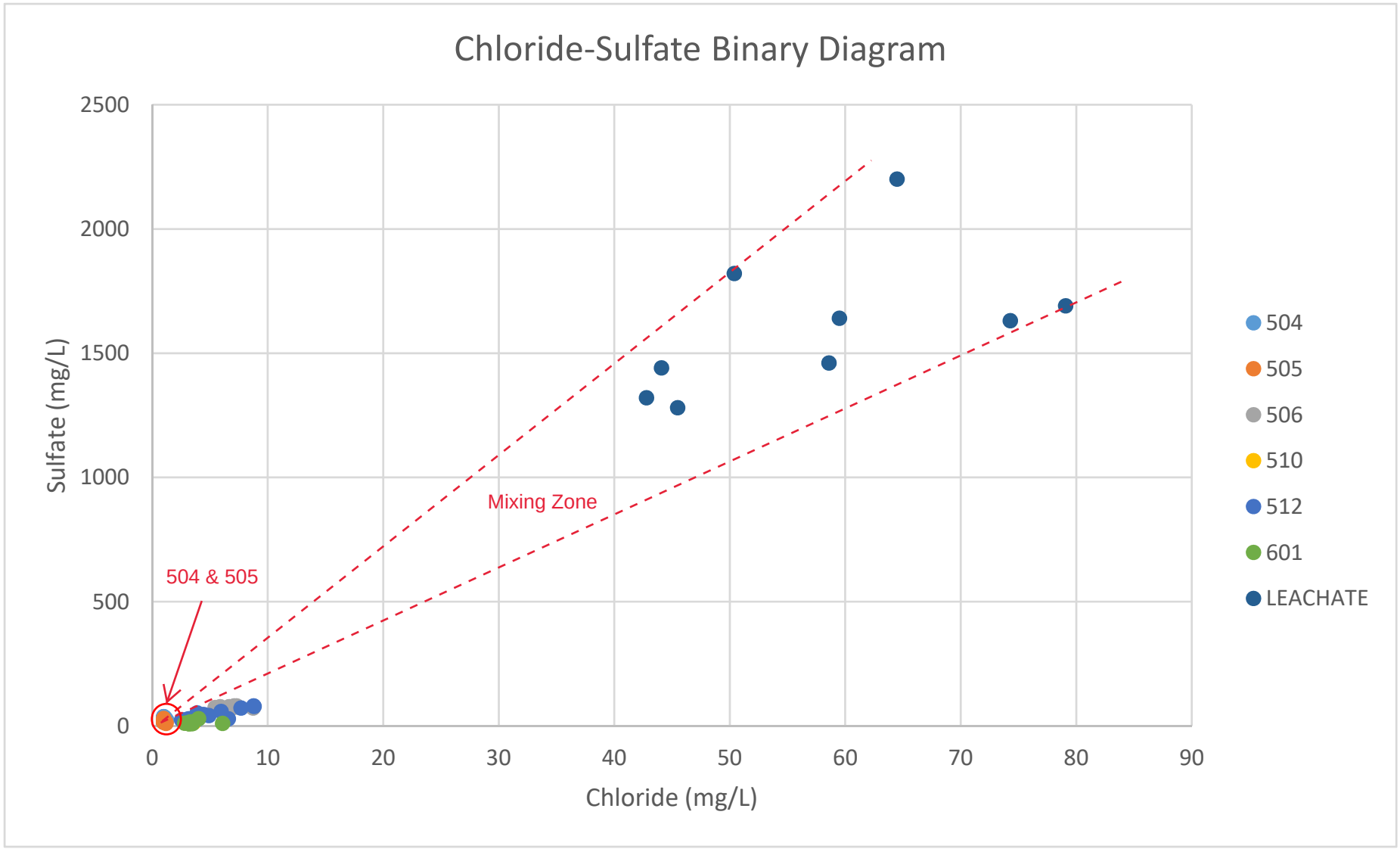
Box & Whiskers Plot

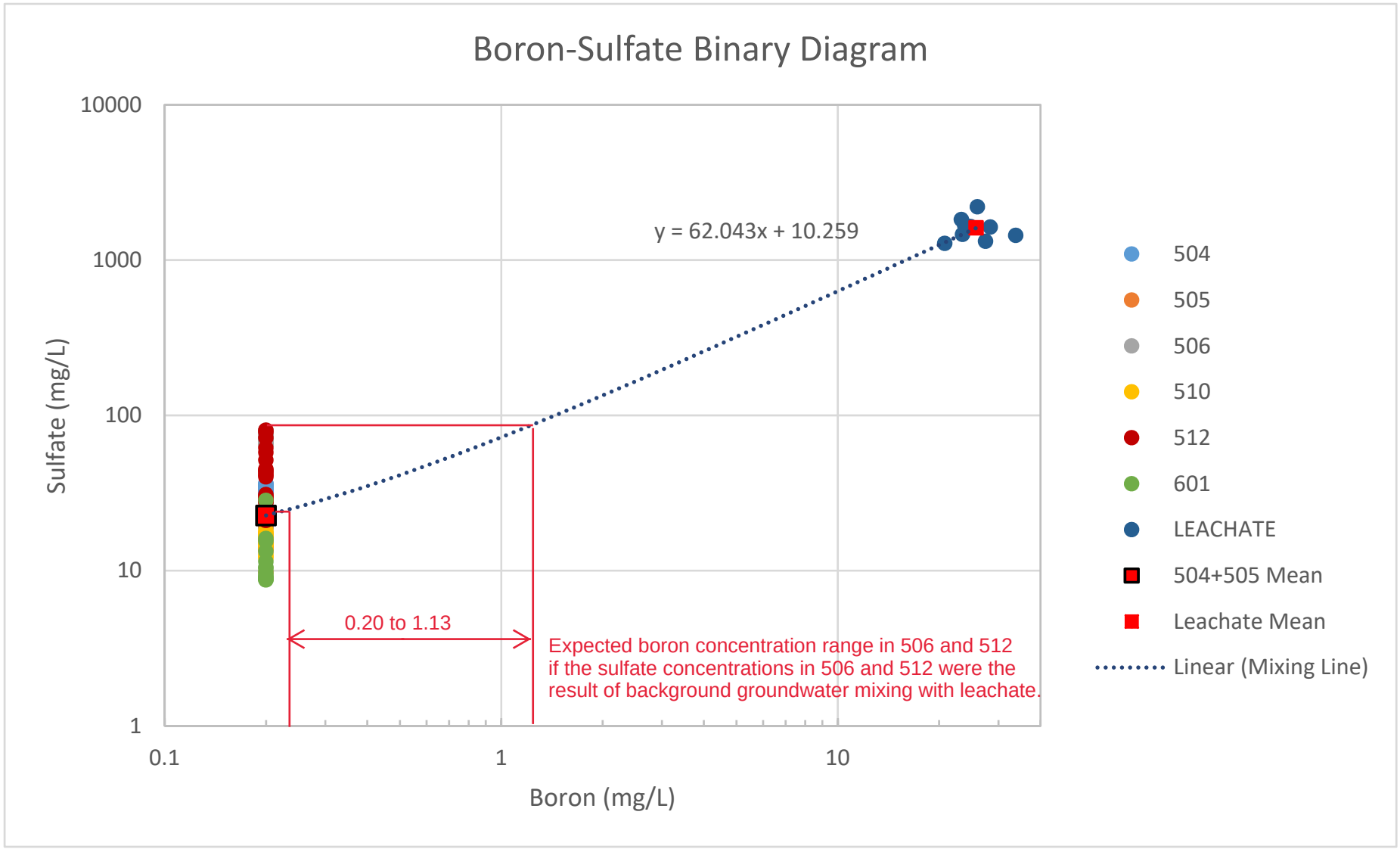
Sibley Client: SCS Engineers Data: Sibley Printed 11/13/2020, 11:13 AM

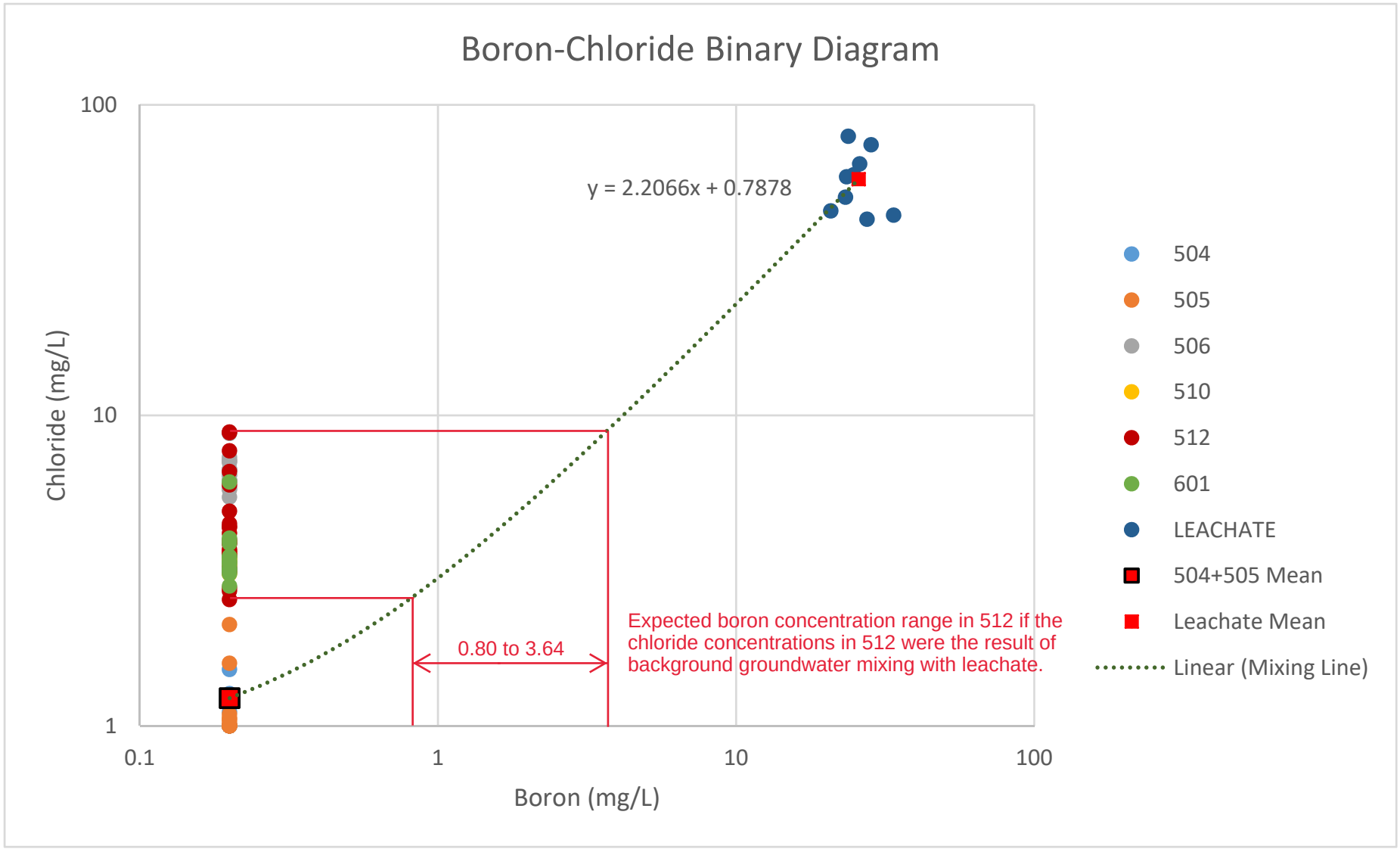
Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Sulfate (mg/L)	504 (bg)	20	27.43	8.272	1.85	32.05	14.3	36.3	0
Sulfate (mg/L)	505 (bg)	15	16.88	4.741	1.224	15.9	9.73	29.2	0
Sulfate (mg/L)	506	18	72.31	5.185	1.222	72.3	64.8	80	0
Sulfate (mg/L)	512	24	40.55	17.8	3.633	35.5	21	80.1	0
Sulfate (mg/L)	513	10	23.05	1.953	0.6176	22.85	19.7	25.8	0
Sulfate (mg/L)	514 (bg)	10	24.67	0.8274	0.2616	24.65	23.6	25.9	0
Sulfate (mg/L)	515 (bg)	10	38.62	26.34	8.33	23	18.7	93.9	0
Sulfate (mg/L)	516 (bg)	10	20.15	1.421	0.4495	20	18.1	22.6	0
Sulfate (mg/L)	PZ-03 (bg)	10	24.98	0.9578	0.3029	25.1	23.5	27	0

Appendix E

Binary Plots


Chloride-Sulfate Binary Diagram
Sulfate (mg/L)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
Chloride (mg/L)
Mixing Zone
504 & 505
504
505
506
510
512
601
LEACHATE


Boron-Sulfate Binary Diagram
10000
1000
100
10
1
Sulfate (mg/L)
0.1
1
10
Boron (mg/L)
y = 62.043x + 10.259
0.20 to 1.13
Expected boron concentration range in 506 and 512 if the sulfate concentrations in 506 and 512 were the result of background groundwater mixing with leachate.
504
505
506
510
512
601
LEACHATE
504+505 Mean
Leachate Mean
Linear (Mixing Line)


Boron-Chloride Binary Diagram
y = 2.2066x + 0.7878
Chloride (mg/L)
100
10
1
0.1
1
10
100
Boron (mg/L)
0.80 to 3.64
Expected boron concentration range in 512 if the chloride concentrations in 512 were the result of background groundwater mixing with leachate.
504
505
506
510
512
601
LEACHATE
504+505 Mean
Leachate Mean
Linear (Mixing Line)

Addendum 1

2020 Groundwater Monitoring and Corrective Action Report
Addendum 1

December 16, 2022
File No. 27213167.20

To: Evergy Metro, Inc.
Jared Morrison – Director, Water and Waste Programs

From: SCS Engineers
Douglas L. Doerr, P.E.
John R. Rockhold, P.G.

Subject: 2020 Annual Groundwater Monitoring and Corrective Action Report Addendum 1
Evergy Missouri West, Inc.
CCR Landfill
Sibley Generating Station – Sibley, Missouri

The CCR Landfill at the Sibley Generating Station is subject to the groundwater monitoring and corrective action requirements of the "Coal Combustion Residuals (CCR) Final Rule" (Rule); as described in CFR 40 257.90 through CFR 40 257.98. An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting activities completed in 2020 for the CCR Landfill was completed and placed in the facility's operating record on January 29, 2021, as required by the Rule. The report was subsequently revised and placed in the operating record April 7, 2021. The Annual. The Annual GWMCA report was to fulfill the requirements specified in 40 CFR 257.90(e).

This Addendum has been prepared to supplement the operating record in recognition of comments received by Evergy from the U.S. Environmental Protection Agency (USEPA) on January 11, 2022. In addition to the information listed in 40 CFR 257.90(e), 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 in the attachments to this addendum.

The attachments to this addendum are as follows:

- Attachment 1 – Laboratory Analytical Reports:

  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:

  - January 2020 – First verification sampling for the Fall 2019 detection monitoring sampling event.
  - February 2020 – Second verification sampling for the Fall 2019 detection monitoring sampling event.
  - May 2020 – Spring 2020 semiannual detection monitoring sampling event and Appendix IV.
  - July 2020 – First verification sampling for the Spring 2020 detection monitoring sampling event.
  - August 2020 – Second verification sampling for the Spring 2020 detection monitoring sampling event.
  - November 2020 - Fall 2020 semiannual detection monitoring sampling event.

- Attachment 2 - Statistical Analyses:

  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 2020 included the following:

  - Fall 2019 semiannual detection monitoring statistical analyses.
  - Spring 2020 semiannual detection monitoring statistical analyses.

- Attachment 3 - Groundwater Potentiometric Surface Maps:

  Includes 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:

  - May 2020 - Spring 2020 semiannual detection monitoring sampling event.
  - November 2020 - Fall 2020 semiannual detection monitoring sampling event.

Jared Morrison
December 16, 2022

ATTACHMENT 1

Laboratory Analytical Reports

Jared Morrison
December 16, 2022

ATTACHMENT 1-1

January 2020 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 15, 2020

SCS Engineers - KS

Sample Delivery Group:	L1178996
Samples Received:	01/14/2020
Project Number:	27213168.19
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

TABLE OF CONTENTS

MW-512 L1178996-01 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:30 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1410910	1	01/14/20 20:58	01/14/20 20:58	ELN	Mt. Juliet, TN

DUPLICATE 1 L1178996-02 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:30 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1410910	1	01/14/20 21:55	01/14/20 21:55	ELN	Mt. Juliet, TN

MW-803 L1178996-04 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:15 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1410910	1	01/14/20 22:10	01/14/20 22:10	ELN	Mt. Juliet, TN

DUPLICATE 2 L1178996-05 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:15 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1410910	1	01/14/20 22:53	01/14/20 22:53	ELN	Mt. Juliet, TN

MW-804 L1178996-07 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:55 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1410910	1	01/15/20 04:39	01/15/20 04:39	ELN	Mt. Juliet, TN

DUPLICATE 3 L1178996-08 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:55 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1410910	1	01/14/20 23:07	01/14/20 23:07	ELN	Mt. Juliet, TN

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

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	57500		5000	1	01/14/2020 20:58	WG1410910

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	56100		5000	1	01/14/2020 21:55	WG1410910

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	16700		1000	1	01/14/2020 22:10	WG1410910

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	16800		1000	1	01/14/2020 22:53	WG1410910

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	281		100	1	01/15/2020 04:39	WG1410910

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	333		100	1	01/14/2020 23:07	WG1410910

Method Blank (MB)

(MB) R3490820-1 01/14/20 10:47

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

L1178996-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1178996-01 01/14/20 20:58 • (DUP) R3490820-3 01/14/20 21:12

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5970	5960	1	0.112		15
Fluoride	318	316	1	0.567		15
Sulfate	57500	57500	1	0.0916		15

L1179159-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1179159-04 01/15/20 03:12 • (DUP) R3490820-8 01/15/20 03:27

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5360	5340	1	0.284		15
Fluoride	ND	0.000	1	0.000		15
Sulfate	ND	1600	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3490820-2 01/14/20 11:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39400	98.5	80.0-120	
Fluoride	8000	8010	100	80.0-120	
Sulfate	40000	39300	98.4	80.0-120	

L1178996-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178996-01 01/14/20 20:58 • (MS) R3490820-4 01/14/20 21:26 • (MSD) R3490820-5 01/14/20 21:41

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	5970	53100	53300	94.4	94.6	1	80.0-120			0.200	15
Fluoride	5000	318	4980	5000	93.1	93.6	1	80.0-120			0.503	15
Sulfate	50000	57500	101000	101000	87.6	87.3	1	80.0-120	E	E	0.169	15

L1178996-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178996-04 01/14/20 22:10 • (MS) R3490820-6 01/14/20 22:24 • (MSD) R3490820-7 01/14/20 22:39

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 %
Chloride	50000	16700	63700	63300	94.0	93.2	1	80.0-120			0.649	15
Fluoride	5000	309	5030	5020	94.4	94.2	1	80.0-120			0.227	15

L1178996-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178996-07 01/15/20 04:39 • (MS) R3490820-9 01/15/20 04:53 • (MSD) R3490820-10 01/15/20 05:36

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	19700	66500	66600	93.5	93.7	1	80.0-120			0.183	15
Fluoride	5000	281	4920	4930	92.8	93.0	1	80.0-120			0.266	15
Sulfate	50000	9690	56600	56600	93.9	93.8	1	80.0-120			0.0966	15

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).

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

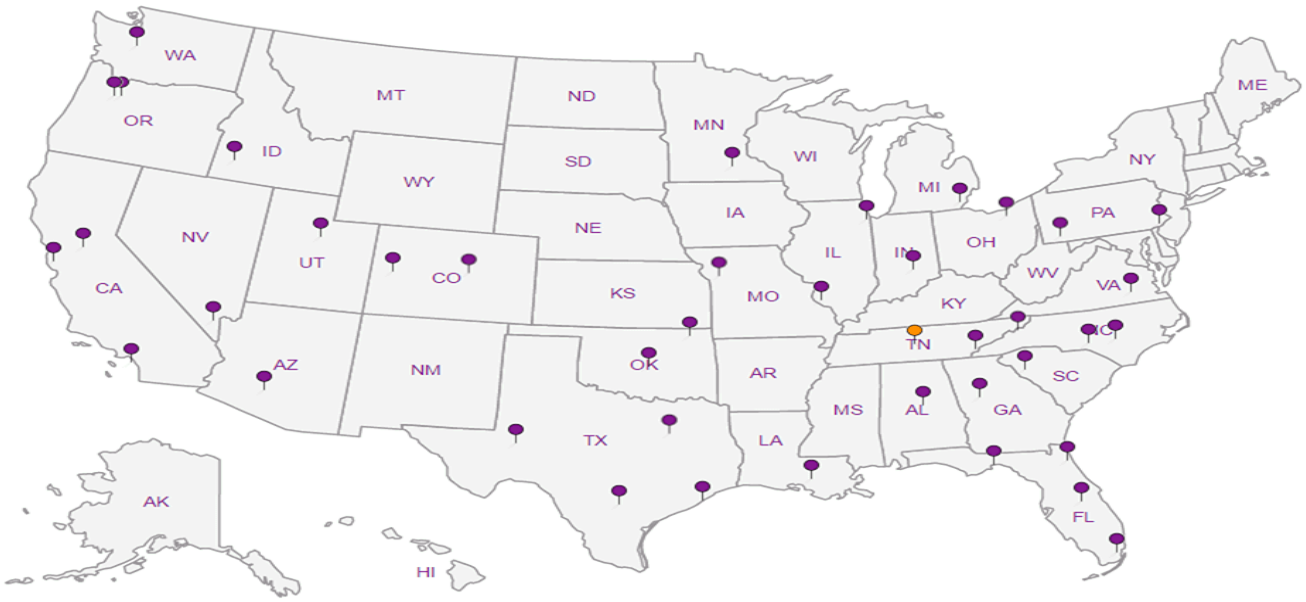
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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@kcpl.com;

Project Description: Evergy - Sibley Generating Stati
City/State Collected: SIBLEY, MO
Please Circle: PT MT CT ET

Phone: 913-681-0030
Fax: 913-681-0012
Client Project # 27213168.19
Lab Project # AQUAOPKS-SIBLEY

Collected by (print): JASON R. FRANKS
Site/Facility ID #
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

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1178996
Table # F080
Acctnum: AQUAOPKS
Template: T129789
Prelogin: P750308
PM: 206 - Jeff Carr
PB:
Shipped Via:

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride - 9056 125mlHDPE-NoPres	Fluoride - 9056 125mlHDPE-NoPres	Sulfate - 9056 125mlHDPE-NoPres	Pres Chk	Remarks	Sample # (lab only)
MW-512	GRAB	GW	-	1/13/2020	1530	1			X			-01
DUPLICATE 1		GW	-		1530	1			X			02
MW-512 MS/MSD		GW	-		1530	1			X			03
MW-803		GW	-		1515	1	X					04
DUPLICATE 2		GW	-		1515	1	X					05
MW-803 MS/MSD		GW	-		1515	1	X					06
MW-804		GW	-		1555	1		X				07
DUPLICATE 3		GW	-		1555	1		X				08
MW-804 MS/MSD		GW	-		1555	1		X				09

* 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)	Date:	Time:	Received by: (Signature)
	1/13/20	1700	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Billy Bauer

Trip Blank Received: Yes / (No) HCL / MeoH TBR
Temp: 0.7+3=1.0°C Bottles Received: 9
Date: 1/14/20 Time: 1055

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 16, 2020

SCS Engineers - KS

Sample Delivery Group:	L1178998
Samples Received:	01/14/2020
Project Number:	27213169.19
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

TABLE OF CONTENTS

MW-512 L1178998-01 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:30 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1410718	1	01/14/20 18:49	01/14/20 18:49	GB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1410910	1	01/14/20 23:51	01/14/20 23:51	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1410965	1	01/14/20 16:56	01/15/20 11:38	CCE	Mt. Juliet, TN

MW-803 L1178998-02 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:15 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1410718	1	01/14/20 18:56	01/14/20 18:56	GB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1410910	5	01/15/20 00:05	01/15/20 00:05	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1410965	1	01/14/20 16:56	01/15/20 11:41	CCE	Mt. Juliet, TN

MW-804 L1178998-03 GW

Collected by: Jason R. Franks | Collected date/time: 01/13/20 15:55 | Received date/time: 01/14/20 10:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1410718	1	01/14/20 19:20	01/14/20 19:20	GB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1410910	1	01/15/20 00:19	01/15/20 00:19	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1410965	1	01/14/20 16:56	01/15/20 11:49	CCE	Mt. Juliet, TN

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

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	391000		20000	1	01/14/2020 18:49	WG1410718
Alkalinity,Carbonate	ND		20000	1	01/14/2020 18:49	WG1410718

Sample Narrative:

L1178998-01 WG1410718: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5970		1000	1	01/14/2020 23:51	WG1410910

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	103000		1000	1	01/15/2020 11:38	WG1410965
Magnesium	38400		1000	1	01/15/2020 11:38	WG1410965
Potassium	2180		1000	1	01/15/2020 11:38	WG1410965
Sodium	9870		1000	1	01/15/2020 11:38	WG1410965

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	302000		20000	1	01/14/2020 18:56	WG1410718
Alkalinity,Carbonate	ND		20000	1	01/14/2020 18:56	WG1410718

Sample Narrative:

L1178998-02 WG1410718: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	130000		25000	5	01/15/2020 00:05	WG1410910

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	114000		1000	1	01/15/2020 11:41	WG1410965
Magnesium	23000		1000	1	01/15/2020 11:41	WG1410965
Potassium	2250		1000	1	01/15/2020 11:41	WG1410965
Sodium	24900		1000	1	01/15/2020 11:41	WG1410965

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	571000		20000	1	01/14/2020 19:20	WG1410718
Alkalinity,Carbonate	ND		20000	1	01/14/2020 19:20	WG1410718

Sample Narrative:

L1178998-03 WG1410718: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20000		1000	1	01/15/2020 00:19	WG1410910
Sulfate	9370		5000	1	01/15/2020 00:19	WG1410910

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	145000		1000	1	01/15/2020 11:49	WG1410965
Magnesium	37900		1000	1	01/15/2020 11:49	WG1410965
Potassium	6020		1000	1	01/15/2020 11:49	WG1410965
Sodium	28000		1000	1	01/15/2020 11:49	WG1410965

Method Blank (MB)

(MB) R3490765-1 01/14/20 17:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	3230	J	2710	20000
Alkalinity,Carbonate	U		2710	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1178843-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1178843-01 01/14/20 18:08 • (DUP) R3490765-2 01/14/20 18:16

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	38200	38000	1	0.508		20
Alkalinity,Carbonate	ND	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

L1179018-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1179018-05 01/14/20 19:37 • (DUP) R3490765-4 01/14/20 19:46

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	9130	9050	1	0.913	J	20
Alkalinity,Carbonate	U	0.000	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R3490820-1 01/14/20 10:47

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		51.9	1000
Sulfate	U		77.4	5000

L1178996-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1178996-01 01/14/20 20:58 • (DUP) R3490820-3 01/14/20 21:12

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5970	5960	1	0.112		15
Sulfate	57500	57500	1	0.0916		15

L1179159-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1179159-04 01/15/20 03:12 • (DUP) R3490820-8 01/15/20 03:27

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5360	5340	1	0.284		15
Sulfate	ND	1600	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3490820-2 01/14/20 11:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39400	98.5	80.0-120	
Sulfate	40000	39300	98.4	80.0-120	

L1178996-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178996-01 01/14/20 20:58 • (MS) R3490820-4 01/14/20 21:26 • (MSD) R3490820-5 01/14/20 21:41

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	5970	53100	53300	94.4	94.6	1	80.0-120			0.200	15
Sulfate	50000	57500	101000	101000	87.6	87.3	1	80.0-120	E	E	0.169	15

L1178996-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178996-04 01/14/20 22:10 • (MS) R3490820-6 01/14/20 22:24 • (MSD) R3490820-7 01/14/20 22:39

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 %
Chloride	50000	16700	63700	63300	94.0	93.2	1	80.0-120			0.649	15

L1178996-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178996-07 01/15/20 04:39 • (MS) R3490820-9 01/15/20 04:53 • (MSD) R3490820-10 01/15/20 05:36

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	19700	66500	66600	93.5	93.7	1	80.0-120			0.183	15
Sulfate	50000	9690	56600	56600	93.9	93.8	1	80.0-120			0.0966	15

Method Blank (MB)

(MB) R3490962-1 01/15/20 10:45

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		46.3	1000
Magnesium	22.8	J	11.1	1000
Potassium	U		102	1000
Sodium	U		98.5	1000

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3490962-2 01/15/20 10:48 • (LCSD) R3490962-3 01/15/20 10:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	9760	9750	97.6	97.5	80.0-120			0.0879	20
Magnesium	10000	10200	10100	102	101	80.0-120			0.342	20
Potassium	10000	9760	9710	97.6	97.1	80.0-120			0.542	20
Sodium	10000	9930	9920	99.3	99.2	80.0-120			0.174	20

L1178964-31 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1178964-31 01/15/20 10:53 • (MS) R3490962-5 01/15/20 10:58 • (MSD) R3490962-6 01/15/20 11:01

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	1650	11400	11200	97.4	95.9	1	75.0-125			1.28	20
Magnesium	10000	1590	11600	11500	100	99.5	1	75.0-125			0.846	20
Potassium	10000	2630	12200	12000	95.2	94.0	1	75.0-125			1.00	20
Sodium	10000	17200	27300	26800	101	96.1	1	75.0-125			1.97	20

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.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

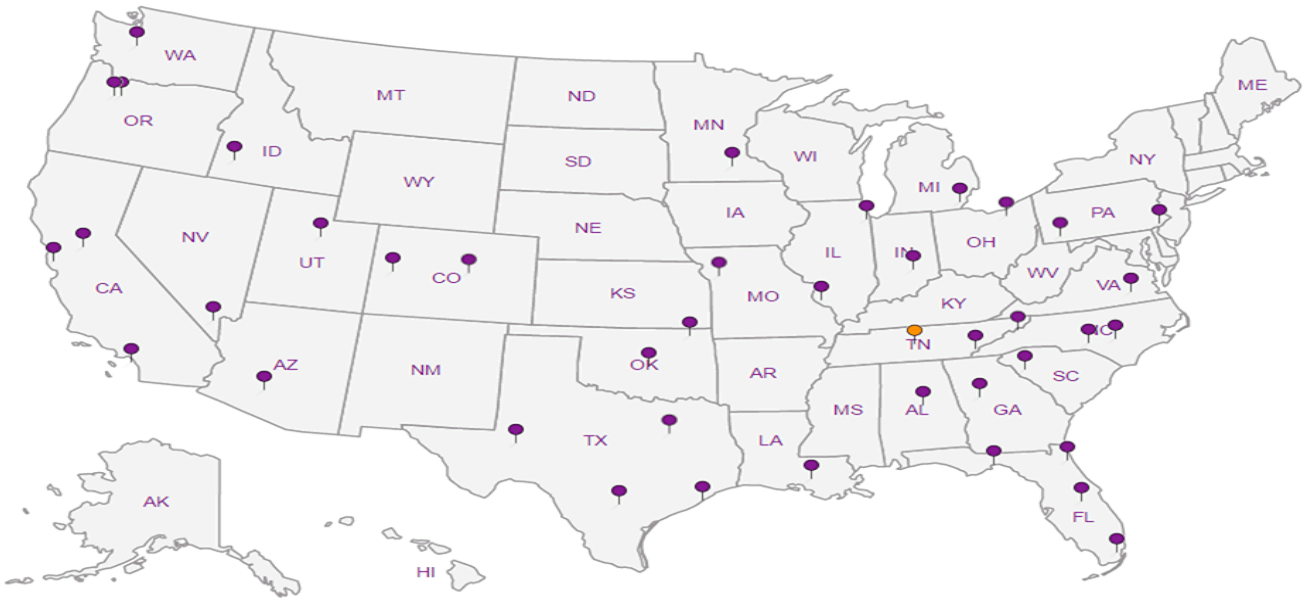
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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@kcpl.com;

Project Description: Evergy Sibley Generating Statio

City/State Collected: SIBLEY MO

Please Circle: PT MT CT ET

Phone: 913-681-0030
Fax: 913-681-0012

Client Project # 27213169.19

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): JASON R. FRANKS

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Site/Facility ID #

P.O. #

Quote #

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

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALKBI, ALKCA 125mlHDPE-NoPres	Ca, K, Mg, Na - 6010 250mlHDPE-HNO3	Chloride - 9056 125mlHDPE-NoPres	Chloride, SO4 - 9056 125mlHDPE-NoPres	SO4 - 9056 125mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-512	GRAB	GW	-	1/13/2020	1530	3	X	X	X				-01
MW-803	↓	GW	-		1515	3	X	X			X		02
MW-804	↓	GW	-	↓	1555	3	X	X		X			03

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1178998

F081

Table #

Acctnum: AQUAOPKS

Template: T152962

Prelogin: P750311

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:

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)	Date:	Time:	Received by: (Signature)
	1/13/20	1700	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	1/13/20	1800	FedEx
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Betty Barnes

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: °C Bottles Received:
0.7+1.3=1.0°C 9

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Date: 1/14/20 Time: 1055

Jared Morrison
December 16, 2022

ATTACHMENT 1-2

February 2020 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

February 06, 2020

SCS Engineers - KS

Sample Delivery Group:	L1186188
Samples Received:	02/05/2020
Project Number:	27213168.19
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

TABLE OF CONTENTS

MW-512 L1186188-01 GW

Collected by: Jason R. Franks | Collected date/time: 02/03/20 11:55 | Received date/time: 02/05/20 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 00:02	02/06/20 00:02	ELN	Mt. Juliet, TN

DUPLICATE 1 L1186188-02 GW

Collected by: Jason R. Franks | Collected date/time: 02/03/20 11:55 | Received date/time: 02/05/20 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 00:46	02/06/20 00:46	ELN	Mt. Juliet, TN

MW-804 L1186188-03 GW

Collected by: Jason R. Franks | Collected date/time: 02/03/20 12:45 | Received date/time: 02/05/20 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 01:00	02/06/20 01:00	ELN	Mt. Juliet, TN

DUPLICATE 2 L1186188-04 GW

Collected by: Jason R. Franks | Collected date/time: 02/03/20 12:45 | Received date/time: 02/05/20 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 02:12	02/06/20 02:12	ELN	Mt. Juliet, TN

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

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	61600	J6	5000	1	02/06/2020 00:02	WG1423103

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	61900		5000	1	02/06/2020 00:46	WG1423103

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	337		100	1	02/06/2020 01:00	WG1423103

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	335		100	1	02/06/2020 02:12	WG1423103

Method Blank (MB)

(MB) R3497541-1 02/05/20 22:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

L1186180-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1186180-01 02/05/20 23:34 • (DUP) R3497541-3 02/05/20 23:48

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	744	745	1	0.188		15
Sulfate	19400	19200	1	0.982		15

L1186330-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1186330-01 02/06/20 09:24 • (DUP) R3497541-18 02/06/20 09:39

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	845	852	1	0.837		15
Sulfate	11100	11200	1	0.615		15

Laboratory Control Sample (LCS)

(LCS) R3497541-2 02/05/20 23:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluoride	8000	8070	101	80.0-120	
Sulfate	40000	38700	96.7	80.0-120	

L1186188-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186188-01 02/06/20 00:02 • (MS) R3497541-4 02/06/20 00:17 • (MSD) R3497541-5 02/06/20 00:31

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 %
Fluoride	5000	323	4730	4780	88.1	89.1	1	80.0-120			0.981	15
Sulfate	50000	61600	98100	98700	73.1	74.2	1	80.0-120	J6	J6	0.569	15

L1186188-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186188-03 02/06/20 01:00 • (MS) R3497541-6 02/06/20 01:14 • (MSD) R3497541-7 02/06/20 01:58

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 %
Fluoride	5000	337	4800	4890	89.2	91.0	1	80.0-120			1.82	15
Sulfate	50000	ND	46500	46700	88.3	88.7	1	80.0-120			0.398	15

L1186193-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186193-01 02/06/20 02:26 • (MS) R3497541-8 02/06/20 02:41 • (MSD) R3497541-9 02/06/20 02:55

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 %
Fluoride	5000	209	4350	4470	82.8	85.3	1	80.0-120			2.83	15
Sulfate	50000	2000000	1980000	1980000	0.000	0.000	1	80.0-120	E V	E V	0.0504	15

L1186202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186202-01 02/06/20 03:24 • (MS) R3497541-10 02/06/20 03:38 • (MSD) R3497541-11 02/06/20 03:53

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 %
Fluoride	5000	1050	5500	5530	89.0	89.6	1	80.0-120			0.493	15
Sulfate	50000	32800	72500	71900	79.4	78.3	1	80.0-120	J6	J6	0.804	15

L1186202-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186202-03 02/06/20 04:51 • (MS) R3497541-12 02/06/20 05:05 • (MSD) R3497541-13 02/06/20 05:19

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 %
Fluoride	5000	130	4630	4690	90.1	91.2	1	80.0-120			1.17	15
Sulfate	50000	1180000	1200000	1190000	30.6	24.6	1	80.0-120	E V	E V	0.250	15

L1186248-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186248-01 02/06/20 05:48 • (MS) R3497541-14 02/06/20 06:03 • (MSD) R3497541-15 02/06/20 06:17

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 %
Fluoride	5000	329	4880	4940	90.9	92.1	1	80.0-120			1.24	15
Sulfate	50000	30100	71600	72000	83.1	83.8	1	80.0-120			0.503	15

L1186248-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186248-06 02/06/20 07:00 • (MS) R3497541-16 02/06/20 07:43 • (MSD) R3497541-17 02/06/20 07:58

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 %
Fluoride	5000	792	5410	5420	92.3	92.6	1	80.0-120			0.272	15
Sulfate	50000	193000	208000	207000	29.4	28.8	1	80.0-120	E J6	E J6	0.142	15

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).
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

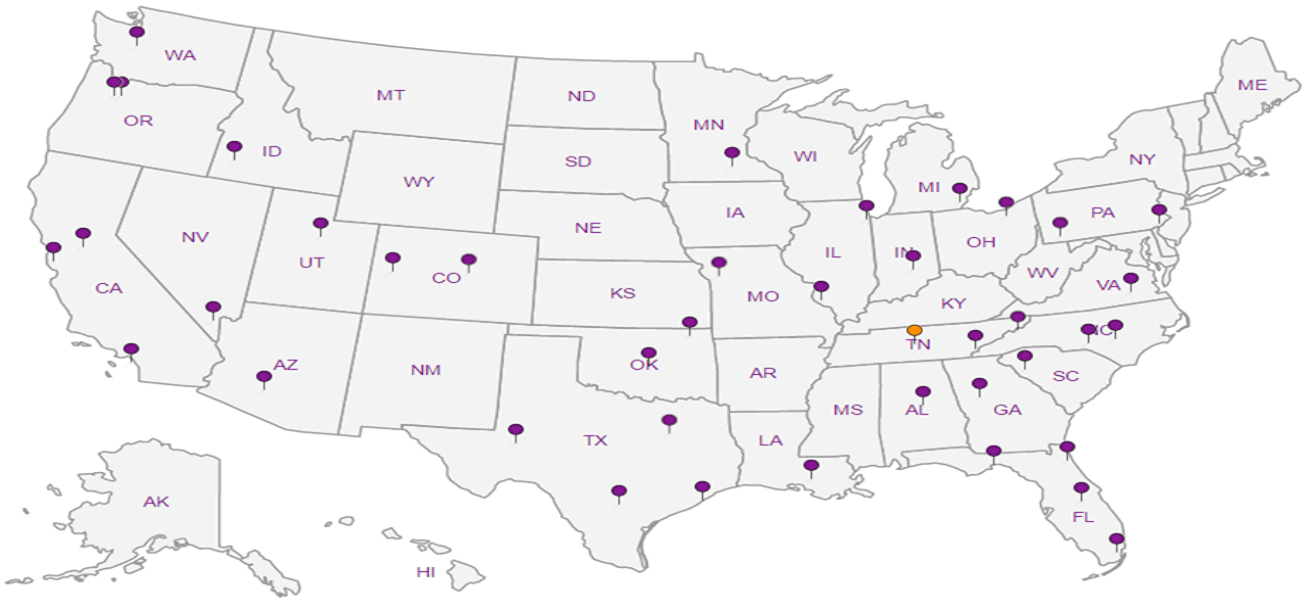
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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@kcpl.com;

Project Description: Evergy - Sibley Generating Stati
City/State Collected: Sibley MO
Please Circle: PT MT CT ET

Phone: 913-681-0030
Fax: 913-681-0012
Client Project # 27213168.19
Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Jason R. Franks
Site/Facility ID #
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

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1186188
C051

Acctnum: AQUAOPKS
Template: T129789
Prelogin: P753041
PM: 206 - Jeff Carr
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Fluoride - 9056 125mlHDPE-NoPres	Sulfate - 9056 125mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-512	6 GAS	GW		02/3/20	1155	1		X		-01
DUPLICATE 1		GW			1155	1		X		02
MW-512 MS/MSD		GW			1155	1		X		01
MW-804		GW			1245	1	X			03
DUPLICATE 2		GW			1245	1	X			04
MW-804 MS/MSD		GW			1245	1	X			03

* 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 SUA
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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR
	02/4/20	1238		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.5+.1=1.6 °C Bottles Received: 6
	2/4/20	1800	FedEx	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2-5-20 Time: 800

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-3

May 2020 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 28, 2020

SCS Engineers - KS

Sample Delivery Group:	L1220387
Samples Received:	05/20/2020
Project Number:	27213169.20
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

TABLE OF CONTENTS

MW-504 L1220387-01 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 12:40 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/21/20 22:46	05/21/20 22:46	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 14:09	CCE	Mt. Juliet, TN

MW-505 L1220387-02 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 11:50 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/21/20 23:20	05/21/20 23:20	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 14:17	CCE	Mt. Juliet, TN

MW-506 L1220387-03 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 14:10 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/21/20 23:37	05/21/20 23:37	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 14:19	CCE	Mt. Juliet, TN

MW-510 L1220387-04 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:30 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/21/20 23:54	05/21/20 23:54	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 14:22	CCE	Mt. Juliet, TN

MW-512 L1220387-05 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:55 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/22/20 00:11	05/22/20 00:11	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 14:25	CCE	Mt. Juliet, TN

MW-601 L1220387-06 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 15:15 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/22/20 00:28	05/22/20 00:28	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 13:17	CCE	Mt. Juliet, TN

DUPLICATE 2 L1220387-07 GW

Collected by: G. Penaflor
Collected date/time: 05/18/20 15:20
Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1480143	1	05/22/20 18:17	05/23/20 02:50	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1480031	1	05/22/20 01:52	05/22/20 01:52	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1479057	1	05/22/20 22:22	05/23/20 14:27	CCE	Mt. Juliet, TN

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

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	205000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	ND		1000	1	05/21/2020 22:46	WG1480031
Fluoride	182		150	1	05/21/2020 22:46	WG1480031
Sulfate	34800		5000	1	05/21/2020 22:46	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 14:09	WG1479057
Calcium	37200		1000	1	05/23/2020 14:09	WG1479057

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	179000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1060		1000	1	05/21/2020 23:20	WG1480031
Fluoride	202		150	1	05/21/2020 23:20	WG1480031
Sulfate	16300		5000	1	05/21/2020 23:20	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 14:17	WG1479057
Calcium	30500		1000	1	05/23/2020 14:17	WG1479057

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	444000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7110		1000	1	05/21/2020 23:37	WG1480031
Fluoride	308		150	1	05/21/2020 23:37	WG1480031
Sulfate	80000		5000	1	05/21/2020 23:37	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 14:19	WG1479057
Calcium	92700		1000	1	05/23/2020 14:19	WG1479057

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	474000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	3300		1000	1	05/21/2020 23:54	WG1480031
Fluoride	293		150	1	05/21/2020 23:54	WG1480031
Sulfate	12300		5000	1	05/21/2020 23:54	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 14:22	WG1479057
Calcium	119000		1000	1	05/23/2020 14:22	WG1479057

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	481000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7690		1000	1	05/22/2020 00:11	WG1480031
Fluoride	286		150	1	05/22/2020 00:11	WG1480031
Sulfate	71600		5000	1	05/22/2020 00:11	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 14:25	WG1479057
Calcium	110000		1000	1	05/23/2020 14:25	WG1479057

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	396000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	3130		1000	1	05/22/2020 00:28	WG1480031
Fluoride	252		150	1	05/22/2020 00:28	WG1480031
Sulfate	9000		5000	1	05/22/2020 00:28	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 13:17	WG1479057
Calcium	99600		1000	1	05/23/2020 13:17	WG1479057

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	403000		10000	1	05/23/2020 02:50	WG1480143

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	3120		1000	1	05/22/2020 01:52	WG1480031
Fluoride	238		150	1	05/22/2020 01:52	WG1480031
Sulfate	9010		5000	1	05/22/2020 01:52	WG1480031

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/23/2020 14:27	WG1479057
Calcium	100000		1000	1	05/23/2020 14:27	WG1479057

Method Blank (MB)

(MB) R3531327-1 05/23/20 02:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1220387-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1220387-07 05/23/20 02:50 • (DUP) R3531327-3 05/23/20 02:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	403000	400000	1	0.747		5

Laboratory Control Sample (LCS)

(LCS) R3531327-2 05/23/20 02:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	7790000	88.5	85.0-115	

Method Blank (MB)

(MB) R3530803-1 05/21/20 21:55

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

L1220387-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1220387-01 05/21/20 22:46 • (DUP) R3530803-3 05/21/20 23:03

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	ND	1	0.653		15
Fluoride	182	177	1	2.40		15
Sulfate	34800	34900	1	0.174		15

L1220408-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1220408-05 05/22/20 03:17 • (DUP) R3530803-6 05/22/20 03:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	7790	7850	1	0.817		15
Fluoride	186	193	1	3.60		15
Sulfate	46800	46700	1	0.0387		15

Laboratory Control Sample (LCS)

(LCS) R3530803-2 05/21/20 22:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39000	97.5	80.0-120	
Fluoride	8000	8140	102	80.0-120	
Sulfate	40000	39800	99.4	80.0-120	

L1220387-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1220387-06 05/22/20 00:28 • (MS) R3530803-4 05/22/20 00:45 • (MSD) R3530803-5 05/22/20 01:35

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	3130	53300	53100	100	99.9	1	80.0-120			0.316	15
Fluoride	5000	252	5270	5240	100	99.7	1	80.0-120			0.602	15
Sulfate	50000	9000	59900	59400	102	101	1	80.0-120			0.795	15

L1220425-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1220425-02 05/22/20 05:15 • (MS) R3530803-7 05/22/20 05:32

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	2160	51800	99.3	1	80.0-120	
Fluoride	5000	199	5180	99.6	1	80.0-120	
Sulfate	50000	21400	71500	100	1	80.0-120	

Method Blank (MB)

(MB) R3531525-1 05/23/20 13:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		25.4	200
Calcium	U		389	1000

Laboratory Control Sample (LCS)

(LCS) R3531525-2 05/23/20 13:14

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	1020	102	80.0-120	
Calcium	10000	10300	103	80.0-120	

L1220387-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1220387-06 05/23/20 13:17 • (MS) R3531525-4 05/23/20 13:22 • (MSD) R3531525-5 05/23/20 13:24

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	1040	1050	99.7	100	1	75.0-125			0.413	20
Calcium	10000	99600	108000	109000	82.5	95.7	1	75.0-125			1.22	20

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.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

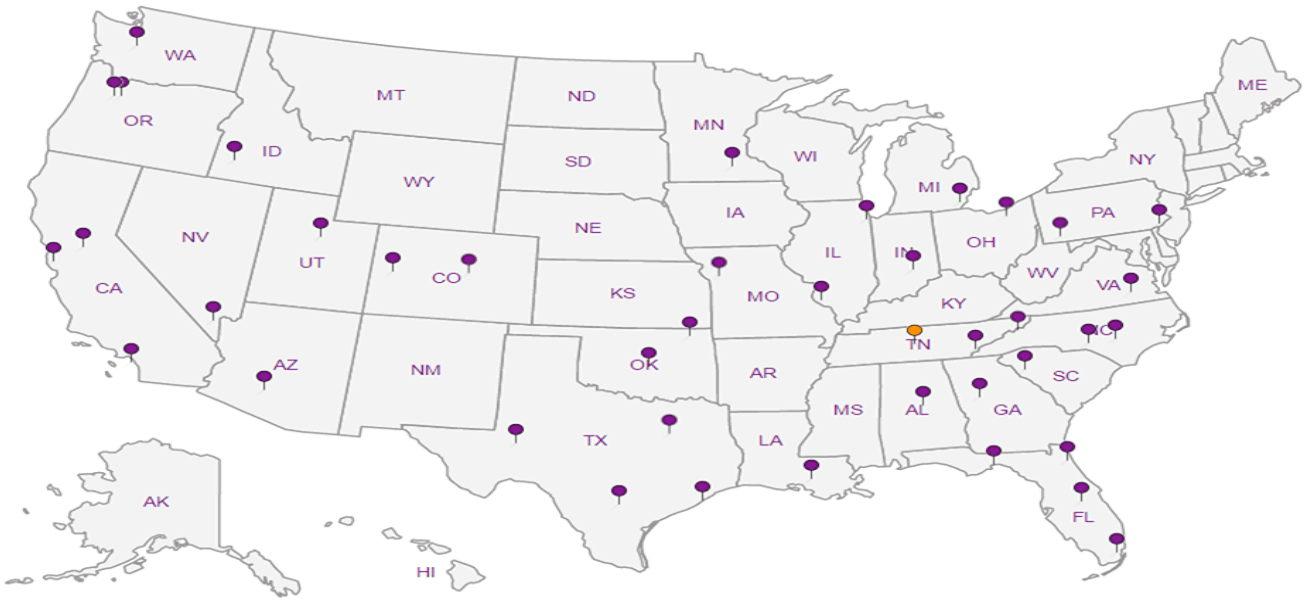
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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: LZ

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: Jason Franks

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

Project Description: Evergy - Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT (CT) ET

Phone: 913-681-0030

Client Project #: 27213169.20

Lab Project #: AQUAOPKS-SIBLEY

SDG # 1220387

G200

Site/Facility ID #

P.O. #

Acctnum: AQUAOPKS

Template: T166706

Prelogin: P769428

PM: 206 - Jeff Carr

PB:

Shipped Via:

Collected by (print): G. Penaflor

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

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	Anions (Cld, F, SO4) 125mlHDPE-NoPres	B, Ca - 6010 250mlHDPE-HNO3	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-504	GRAB	GW		5/18/20	1240	3	X	X	X		-01
MW-505	↓	GW		↓	1150	3	X	X	X		02
MW-506	↓	GW		↓	1410	3	X	X	X		03
MW-510	↓	GW		↓	1630	3	X	X	X		04
MW-512	↓	GW		↓	1655	3	X	X	X		05
MW-601	↓	GW		↓	1515	3	X	X	X		06
DUPLICATE 2	↓	GW		↓	1520	3	X	X	X		07
601 MS / MSD	↓	GW		↓	1525	3	X	X	X		06

* 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)	Date:	Time:	Received by: (Signature)	
[signature]	5/19/20	1357	[signature] 5-19-20 1357	Trip Blank Received: Yes / (No) HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: PA6 °C 2.6-.1=2.5 Bottles Received: 24
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 5/20/20 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 28, 2020

SCS Engineers - KS

Sample Delivery Group:	L1220404
Samples Received:	05/20/2020
Project Number:	27213168.20
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

TABLE OF CONTENTS

801 L1220404-01 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 13:15 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1479741	1	05/20/20 21:00	05/21/20 07:57	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:19	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 00:07	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 01:02	LD	Mt. Juliet, TN

802 L1220404-02 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 12:10 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1479741	1	05/20/20 21:00	05/21/20 07:59	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:21	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 00:11	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 01:06	LD	Mt. Juliet, TN

803 L1220404-03 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 15:05 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1479741	1	05/20/20 21:00	05/21/20 08:01	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:24	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 00:14	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 01:09	LD	Mt. Juliet, TN

804 L1220404-04 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:35 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1479741	1	05/20/20 21:00	05/21/20 08:03	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:26	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 00:17	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 01:13	LD	Mt. Juliet, TN

805 L1220404-05 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 17:40 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1479741	1	05/20/20 21:00	05/21/20 08:09	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:34	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 00:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 01:16	LD	Mt. Juliet, TN

806R L1220404-06 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 18:00 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1479741	1	05/20/20 21:00	05/21/20 08:11	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:37	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 00:24	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1480567	1	05/24/20 19:41	05/25/20 01:20	LD	Mt. Juliet, TN

504 L1220404-07 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 12:50 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:39	EL	Mt. Juliet, TN

505 L1220404-08 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 11:50 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:42	EL	Mt. Juliet, TN

506 L1220404-09 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 14:10 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:45	EL	Mt. Juliet, TN

510 L1220404-10 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:30 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:47	EL	Mt. Juliet, TN

512 L1220404-11 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:55 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:50	EL	Mt. Juliet, TN

601 L1220404-12 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 15:15 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:08	EL	Mt. Juliet, TN

DUPLICATE 2 L1220404-13 GW

Collected by: G. Penaflor | Collected date/time: 05/18/20 15:20 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1480572	1	05/26/20 09:47	05/27/20 12:53	EL	Mt. Juliet, TN

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

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/21/2020 07:57	WG1479741

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	112		5.00	1	05/27/2020 12:19	WG1480572
Chromium	ND		10.0	1	05/27/2020 12:19	WG1480572
Cobalt	ND		10.0	1	05/27/2020 12:19	WG1480572
Lithium	ND		15.0	1	05/27/2020 12:19	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:19	WG1480572

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		4.00	1	05/25/2020 00:07	WG1480567
Arsenic	ND		2.00	1	05/25/2020 00:07	WG1480567
Beryllium	ND		2.00	1	05/25/2020 01:02	WG1480567
Cadmium	ND		1.00	1	05/25/2020 00:07	WG1480567
Lead	ND		5.00	1	05/25/2020 00:07	WG1480567
Selenium	ND		2.00	1	05/25/2020 00:07	WG1480567
Thallium	ND		2.00	1	05/25/2020 00:07	WG1480567

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/21/2020 07:59	WG1479741

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	163		5.00	1	05/27/2020 12:21	WG1480572
Chromium	ND		10.0	1	05/27/2020 12:21	WG1480572
Cobalt	ND		10.0	1	05/27/2020 12:21	WG1480572
Lithium	ND		15.0	1	05/27/2020 12:21	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:21	WG1480572

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		4.00	1	05/25/2020 00:11	WG1480567
Arsenic	2.18		2.00	1	05/25/2020 00:11	WG1480567
Beryllium	ND		2.00	1	05/25/2020 01:06	WG1480567
Cadmium	ND		1.00	1	05/25/2020 00:11	WG1480567
Lead	ND		5.00	1	05/25/2020 00:11	WG1480567
Selenium	ND		2.00	1	05/25/2020 00:11	WG1480567
Thallium	ND		2.00	1	05/25/2020 00:11	WG1480567

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/21/2020 08:01	WG1479741

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	119		5.00	1	05/27/2020 12:24	WG1480572
Chromium	ND		10.0	1	05/27/2020 12:24	WG1480572
Cobalt	ND		10.0	1	05/27/2020 12:24	WG1480572
Lithium	ND		15.0	1	05/27/2020 12:24	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:24	WG1480572

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		4.00	1	05/25/2020 00:14	WG1480567
Arsenic	2.46		2.00	1	05/25/2020 00:14	WG1480567
Beryllium	ND		2.00	1	05/25/2020 01:09	WG1480567
Cadmium	ND		1.00	1	05/25/2020 00:14	WG1480567
Lead	ND		5.00	1	05/25/2020 00:14	WG1480567
Selenium	ND		2.00	1	05/25/2020 00:14	WG1480567
Thallium	ND		2.00	1	05/25/2020 00:14	WG1480567

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/21/2020 08:03	WG1479741

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	477		5.00	1	05/27/2020 12:26	WG1480572
Chromium	ND		10.0	1	05/27/2020 12:26	WG1480572
Cobalt	ND		10.0	1	05/27/2020 12:26	WG1480572
Lithium	21.0		15.0	1	05/27/2020 12:26	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:26	WG1480572

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		4.00	1	05/25/2020 00:17	WG1480567
Arsenic	3.22		2.00	1	05/25/2020 00:17	WG1480567
Beryllium	ND		2.00	1	05/25/2020 01:13	WG1480567
Cadmium	ND		1.00	1	05/25/2020 00:17	WG1480567
Lead	ND		5.00	1	05/25/2020 00:17	WG1480567
Selenium	ND		2.00	1	05/25/2020 00:17	WG1480567
Thallium	ND		2.00	1	05/25/2020 00:17	WG1480567

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.200	1	05/21/2020 08:09	WG1479741

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	143		5.00	1	05/27/2020 12:34	WG1480572
Chromium	ND		10.0	1	05/27/2020 12:34	WG1480572
Cobalt	ND		10.0	1	05/27/2020 12:34	WG1480572
Lithium	ND		15.0	1	05/27/2020 12:34	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:34	WG1480572

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	ND		4.00	1	05/25/2020 00:20	WG1480567
Arsenic	ND		2.00	1	05/25/2020 00:20	WG1480567
Beryllium	ND		2.00	1	05/25/2020 01:16	WG1480567
Cadmium	ND		1.00	1	05/25/2020 00:20	WG1480567
Lead	ND		5.00	1	05/25/2020 00:20	WG1480567
Selenium	ND		2.00	1	05/25/2020 00:20	WG1480567
Thallium	ND		2.00	1	05/25/2020 00:20	WG1480567

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/21/2020 08:11	WG1479741

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	71.4		5.00	1	05/27/2020 12:37	WG1480572
Chromium	ND		10.0	1	05/27/2020 12:37	WG1480572
Cobalt	ND		10.0	1	05/27/2020 12:37	WG1480572
Lithium	16.3		15.0	1	05/27/2020 12:37	WG1480572
Molybdenum	2160		5.00	1	05/27/2020 12:37	WG1480572

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		4.00	1	05/25/2020 00:24	WG1480567
Arsenic	5.55		2.00	1	05/25/2020 00:24	WG1480567
Beryllium	ND		2.00	1	05/25/2020 01:20	WG1480567
Cadmium	ND		1.00	1	05/25/2020 00:24	WG1480567
Lead	ND		5.00	1	05/25/2020 00:24	WG1480567
Selenium	ND		2.00	1	05/25/2020 00:24	WG1480567
Thallium	ND		2.00	1	05/25/2020 00:24	WG1480567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lithium	ND		15.0	1	05/27/2020 12:39	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:39	WG1480572

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lithium	ND		15.0	1	05/27/2020 12:42	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:42	WG1480572

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lithium	ND		15.0	1	05/27/2020 12:45	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:45	WG1480572

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lithium	ND		15.0	1	05/27/2020 12:47	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:47	WG1480572

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lithium	ND		15.0	1	05/27/2020 12:50	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:50	WG1480572

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lithium	ND		15.0	1	05/27/2020 12:08	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:08	WG1480572

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lithium	ND		15.0	1	05/27/2020 12:53	WG1480572
Molybdenum	ND		5.00	1	05/27/2020 12:53	WG1480572

Method Blank (MB)

(MB) R3530267-1 05/21/20 07:21

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.100	0.200

Laboratory Control Sample (LCS)

(LCS) R3530267-2 05/21/20 07:23

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	3.00	3.02	101	80.0-120	

Method Blank (MB)

(MB) R3532351-1 05/27/20 12:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		0.895	5.00
Chromium	U		5.00	10.0
Cobalt	U		0.807	10.0
Lithium	U		5.74	15.0
Molybdenum	U		1.04	5.00

Laboratory Control Sample (LCS)

(LCS) R3532351-2 05/27/20 12:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1000	987	98.7	80.0-120	
Chromium	1000	945	94.5	80.0-120	
Cobalt	1000	953	95.3	80.0-120	
Lithium	1000	953	95.3	80.0-120	
Molybdenum	1000	986	98.6	80.0-120	

L1220404-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1220404-12 05/27/20 12:08 • (MS) R3532351-4 05/27/20 12:13 • (MSD) R3532351-5 05/27/20 12:16

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 %
Barium	1000	328	1290	1300	96.3	97.3	1	75.0-125			0.751	20
Chromium	1000	ND	939	953	93.9	95.3	1	75.0-125			1.40	20
Cobalt	1000	ND	961	972	96.1	97.2	1	75.0-125			1.15	20
Lithium	1000	ND	962	977	95.4	97.0	1	75.0-125			1.58	20
Molybdenum	1000	ND	990	998	98.8	99.7	1	75.0-125			0.822	20

Method Blank (MB)

(MB) R3531397-1 05/24/20 23:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		1.32	4.00
Arsenic	U		0.735	2.00
Beryllium	U		0.454	2.00
Cadmium	U		0.478	1.00
Lead	U		2.49	5.00
Selenium	U		0.657	2.00
Thallium	U		0.460	2.00

Laboratory Control Sample (LCS)

(LCS) R3531397-2 05/24/20 23:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	50.0	46.7	93.3	80.0-120	
Arsenic	50.0	46.7	93.4	80.0-120	
Beryllium	50.0	41.1	82.2	80.0-120	
Cadmium	50.0	48.7	97.5	80.0-120	
Lead	50.0	45.5	90.9	80.0-120	
Selenium	50.0	48.4	96.8	80.0-120	
Thallium	50.0	45.6	91.2	80.0-120	

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.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

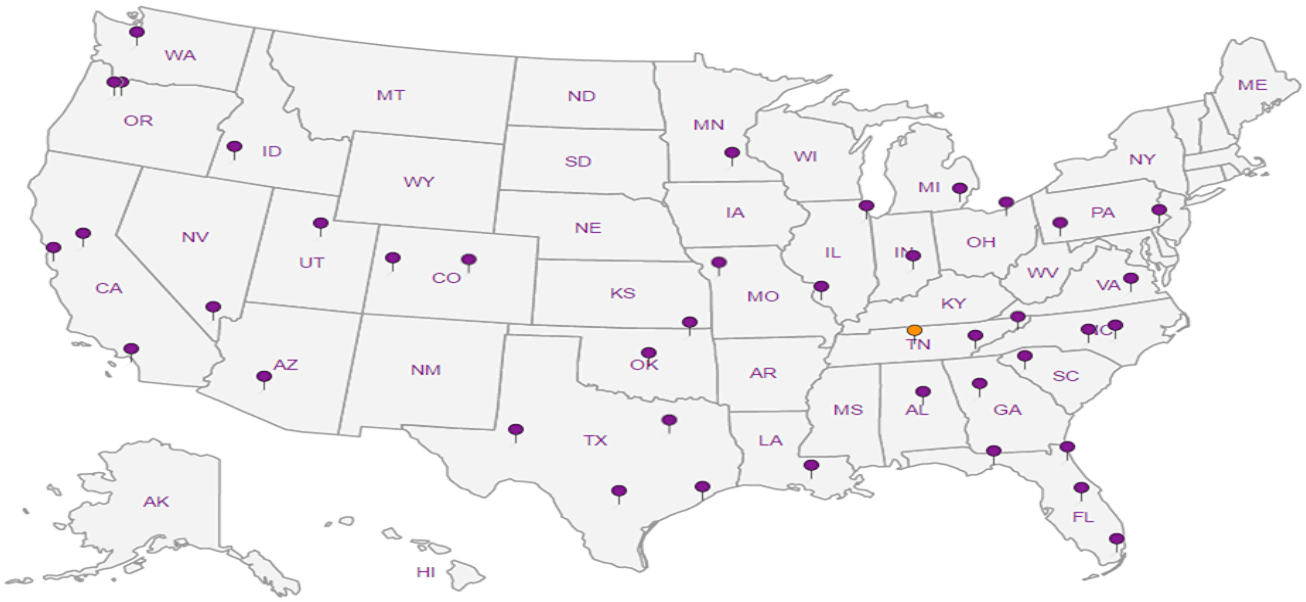
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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

Report to: Jason Franks

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

Project Description: Evergy - Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213168.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): G. Penaflor

Site/Facility ID #

P.O. #

Collected by (signature): Immediately Packed on Ice N ___ Y X

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	Li, Mo - 6010 250mlHDPE-HNO3	Metals - CCR AP IV 250mlHDPE-HNO3	Remarks	Sample # (lab only)
[redacted]		GW				1		X		
[redacted]		GW				1		X		
[redacted]		GW				1		X		
[redacted]		GW				1		X		
801	GRAB	GW		5/18/20	1315	1		X		-01
802		GW			1210	1		X		02
803		GW			1505	1		X		03
804		GW			1635	1		X		04
805		GW			1740	1		X		05
806R		GW			1800	1		X		06

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 122604

G201

Acctnum: AQUAOPKS
Template: T166973
Prelogin: P770370
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: CCR AP IV 6010 Metals-Ba,Cr,Co,Li,Mo 6020 metals-Sb,As,Be,Cd,Pb,Se,Tl 7470 metals - Hg

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) Jason R. Franklin	Date: 5/19/20	Time: 1357	Received by: (Signature)	5-19-20 1357	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)		Temp: 1.6 °C 2.6-.1=2.5 Bottles Received: 14
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/20/20 Time: 8:45	Hold:

If preservation required by Login: Date/Time

Condition: NCF / OK

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: LL

Report to: Jason Franks

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

Project Description: Evergy - Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213168.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): G. Penaflor

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Site/Facility ID #

P.O. #

Quote #

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

Date Results Needed: Std

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Li, Mo - 6010 250mlHDPE-HNO3	Metals - CCR AP IV 250mlHDPE-HNO3	Remarks	Sample # (lab only)
504	GRAB	GW		5/18/20	1240	1	X			07
505		GW			1150	1	X			08
506		GW			1410	1	X			09
510		GW			1630	1	X			10
512		GW			1655	1	X			11
601		GW			1515	1	X			12
601 MS/MSD		GW			1525	1	X			12
DUPLICATE 2		GW			1520	1	X			13

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 122040

Table #

Acctnum: AQUAOPKS

Template: T166973

Prelogin: P770370

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: CCR AP IV 6010 Metals-Ba,Cr,Co,Li,Mo 6020 metals-Sb,As,Be,Cd,Pb,Se,Tl 7470 metals - Hg

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)	Date: 5/19/20	Time: 1357	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.6 °C Bottles Received: 14	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/20/20 Time: 8:45	Hold: Condition: NCF / OK

Received by: (Signature) 5-19-20 1357

2.6-.1=2.5

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

June 18, 2020

SCS Engineers - KS

Sample Delivery Group:	L1220442
Samples Received:	05/20/2020
Project Number:	27213167.20
Description:	Evergy - Sibley Generating Station

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

Entire Report Reviewed By:

Donna Eidson
Project Manager

TABLE OF CONTENTS

801 L1220442-01 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 13:15 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

802 L1220442-02 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 12:10 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

803 L1220442-03 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 15:05 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

804 L1220442-04 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:35 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

805 L1220442-05 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 17:40 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

806R L1220442-06 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 18:00 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

DUPLICATE 2 L1220442-07 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 15:20 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

504 L1220442-08 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 12:40 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

505 L1220442-09 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 11:50 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 09:30	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

506 L1220442-10 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 14:10 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 19:44	RGT	Mt. Juliet, TN

510 L1220442-11 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:30 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 19:44	RGT	Mt. Juliet, TN

512 L1220442-12 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 05/18/20 16:55 | Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

601 L1220442-13 Non-Potable Water

Collected by: G. Penaflor
Collected date/time: 05/18/20 15:15
Received date/time: 05/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1482009	1	05/26/20 12:34	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1486283	1	06/04/20 09:38	06/15/20 13:40	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1486283	1	06/04/20 09:38	06/05/20 15:28	RGT	Mt. Juliet, TN

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Donna Eidson
Project Manager

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.222		0.681	1.04	06/15/2020 09:30	WG1482009
(T) Barium	*108*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*82.5*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.270		0.826	1.3	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0484		0.145	0.261	06/05/2020 15:28	WG1486283
(T) Barium-133	*95.7*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.735		0.656	1.04	06/15/2020 09:30	WG1482009
(T) Barium	*113*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*86.4*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.02		0.854	1.21	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.284		0.198	0.174	06/05/2020 15:28	WG1486283
(T) Barium-133	*105*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.15		0.716	1.12	06/15/2020 09:30	WG1482009
(T) Barium	*106*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*87.6*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.26		0.865	1.34	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.111		0.149	0.216	06/05/2020 15:28	WG1486283
(T) Barium-133	*101*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.718		0.631	1.06	06/15/2020 09:30	WG1482009
(T) Barium	*118*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*85.5*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.03		0.914	1.42	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.309		0.283	0.357	06/05/2020 15:28	WG1486283
(T) Barium-133	*105*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.16		0.650	0.914	06/15/2020 09:30	WG1482009
(T) Barium	*106*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*87.3*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.74		0.960	1.15	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.577		0.310	0.232	06/05/2020 15:28	WG1486283
(T) Barium-133	*97.6*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.225		0.666	1	06/15/2020 09:30	WG1482009
(T) Barium	*101*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*87.4*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.0780		0.819	1.26	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0780		0.153	0.258	06/05/2020 15:28	WG1486283
(T) Barium-133	*100*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.0567		0.537	0.807	06/15/2020 09:30	WG1482009
(T) Barium	*101*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*94.3*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.324		0.764	1.03	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.324		0.227	0.219	06/05/2020 15:28	WG1486283
(T) Barium-133	*106*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.453		0.544	0.839	06/15/2020 09:30	WG1482009
(T) Barium	*108*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*99.2*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.469		0.647	1.08	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0166		0.103	0.24	06/05/2020 15:28	WG1486283
(T) Barium-133	*108*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.149		0.648	1.07	06/15/2020 09:30	WG1482009
(T) Barium	*111*			*62.0-143*	*06/15/2020 09:30*	WG1482009
(T) Yttrium	*93.5*			*79.0-136*	*06/15/2020 09:30*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.270		0.841	1.37	06/15/2020 09:30	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.121		0.193	0.299	06/05/2020 15:28	WG1486283
(T) Barium-133	*96.0*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.0969		0.605	0.936	06/15/2020 13:40	WG1482009
(T) Barium	*96.9*			*62.0-143*	*06/15/2020 13:40*	WG1482009
(T) Yttrium	*100*			*79.0-136*	*06/15/2020 13:40*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.370		0.835	1.18	06/15/2020 13:40	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.273		0.230	0.247	06/05/2020 19:44	WG1486283
(T) Barium-133	*97.1*			*30.0-143*	*06/05/2020 19:44*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.151		0.556	0.79	06/15/2020 13:40	WG1482009
(T) Barium	*107*			*62.0-143*	*06/15/2020 13:40*	WG1482009
(T) Yttrium	*92.9*			*79.0-136*	*06/15/2020 13:40*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.198		0.773	1.08	06/15/2020 13:40	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.198		0.217	0.287	06/05/2020 19:44	WG1486283
(T) Barium-133	*110*			*30.0-143*	*06/05/2020 19:44*	WG1486283

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.41		0.718	1.13	06/15/2020 13:40	WG1482009
(T) Barium	*99.8*			*62.0-143*	*06/15/2020 13:40*	WG1482009
(T) Yttrium	*88.5*			*79.0-136*	*06/15/2020 13:40*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.52		0.877	1.36	06/15/2020 13:40	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.119		0.159	0.231	06/05/2020 15:28	WG1486283
(T) Barium-133	*99.3*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	3.26		0.657	0.955	06/15/2020 13:40	WG1482009
(T) Barium	*112*			*62.0-143*	*06/15/2020 13:40*	WG1482009
(T) Yttrium	*91.4*			*79.0-136*	*06/15/2020 13:40*	WG1482009

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	3.36		0.800	1.17	06/15/2020 13:40	WG1486283

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0976		0.143	0.215	06/05/2020 15:28	WG1486283
(T) Barium-133	*101*			*30.0-143*	*06/05/2020 15:28*	WG1486283

Method Blank (MB)

(MB) R3540062-1 06/15/20 09:30

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-228	0.127		0.482
(T) Barium	*115*		
(T) Yttrium	*93.8*		

L1221494-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1221494-01 06/15/20 13:40 • (DUP) R3540062-5 06/15/20 09:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	
Radium-228	1.41	1.55	1	9.73	0.160		20	3
(T) Barium	*111*	*111*						
(T) Yttrium	*98.8*	*80.0*						

Laboratory Control Sample (LCS)

(LCS) R3540062-2 06/15/20 09:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.58	112	80.0-120	
(T) Barium			*111*		
(T) Yttrium			*80.7*		

Method Blank (MB)

(MB) R3537637-1 06/05/20 15:28

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.0208		0.0501
(T) Barium-133	*96.5*		

L1220442-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1220442-01 06/05/20 15:28 • (DUP) R3537637-5 06/05/20 15:28

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.0484	-0.120	1	200	0.894		20	3
(T) Barium-133	*95.7*	*106*						

Laboratory Control Sample (LCS)

(LCS) R3537637-2 06/05/20 15:28

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.31	106	80.0-120	
(T) Barium-133			*103*		

L1220442-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1220442-13 06/05/20 15:28 • (MS) R3537637-3 06/05/20 15:28 • (MSD) R3537637-4 06/05/20 15:28

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.0976	20.9	20.9	103	103	1	75.0-125			0.192		20
(T) Barium-133		*101*			*102*	*107*							

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

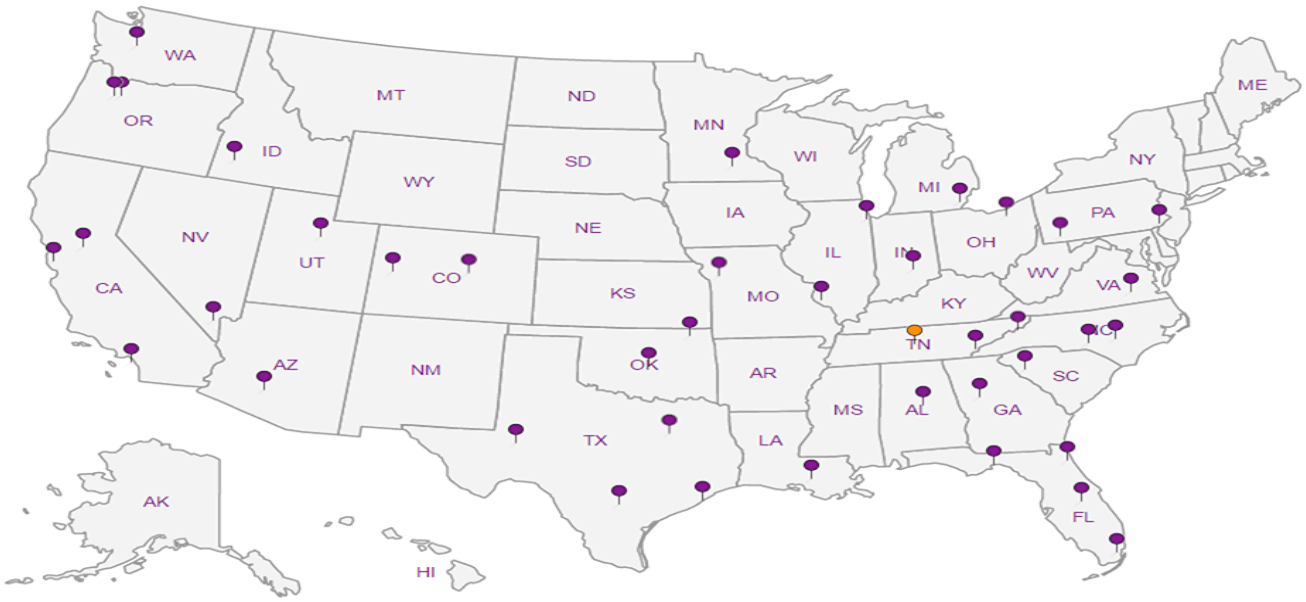
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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: LL

Report to: Jason Franks

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

Project Description: Evergy - Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213167.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): G. Peyaflor

Collected by (Signature): Immediately Packed on Ice N ___ Y X

Site/Facility ID #

P.O. #

Quote #

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

Date Results Needed: Std

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 1220442

G204

Acctnum: AQUAOPKS

Template: T115110

Prelogin: P769516

PM: 206 - Jeff Carr

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
801	GRAB	NPW		5/18/20	1315	2	X		-01
802		NPW			1210	2	X		02
803		NPW			1505	2	X		03
804		NPW			1635	2	X		04
805		NPW			1740	2	X		05
806R		NPW			1800	2	X		06
DUPLICATE 2		NPW			1520	2	X		07
*601 MS/MSD		NPW			1525	2	X		13
MSD		NPW				2	X		

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

Remarks: RA 226/228 - Report separately and combined.

* MISSING BOTTLE KIT; USED XTRA SMALLER NON-PRES BOTTLES & XFER'D TO HNO3 1L's

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Jason K. Franks	5/19/20	1357	5-19-20 1357	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp °C Bottles Received: 2.6 -.1 = 2.5 28
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Carol Kemp	Date: 5/20/20 Time: 9:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

...Engineers - KS

...W. 110th Street
...rland Park, KS 66210

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

Pres Chk: 22

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

Report to:
...son Franks

Project Description:
Evergy – Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT (CT) ET

Phone: 913-681-0030

Client Project #: 27213167.20

Lab Project #: AQUAOPKS-SIBLEY

Site/Facility ID #:

P.O. #:

Collected by (print): G. Penafior

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

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

Analysis / Container / Preservative: RA226, RA228 1L-HDPE-Add HNO3

Chain of Custody Page 2 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG #: 1220442

Table #:

Acctnum: **AQUAOPKS**

Template: **T115110**

Prelogin: **P769516**

PM: 206 - Jeff Carr

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
504	GRAB	NPW		5/18/20	1240	2	X		08
505	↓	NPW		↓	1150	2	X		09
506	↓	NPW		↓	1410	2	X		10
510	↓	NPW		↓	1630	2	X		11
512	↓	NPW		↓	1655	2	X		11
601	↓	NPW		↓	1515	2	X		12
[redacted]									13

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

Remarks: **RA 226/228 - Report separately and combined.**

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
Jason R. Franks	5/19/20	1357	[signature] 5-19-20 1357	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: PA6 °C 2.6-.1=2.5 Bottles Received: 18
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Carol Kemp	Date: 5/20/20 Time: 8:48

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-4

July 2020 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 23, 2020

SCS Engineers - KS

Sample Delivery Group:	L1240487
Samples Received:	07/16/2020
Project Number:	27213169.20
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

TABLE OF CONTENTS

MW-505 L1240487-01 GW

Collected by | Collected date/time 07/14/20 10:05 | Received date/time 07/16/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1511288	1	07/19/20 18:31	07/19/20 23:28	EL	Mt. Juliet, TN

DUPLICATE 1 L1240487-02 GW

Collected by | Collected date/time 07/14/20 10:10 | Received date/time 07/16/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1511288	1	07/19/20 18:31	07/19/20 23:46	EL	Mt. Juliet, TN

MW-506 L1240487-03 GW

Collected by | Collected date/time 07/14/20 10:55 | Received date/time 07/16/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1510683	1	07/18/20 17:10	07/18/20 17:10	ELN	Mt. Juliet, TN

MW-512 L1240487-04 GW

Collected by | Collected date/time 07/14/20 09:55 | Received date/time 07/16/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1512349	1	07/21/20 18:45	07/21/20 20:34	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1510683	1	07/18/20 18:18	07/18/20 18:18	ELN	Mt. Juliet, TN

DUPLICATE 2 L1240487-05 GW

Collected by | Collected date/time 07/14/20 09:55 | Received date/time 07/16/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1512349	1	07/21/20 18:45	07/21/20 20:34	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1510683	1	07/18/20 17:27	07/18/20 17:27	ELN	Mt. Juliet, TN

MW-804 L1240487-06 GW

Collected by | Collected date/time 07/14/20 11:05 | Received date/time 07/16/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1510683	1	07/18/20 19:08	07/18/20 19:08	ELN	Mt. Juliet, TN

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

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	32400		1000	1	07/19/2020 23:28	WG1511288

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	32000		1000	1	07/19/2020 23:46	WG1511288

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	78600		5000	1	07/18/2020 17:10	WG1510683

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	501000		10000	1	07/21/2020 20:34	WG1512349

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8830		1000	1	07/18/2020 18:18	WG1510683
Sulfate	77600		5000	1	07/18/2020 18:18	WG1510683

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	501000		10000	1	07/21/2020 20:34	WG1512349

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8400		1000	1	07/18/2020 17:27	WG1510683
Sulfate	73500		5000	1	07/18/2020 17:27	WG1510683

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20900		1000	1	07/18/2020 19:08	WG1510683

Method Blank (MB)

(MB) R3552211-1 07/21/20 20:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L1239512-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1239512-01 07/21/20 20:34 • (DUP) R3552211-3 07/21/20 20:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	128000	130000	1	1.55		5

L1240490-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1240490-04 07/21/20 20:34 • (DUP) R3552211-4 07/21/20 20:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1200000	1210000	1	1.49		5

Laboratory Control Sample (LCS)

(LCS) R3552211-2 07/21/20 20:34

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8820000	100	85.0-115	

Method Blank (MB)

(MB) R3551061-1 07/18/20 09:04

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

L1240151-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1240151-01 07/18/20 12:40 • (DUP) R3551061-4 07/18/20 12:57

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	14300	14200	1	0.400		15

L1240151-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1240151-01 07/18/20 15:29 • (DUP) R3551061-5 07/18/20 15:46

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	157000	157000	5	0.0626		15

L1240510-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1240510-02 07/18/20 19:59 • (DUP) R3551061-6 07/18/20 20:16

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1990	1990	1	0.0853		15
Sulfate	ND	ND	1	1.19		15

Laboratory Control Sample (LCS)

(LCS) R3551061-2 07/18/20 09:21

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39900	99.8	80.0-120	
Sulfate	40000	38200	95.5	80.0-120	

L1240100-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1240100-01 07/18/20 12:06 • (MS) R3551061-3 07/18/20 12:23

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	42400	91000	97.1	1	80.0-120	
Sulfate	50000	ND	51100	97.1	1	80.0-120	

L1240487-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1240487-04 07/18/20 18:18 • (MS) R3551061-7 07/18/20 18:35 • (MSD) R3551061-8 07/18/20 18:52

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	8830	56100	56900	94.5	96.1	1	80.0-120			1.43	15
Sulfate	50000	77600	120000	121000	85.1	86.8	1	80.0-120	E	E	0.692	15

Method Blank (MB)

(MB) R3550989-1 07/19/20 23:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	U		389	1000

Laboratory Control Sample (LCS)

(LCS) R3550989-2 07/19/20 23:25

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Calcium	10000	9890	98.9	80.0-120	

L1240487-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1240487-01 07/19/20 23:28 • (MS) R3550989-4 07/19/20 23:33 • (MSD) R3550989-5 07/19/20 23:36

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	%	%		%			%	%
Calcium	10000	32400	41300	41300	89.7	89.8	1	75.0-125			0.0124	20

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).

ACCREDITATIONS & LOCATIONS

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

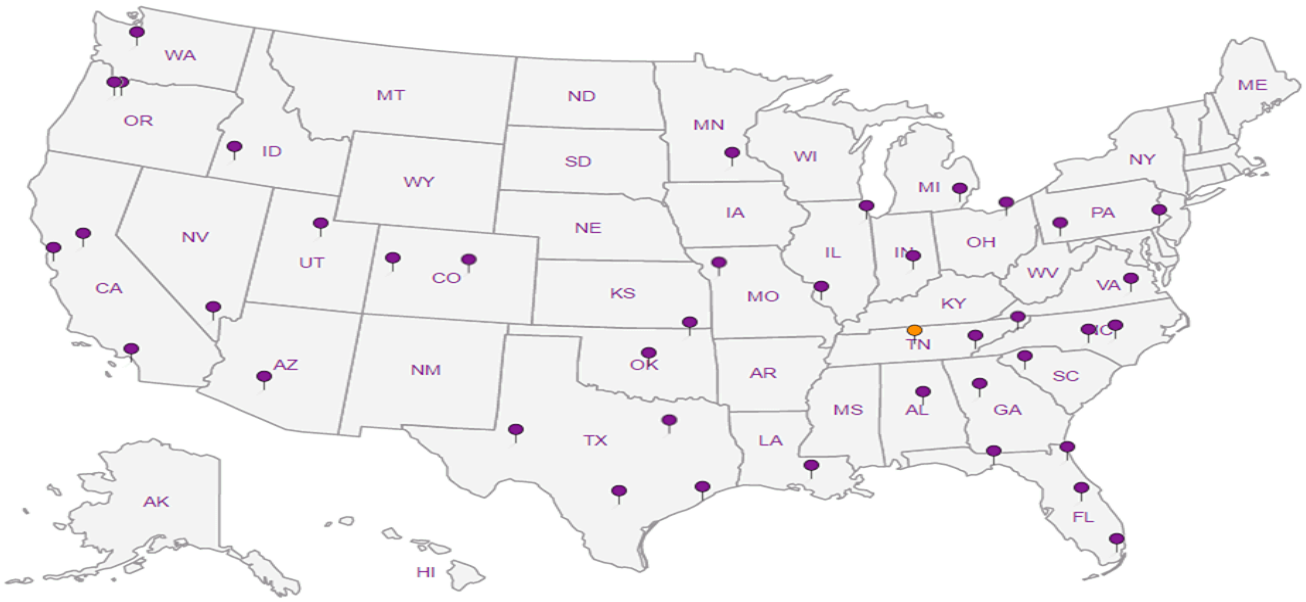
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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 Generating Station

City/State Collected:

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213169.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print):

Site/Facility ID #

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

Pres Chk: 22

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1246487

1038

Acctnum: AQUAOPKS

Template: T166706

Prelogin: P784778

PM: 206 - Jeff Carr

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Calcium - 6010 250mlHDPE-HNO3	Chloride 125mlHDPE-NoPres	Chloride, SO4 125mlHDPE-NoPres	Sulfate 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-505		GW		7/14/20	1005	1	X						-01
MW-505 MS/MSD		GW		7/14/20	1015	1	X						01
DUPLICATE 1		GW		7/14/20	1016	1	X						0202
MW-506		GW		7/14/20	1055	1				X			03 03
MW-512		GW		7/14/20	955	2			X		X		04 04
MW-512 MS/MSD		GW		7/14/20	955	2			X				04
DUPLICATE 2		GW		7/14/20	955	2			X		X		05
MW-804		GW		7/14/20	1105	1		X					06

* 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 # 1845 4330 2058

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
[signature]	7/15/20	1325	[signature] 7-15-20 1326	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.4-1-0.3=0.1 °C Bottles Received: 11
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 7/16/20 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Jared Morrison
December 16, 2022

ATTACHMENT 1-5

August 2020 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 02, 2020

SCS Engineers - KS

Sample Delivery Group:	L1255482
Samples Received:	08/27/2020
Project Number:	27213169.20
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

TABLE OF CONTENTS

MW-505 L1255482-01 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 15:55 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1535590	1	08/31/20 22:55	09/01/20 14:16	TRB	Mt. Juliet, TN

DUPLICATE 1 L1255482-02 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 15:55 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1535075	1	09/01/20 12:43	09/01/20 18:13	TRB	Mt. Juliet, TN

MW-506 L1255482-03 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 14:55 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 11:06	08/28/20 11:06	LBR	Mt. Juliet, TN

MW-512 L1255482-04 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 14:10 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1534612	1	08/29/20 10:05	08/29/20 13:00	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 11:17	08/28/20 11:17	LBR	Mt. Juliet, TN

DUPLICATE 2 L1255482-05 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 14:10 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1534611	1	08/29/20 09:50	08/29/20 12:53	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 11:49	08/28/20 11:49	LBR	Mt. Juliet, TN

MW-804 L1255482-06 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 13:25 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 12:00	08/28/20 12:00	LBR	Mt. Juliet, TN

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

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	30300		1000	1	09/01/2020 14:16	WG1535590

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	30700		1000	1	09/01/2020 18:13	WG1535075

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	79600		5000	1	08/28/2020 11:06	WG1533924

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	493000		10000	1	08/29/2020 13:00	WG1534612

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8790		1000	1	08/28/2020 11:17	WG1533924
Sulfate	80100		5000	1	08/28/2020 11:17	WG1533924

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	483000		10000	1	08/29/2020 12:53	WG1534611

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	9050		1000	1	08/28/2020 11:49	WG1533924
Sulfate	81600		5000	1	08/28/2020 11:49	WG1533924

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20800		1000	1	08/28/2020 12:00	WG1533924

Method Blank (MB)

(MB) R3565358-1 08/29/20 12:53

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Dissolved Solids	U		2820	10000

L1255045-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1255045-01 08/29/20 12:53 • (DUP) R3565358-3 08/29/20 12:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	276000	275000	1	0.363		5

L1255660-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1255660-03 08/29/20 12:53 • (DUP) R3565358-4 08/29/20 12:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	325000	332000	1	2.13		5

Laboratory Control Sample (LCS)

(LCS) R3565358-2 08/29/20 12:53

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8510000	96.7	77.4-123	

Method Blank (MB)

(MB) R3565362-1 08/29/20 13:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Dissolved Solids	U		2820	10000

L1253986-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1253986-16 08/29/20 13:00 • (DUP) R3565362-3 08/29/20 13:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	79000	77000	1	2.56		5

L1255554-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1255554-04 08/29/20 13:00 • (DUP) R3565362-4 08/29/20 13:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	8190000	9500000	1	14.9	J3	5

Laboratory Control Sample (LCS)

(LCS) R3565362-2 08/29/20 13:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8330000	94.7	77.4-123	

Method Blank (MB)

(MB) R3565005-1 08/28/20 05:09

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

L1255046-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1255046-01 08/28/20 06:23 • (DUP) R3565005-3 08/28/20 06:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	ND	1	0.000		15
Sulfate	16100	16900	1	4.57		15

L1255482-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1255482-06 08/28/20 12:00 • (DUP) R3565005-10 08/28/20 12:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	20800	20600	1	1.01		15
Sulfate	27800	27600	1	0.647		15

Laboratory Control Sample (LCS)

(LCS) R3565005-2 08/28/20 05:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39900	99.8	80.0-120	
Sulfate	40000	39900	99.7	80.0-120	

L1255433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1255433-01 08/28/20 07:07 • (MS) R3565005-4 08/28/20 07:18 • (MSD) R3565005-5 08/28/20 07:28

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	16600	69200	67900	105	102	1	80.0-120			1.91	15
Sulfate	50000	47900	98500	97900	101	100	1	80.0-120			0.558	15

L1255433-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1255433-06 08/28/20 08:23 • (MS) R3565005-6 08/28/20 08:34 • (MSD) R3565005-7 08/28/20 08:45

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	20000	71300	70500	103	101	1	80.0-120			1.23	15
Sulfate	50000	182000	232000	225000	101	87.4	1	80.0-120	E	E	2.92	15

L1255482-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1255482-04 08/28/20 11:17 • (MS) R3565005-8 08/28/20 11:27 • (MSD) R3565005-9 08/28/20 11:38

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	8790	60500	60000	103	102	1	80.0-120			0.858	15
Sulfate	50000	80100	130000	130000	99.0	99.0	1	80.0-120	E	E	0.0218	15

Method Blank (MB)

(MB) R3566317-1 09/01/20 17:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		389	1000

Laboratory Control Sample (LCS)

(LCS) R3566317-2 09/01/20 17:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10000	9650	96.5	80.0-120	

L1255259-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1255259-09 09/01/20 17:34 • (MS) R3566317-4 09/01/20 17:39 • (MSD) R3566317-5 09/01/20 17:42

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	77100	85800	85600	86.5	84.5	1	75.0-125			0.238	20

Method Blank (MB)

(MB) R3566286-1 09/01/20 14:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	U		389	1000

Laboratory Control Sample (LCS)

(LCS) R3566286-2 09/01/20 14:13

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Calcium	10000	9690	96.9	80.0-120	

L1255482-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1255482-01 09/01/20 14:16 • (MS) R3566286-4 09/01/20 14:22 • (MSD) R3566286-5 09/01/20 14:24

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	%	%		%			%	%
Calcium	10000	30300	39500	39400	92.5	91.7	1	75.0-125			0.213	20

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).
J3	The associated batch QC was outside the established quality control range for precision.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

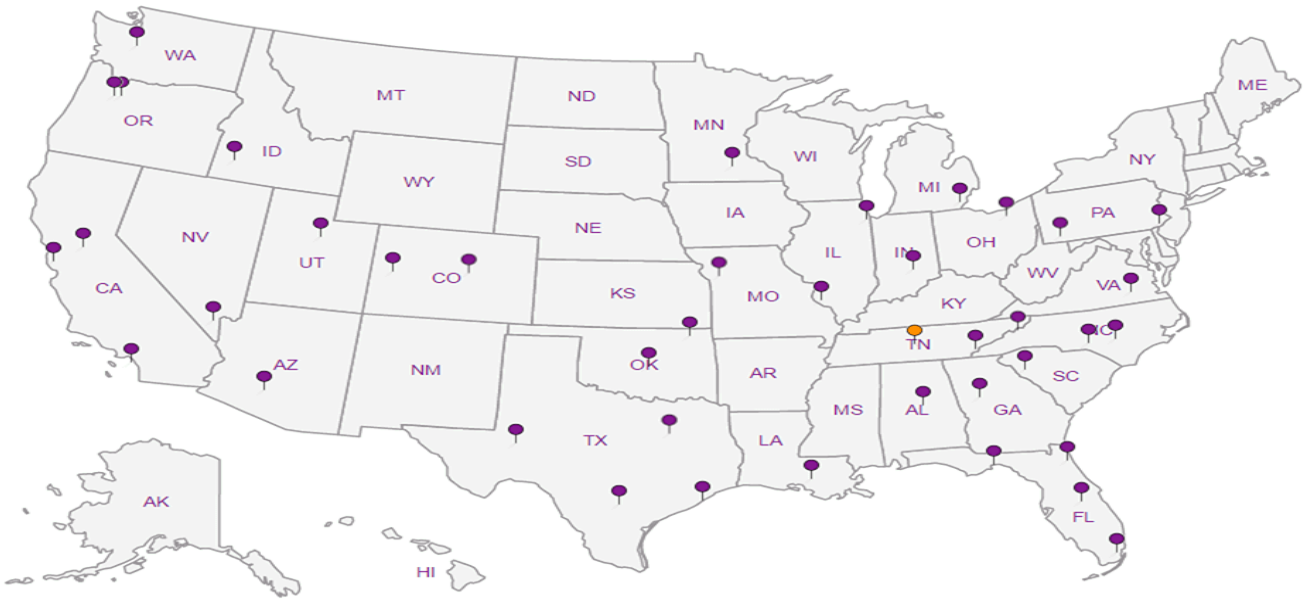
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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

Report to: Jason Franks

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

Project Description: Evergy - Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213169.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1255482

M049

Acctnum: AQUAOPKS
Template: T166706
Prelogin: P789904
PM: 206 - Jeff Carr
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Calcium - 6010 250mlHDPE-HNO3	Chloride 125mlHDPE-NoPres	Chloride, SO4 125mlHDPE-NoPres	Sulfate 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-505	Grab	GW		8/26/20	1555	1	X						-01
MW-505 MS/MSD	Grab	GW		8/26/20	1555	1	X						01
DUPLICATE 1	Grab	GW		8/26/20	1555	1	X						02
MW-506	Grab	GW		8/26/20	1455	1				X			03
MW-512	Grab	GW		8/26/20	1410	2			X		X		04
MW-512 MS/MSD	Grab	GW		8/26/20	1410	1			X				04
DUPLICATE 2	Grab	GW		8/26/20	1410	2			X		X		05
MW-804	Grab	GW		8/26/20	1325	1		X					06

* 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 # 1790 3036 3230

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

	Date:	Time:		
Relinquished by: (Signature)	8/26/20	1700	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
Relinquished by: (Signature)	8/26/20	1800	Received by: (Signature) FedEx	Temp: 0.3 °C 3.9-5-29 Bottles Received: 10
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 08/27/2020 Time: 9:30

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 03, 2020

SCS Engineers - KS

Sample Delivery Group:	L1255481
Samples Received:	08/27/2020
Project Number:	27213169.20
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

TABLE OF CONTENTS

MW-505 L1255481-01 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 15:55 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1534051	1	09/02/20 23:21	09/02/20 23:21	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 10:33	08/28/20 10:33	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1535077	1	09/01/20 11:45	09/01/20 15:18	EL	Mt. Juliet, TN

MW-506 L1255481-02 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 14:55 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1534051	1	09/02/20 23:30	09/02/20 23:30	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 10:44	08/28/20 10:44	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1535077	1	09/01/20 11:45	09/01/20 15:20	EL	Mt. Juliet, TN

MW-512 L1255481-03 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 14:10 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1534051	1	09/02/20 23:37	09/02/20 23:37	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1535077	1	09/01/20 11:45	09/01/20 15:23	EL	Mt. Juliet, TN

MW-804 L1255481-04 GW

Collected by: Whit Martin | Collected date/time: 08/26/20 13:25 | Received date/time: 08/27/20 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1534051	1	09/02/20 23:44	09/02/20 23:44	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1533924	1	08/28/20 10:55	08/28/20 10:55	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1535077	1	09/01/20 11:45	09/01/20 15:26	EL	Mt. Juliet, TN

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

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	110000		20000	1	09/02/2020 23:21	WG1534051
Alkalinity,Carbonate	ND		20000	1	09/02/2020 23:21	WG1534051

Sample Narrative:

L1255481-01 WG1534051: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1030		1000	1	08/28/2020 10:33	WG1533924
Sulfate	14300		5000	1	08/28/2020 10:33	WG1533924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Magnesium	8950		1000	1	09/01/2020 15:18	WG1535077
Potassium	ND		2000	1	09/01/2020 15:18	WG1535077
Sodium	8950		3000	1	09/01/2020 15:18	WG1535077

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	289000		20000	1	09/02/2020 23:30	WG1534051
Alkalinity,Carbonate	ND		20000	1	09/02/2020 23:30	WG1534051

Sample Narrative:

L1255481-02 WG1534051: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	7310		1000	1	08/28/2020 10:44	WG1533924

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Calcium	93900		1000	1	09/01/2020 15:20	WG1535077
Magnesium	38200		1000	1	09/01/2020 15:20	WG1535077
Potassium	ND		2000	1	09/01/2020 15:20	WG1535077
Sodium	8150		3000	1	09/01/2020 15:20	WG1535077

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	349000		20000	1	09/02/2020 23:37	WG1534051
Alkalinity,Carbonate	ND		20000	1	09/02/2020 23:37	WG1534051

Sample Narrative:

L1255481-03 WG1534051: Endpoint pH 4.5 Headspace

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	114000		1000	1	09/01/2020 15:23	WG1535077
Magnesium	38900		1000	1	09/01/2020 15:23	WG1535077
Potassium	2130		2000	1	09/01/2020 15:23	WG1535077
Sodium	10400		3000	1	09/01/2020 15:23	WG1535077

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity,Bicarbonate	491000		20000	1	09/02/2020 23:44	WG1534051
Alkalinity,Carbonate	ND		20000	1	09/02/2020 23:44	WG1534051

Sample Narrative:

L1255481-04 WG1534051: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	27100		5000	1	08/28/2020 10:55	WG1533924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	148000		1000	1	09/01/2020 15:26	WG1535077
Magnesium	35100		1000	1	09/01/2020 15:26	WG1535077
Potassium	5410		2000	1	09/01/2020 15:26	WG1535077
Sodium	26900		3000	1	09/01/2020 15:26	WG1535077

Method Blank (MB)

(MB) R3566888-1 09/02/20 22:33

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

Sample Narrative:

BLANK: Endpoint pH 4.5

L1255315-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1255315-01 09/02/20 22:52 • (DUP) R3566888-2 09/02/20 22:59

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	381000	381000	1	0.0890		20
Alkalinity,Carbonate	ND	ND	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R3565005-1 08/28/20 05:09

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

Laboratory Control Sample (LCS)

(LCS) R3565005-2 08/28/20 05:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39900	99.8	80.0-120	
Sulfate	40000	39900	99.7	80.0-120	

Method Blank (MB)

(MB) R3566148-1 09/01/20 14:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		389	1000
Magnesium	U		111	1000
Potassium	U		510	2000
Sodium	U		1400	3000

Laboratory Control Sample (LCS)

(LCS) R3566148-2 09/01/20 14:23

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10000	9910	99.1	80.0-120	
Magnesium	10000	9380	93.8	80.0-120	
Potassium	10000	9340	93.4	80.0-120	
Sodium	10000	9980	99.8	80.0-120	

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.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

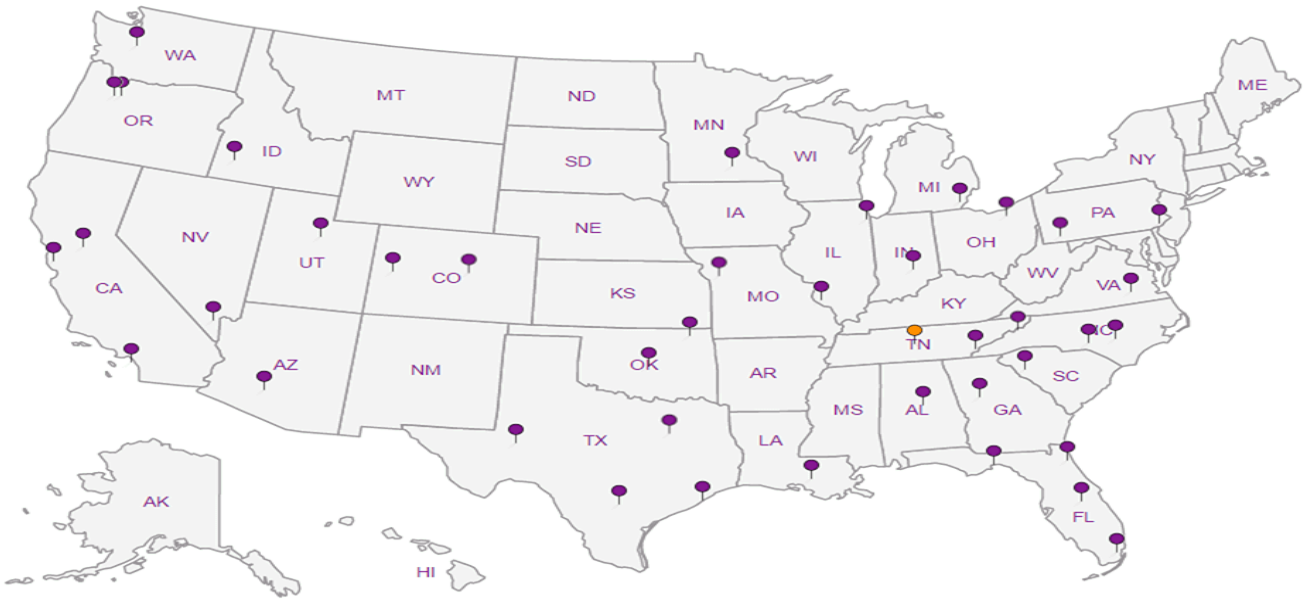
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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

Report to: Jason Franks

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

Project Description: Evergy Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213169.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALKBI, ALKCA 125mlHDPE-NoPres	Ca, K, Mg, Na - 6010 250mlHDPE-HNO3	Chloride - 9056 125mlHDPE-NoPres	Chloride, SO4 - 9056 125mlHDPE-NoPres	K, Mg, Na - 6010 250mlHDPE-HNO3	SO4 - 9056 125mlHDPE-NoPres	Remarks	Sample # (lab only)
								<2			<2			
MW-505	Grab	GW		8/26/20	1555	3	X			X	X			-01
MW-506	Grab	GW		8/26/20	1455	3	X	X	X					02
MW-512	Grab	GW		8/26/20	1410	2	X	X						03
MW-804	Grab	GW		8/26/20	1325	3	X	X				X		04

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1255481

M048

Acctnum: AQUAOPKS
Template: T152962
Prelogin: P789912
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:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 1790 3036 3230

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

	Date:	Time:		
Relinquished by: (Signature)	8/26/20	1700	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR
Relinquished by: (Signature)	8/26/20	1800	Received by: (Signature) FedEx	Temp: 3.4-5=2.9 °C Bottles Received: 11
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 08/27/2020 Time: 9:30

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-6

November 2020 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 25, 2020

SCS Engineers - KS

Sample Delivery Group:	L1285493
Samples Received:	11/13/2020
Project Number:	27213169.20
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

TABLE OF CONTENTS

MW-504 L1285493-01 GW

Collected by: Jason R. Franks | Collected date/time: 11/11/20 12:05 | Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 18:07	11/23/20 18:07	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 22:56	CCE	Mt. Juliet, TN

MW-505 L1285493-02 GW

Collected by: Jason R. Franks | Collected date/time: 11/11/20 12:45 | Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 18:32	11/23/20 18:32	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 22:58	CCE	Mt. Juliet, TN

MW-506 L1285493-03 GW

Collected by: Jason R. Franks | Collected date/time: 11/11/20 10:05 | Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 18:45	11/23/20 18:45	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 23:01	CCE	Mt. Juliet, TN

MW-510 L1285493-04 GW

Collected by: Jason R. Franks | Collected date/time: 11/11/20 10:45 | Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 18:58	11/23/20 18:58	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 23:04	CCE	Mt. Juliet, TN

MW-512 L1285493-05 GW

Collected by: Jason R. Franks | Collected date/time: 11/11/20 12:45 | Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 19:11	11/23/20 19:11	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 23:07	CCE	Mt. Juliet, TN

MW-601 L1285493-06 GW

Collected by: Jason R. Franks | Collected date/time: 11/11/20 11:45 | Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 19:24	11/23/20 19:24	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 22:24	CCE	Mt. Juliet, TN

DUPLICATE L1285493-07 GW

Collected by: Jason R. Franks
Collected date/time: 11/11/20 11:50
Received date/time: 11/13/20 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1578112	1	11/18/20 02:37	11/18/20 07:45	CAT	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1580299	1	11/23/20 20:29	11/23/20 20:29	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1577837	1	11/18/20 22:12	11/19/20 23:10	CCE	Mt. Juliet, TN

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

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	201000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	ND		1000	1	11/23/2020 18:07	WG1580299
Fluoride	172		150	1	11/23/2020 18:07	WG1580299
Sulfate	33100		5000	1	11/23/2020 18:07	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 22:56	WG1577837
Calcium	36300		1000	1	11/19/2020 22:56	WG1577837

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	175000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	ND		1000	1	11/23/2020 18:32	WG1580299
Fluoride	180		150	1	11/23/2020 18:32	WG1580299
Sulfate	19300		5000	1	11/23/2020 18:32	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 22:58	WG1577837
Calcium	29100		1000	1	11/19/2020 22:58	WG1577837

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	451000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7280		1000	1	11/23/2020 18:45	WG1580299
Fluoride	303		150	1	11/23/2020 18:45	WG1580299
Sulfate	87000		5000	1	11/23/2020 18:45	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 23:01	WG1577837
Calcium	93400		1000	1	11/19/2020 23:01	WG1577837

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	475000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	3260		1000	1	11/23/2020 18:58	WG1580299
Fluoride	290		150	1	11/23/2020 18:58	WG1580299
Sulfate	13700		5000	1	11/23/2020 18:58	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 23:04	WG1577837
Calcium	120000		1000	1	11/19/2020 23:04	WG1577837

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	508000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	9750		1000	1	11/23/2020 19:11	WG1580299
Fluoride	265		150	1	11/23/2020 19:11	WG1580299
Sulfate	92600		5000	1	11/23/2020 19:11	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 23:07	WG1577837
Calcium	115000		1000	1	11/19/2020 23:07	WG1577837

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	397000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	3190		1000	1	11/23/2020 19:24	WG1580299
Fluoride	235		150	1	11/23/2020 19:24	WG1580299
Sulfate	9390		5000	1	11/23/2020 19:24	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 22:24	WG1577837
Calcium	100000		1000	1	11/19/2020 22:24	WG1577837

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	407000		10000	1	11/18/2020 07:45	WG1578112

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	3160		1000	1	11/23/2020 20:29	WG1580299
Fluoride	236		150	1	11/23/2020 20:29	WG1580299
Sulfate	9120		5000	1	11/23/2020 20:29	WG1580299

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/19/2020 23:10	WG1577837
Calcium	101000		1000	1	11/19/2020 23:10	WG1577837

Method Blank (MB)

(MB) R3595277-1 11/18/20 07:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Dissolved Solids	U		2820	10000

L1285326-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1285326-01 11/18/20 07:45 • (DUP) R3595277-3 11/18/20 07:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	5370000	5500000	1	2.50		5

L1285493-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1285493-06 11/18/20 07:45 • (DUP) R3595277-4 11/18/20 07:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	397000	405000	1	2.00		5

Laboratory Control Sample (LCS)

(LCS) R3595277-2 11/18/20 07:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8800000	100	77.4-123	

Method Blank (MB)

(MB) R3596818-1 11/23/20 17:13

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

L1285493-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1285493-01 11/23/20 18:07 • (DUP) R3596818-3 11/23/20 18:19

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	ND	1	2.27		15
Fluoride	172	171	1	0.643		15
Sulfate	33100	33100	1	0.0683		15

L1285502-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1285502-01 11/23/20 23:18 • (DUP) R3596818-8 11/23/20 23:31

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1510	1490	1	1.47		15
Fluoride	176	175	1	0.569		15
Sulfate	33400	33100	1	1.04		15

Laboratory Control Sample (LCS)

(LCS) R3596818-2 11/23/20 17:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39500	98.8	80.0-120	
Fluoride	8000	8210	103	80.0-120	
Sulfate	40000	40300	101	80.0-120	

L1285493-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1285493-06 11/23/20 19:24 • (MS) R3596818-4 11/23/20 19:37 • (MSD) R3596818-5 11/23/20 20:16

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 %
Chloride	50000	3190	55000	54600	104	103	1	80.0-120			0.721	15
Fluoride	5000	235	5280	5250	101	100	1	80.0-120			0.663	15
Sulfate	50000	9390	61500	61000	104	103	1	80.0-120			0.870	15

L1285495-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1285495-06 11/23/20 21:47 • (MS) R3596818-6 11/23/20 22:00 • (MSD) R3596818-7 11/23/20 22:13

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	27100	77400	77900	101	102	1	80.0-120			0.697	15
Fluoride	5000	200	5410	5270	104	101	1	80.0-120			2.71	15
Sulfate	50000	220000	248000	251000	56.6	62.9	1	80.0-120	E V	E V	1.28	15

Method Blank (MB)

(MB) R3595509-1 11/19/20 22:19

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) R3595509-2 11/19/20 22:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	982	98.2	80.0-120	
Calcium	10000	9870	98.7	80.0-120	

L1285493-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1285493-06 11/19/20 22:24 • (MS) R3595509-4 11/19/20 22:30 • (MSD) R3595509-5 11/19/20 22:32

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	1020	1030	99.6	100	1	75.0-125			0.569	20
Calcium	10000	100000	109000	108000	83.7	80.2	1	75.0-125			0.320	20

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).
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

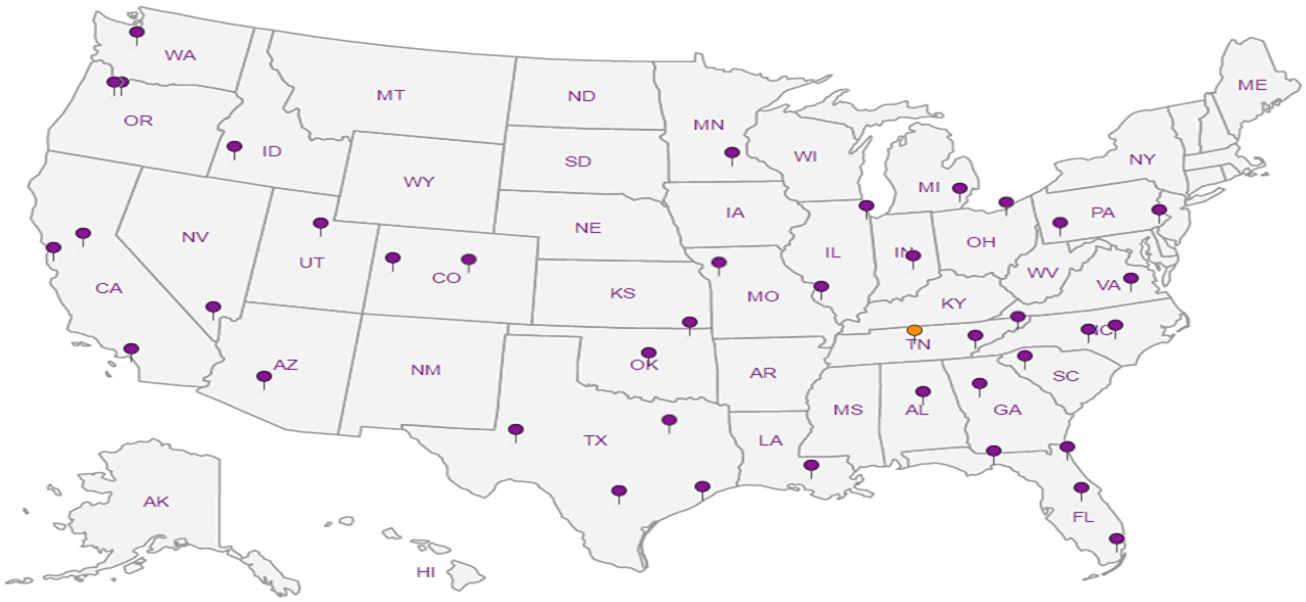
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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 Generating Station

City/State Collected: SIBLEY, MO

Please Circle: PT MT CT ET

Phone: 913-681-0030

Client Project # 27213169.20

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature): J. R. F.

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

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions (Cld, F, SO4) 125mlHDPE-NoPres	B, Ca - 6010 250mlHDPE-HNO3	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-504	GRAB	GW	-	11/11/20	1205	3	X	X	X		-01
MW-505		GW	-		1245	3	X	X	X		-02
MW-506		GW	-		1005	3	X	X	X		-03
MW-510		GW	-		1045	3	X	X	X		-04
MW-512		GW	-		1245	3	X	X	X		-05
MW-601		GW	-		1145	3	X	X	X		-06
601 MS/MSD		GW	-		1155	3	X	X	X		-06
DUPLICATE 1		GW	-		1150	3	X	X	X		-07

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1285493

1027

Acctnum: AQUAOPKS

Template: T136014

Prelogin: P807012

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:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: ✓ UPS __ FedEx __ Courier ✓ SWA

Tracking # Other temps: 4.3 / 1.9 / 1.6 / 1.2 / 1.7

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
	11/12/20	1322	Alan Nelson 11-12-20 1322		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.6 °C Bottles Received: 24	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/13/20 Time: 1230 ~~0800~~ TD	Hold: Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 2

Statistical Analyses

Jared Morrison
December 16, 2022

ATTACHMENT 2-1

Fall 2019 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

March 10, 2020

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
Fall 2019 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 6, 2019. Review and validation of the results from the November 2019 Detection Monitoring Event was completed on December 16, 2019, 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 January 13, 2020 and February 3, 2020.

The completed statistical evaluation identified one Appendix III constituent above the prediction limit established for monitoring well MW-512.

Constituent/Monitoring Well	*UPL	Observation November 6, 2019	1st Verification January 13, 2020	2nd Verification February 3, 2020
Sulfate				
MW-512	44.8	45.0	57.5	61.6

*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 a SSI above the background prediction limit for sulfate in 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 result, 1st verification re-sample result (when applicable), 2nd verification re-sample result (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

Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
March 10, 2020

ATTACHMENT 1

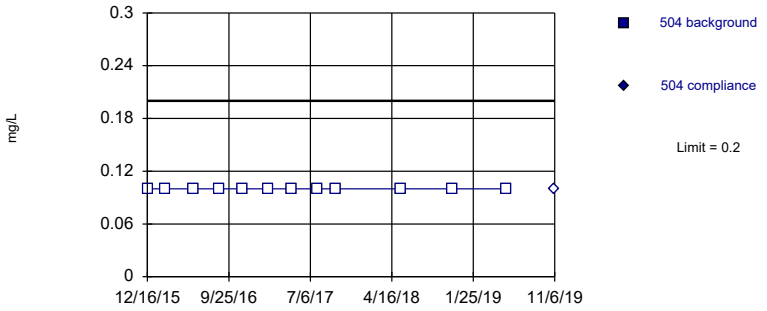
Sanitas™ Output

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

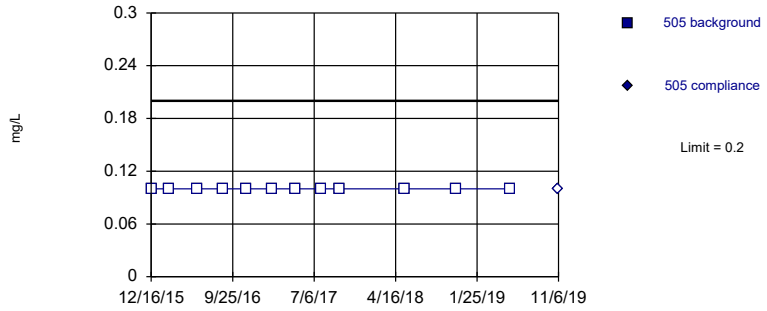
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

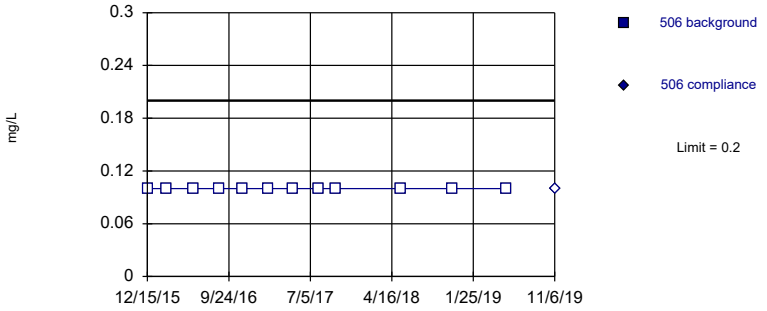
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

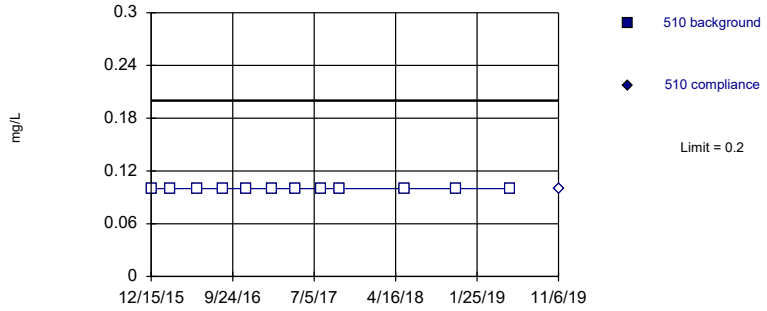
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron Analysis Run 2/21/2020 3:49 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

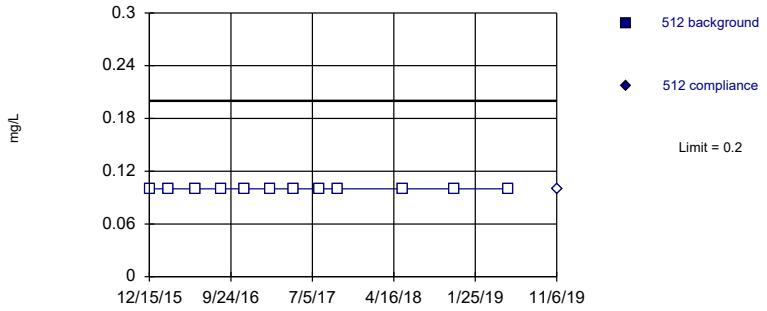
	504	504	505	505	506	506	510	510
12/15/2015					<0.2		<0.2	
12/16/2015	<0.2		<0.2					
2/18/2016	<0.2		<0.2		<0.2		<0.2	
5/25/2016	<0.2		<0.2		<0.2		<0.2	
8/23/2016	<0.2		<0.2		<0.2		<0.2	
11/10/2016							<0.2	
11/11/2016	<0.2		<0.2		<0.2			
2/8/2017	<0.2		<0.2		<0.2		<0.2	
5/3/2017							<0.2	
5/4/2017	<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	
11/6/2019		<0.2		<0.2		<0.2		<0.2

Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

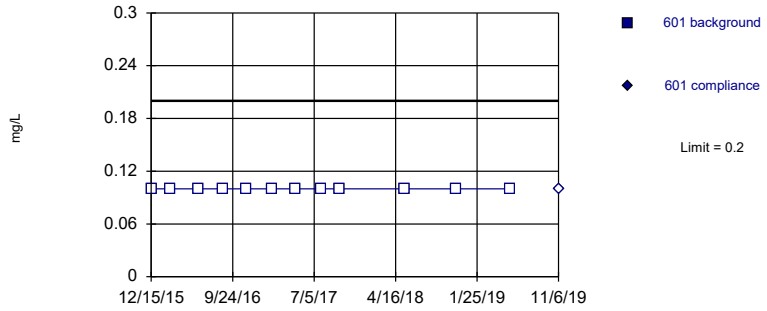
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

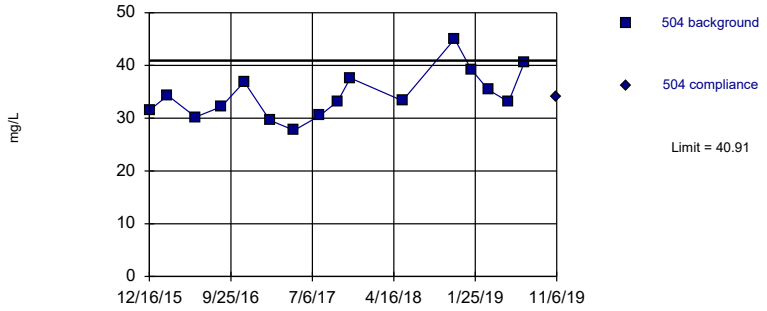
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

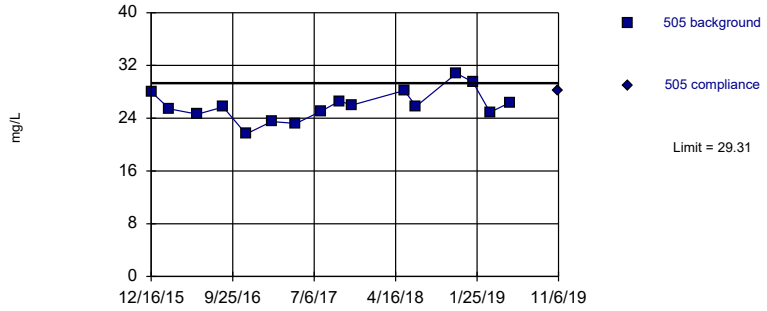
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron, Calcium Analysis Run 2/21/2020 3:49 PM View: LF III

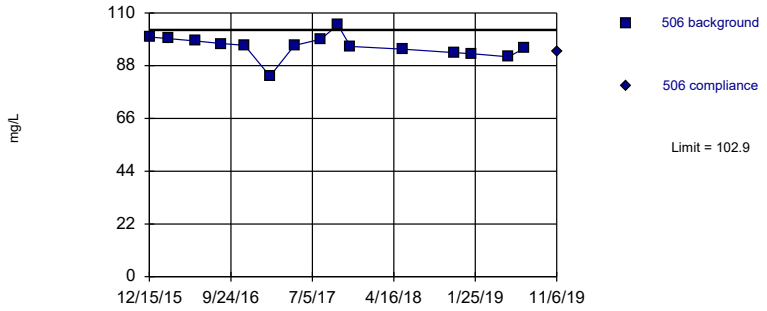
Sibley Client: SCS Engineers Data: Sibley

	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			
11/6/2019		<0.2		<0.2		34.1		28.2

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 2/21/2020 3:47 PM View: LF III

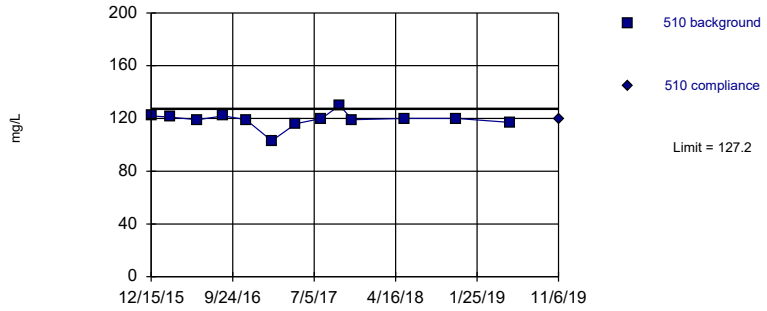
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

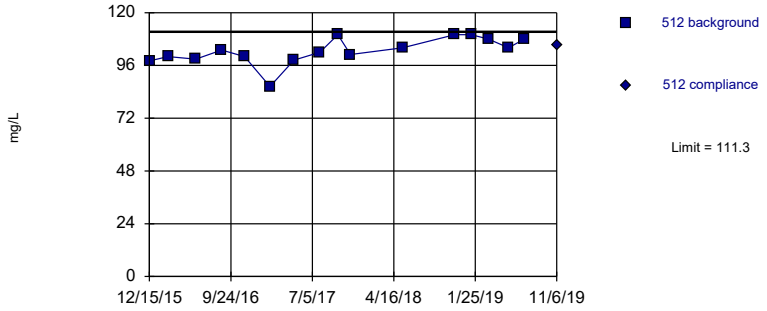
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

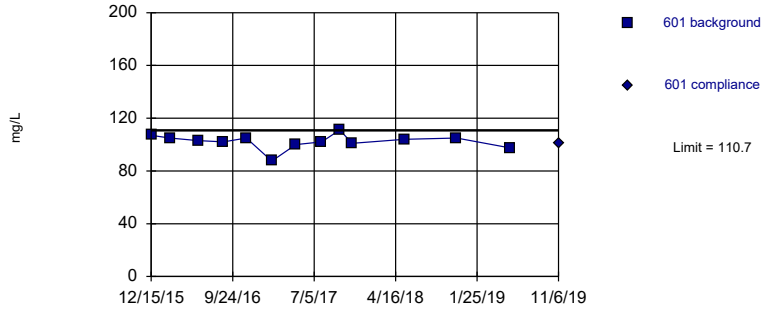
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Calcium Analysis Run 2/21/2020 3:49 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

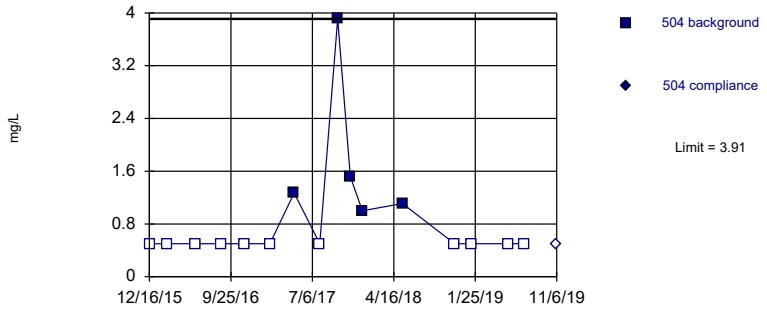
	506	506	510	510	512	512	601	601
12/15/2015	100		122		98.1		107	
2/18/2016	99.3		121		100		105	
5/25/2016	98.3		119		98.9			
5/26/2016							103	
8/23/2016	97.2		122		103		102	
11/10/2016			119					
11/11/2016	96.5				100		105	
2/8/2017	83.6		103		86.4		87.5	
5/3/2017			116		98.4		100	
5/4/2017	96.4							
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			
11/6/2019		93.7		120		105		101

Hollow symbols indicate censored values.

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 2/21/2020 3:47 PM View: LF III

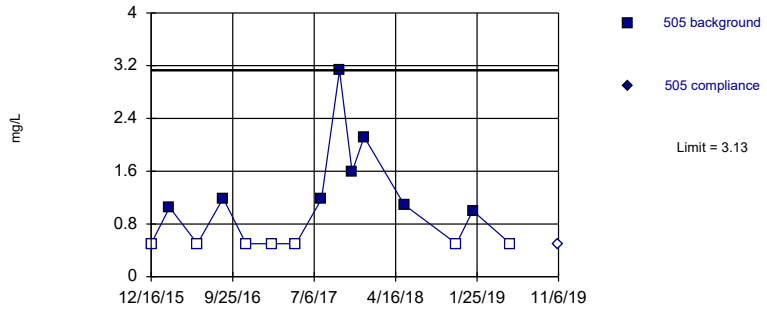
Sibley Client: SCS Engineers Data: Sibley

Hollow symbols indicate censored values.

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.

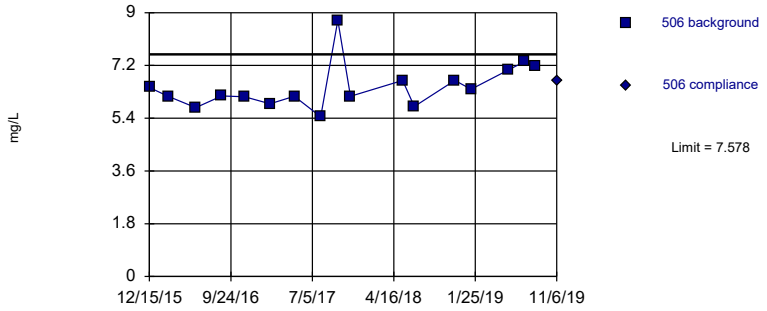
Constituent: Chloride Analysis Run 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Within 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.

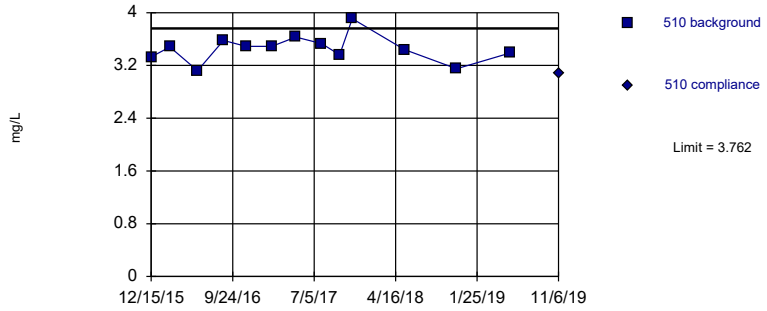
Constituent: Chloride Analysis Run 2/21/2020 3:47 PM View: LF III

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride Analysis Run 2/21/2020 3:49 PM View: LF III

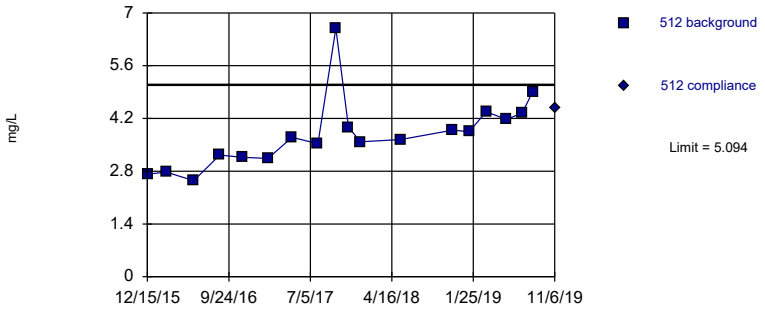
Sibley Client: SCS Engineers Data: Sibley

	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			
11/6/2019		<1		<1		6.66		3.08

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 2/21/2020 3:47 PM View: LF III

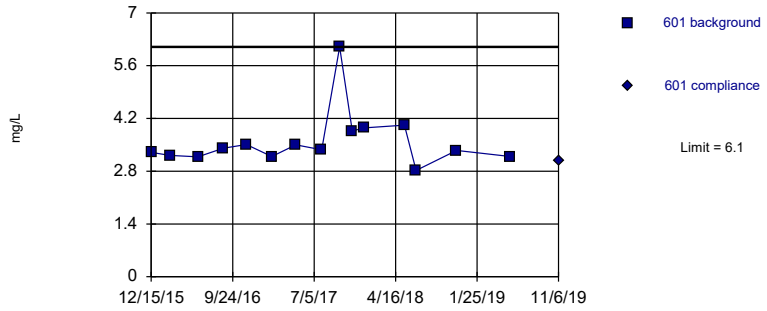
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

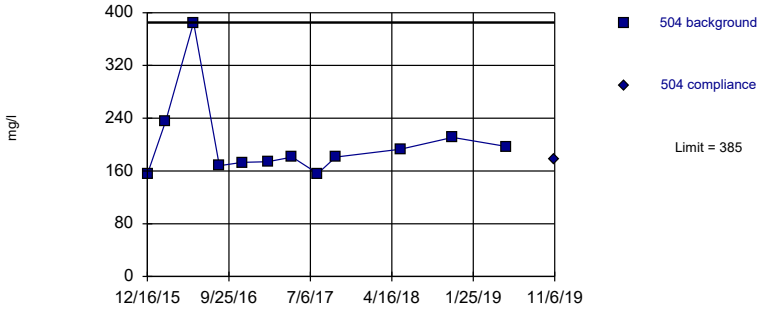
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

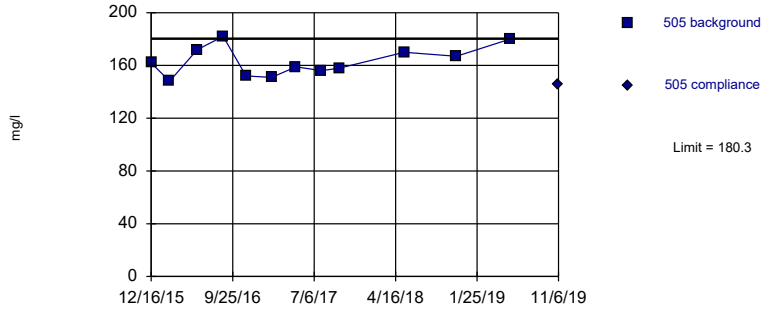
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride, Dissolved Solids Analysis Run 2/21/2020 3:49 PM View: LF III

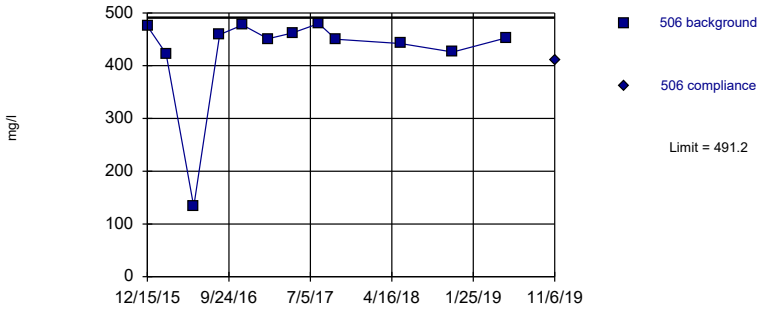
Sibley Client: SCS Engineers Data: Sibley

	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							
11/6/2019		4.48		3.09		177		146

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 2/21/2020 3:47 PM View: LF III

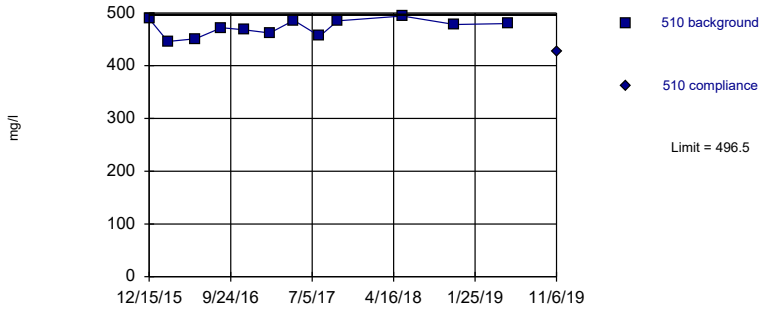
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

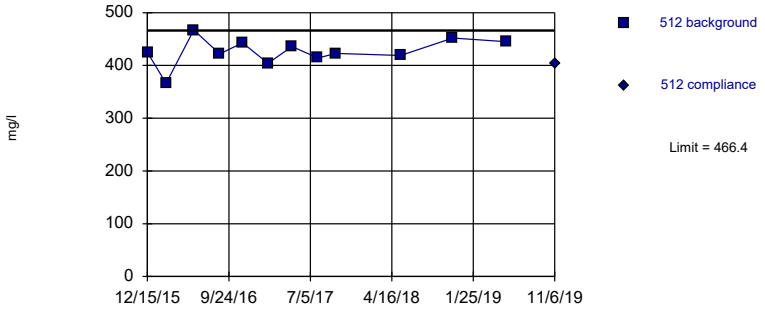
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=426.3, Std. Dev.=25.95, n=12. Insufficient data to test for seasonality: data were not deseasonalized. 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 2/21/2020 3:47 PM View: LF III

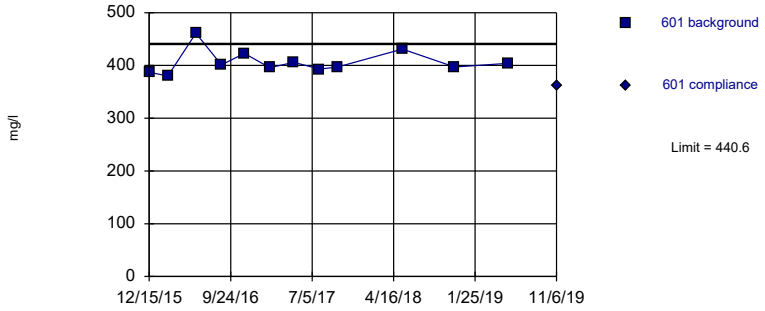
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Dissolved Solids Analysis Run 2/21/2020 3:49 PM View: LF III

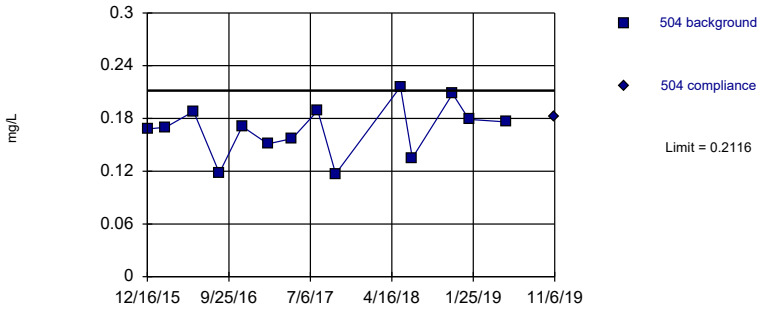
Sibley Client: SCS Engineers Data: Sibley

	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	
11/6/2019		410		427		403		361

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 2/21/2020 3:47 PM View: LF III

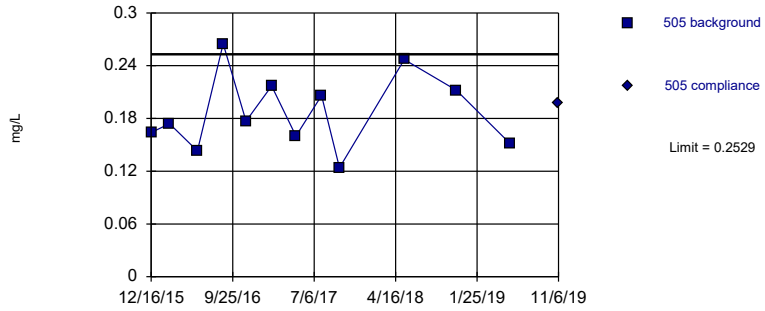
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

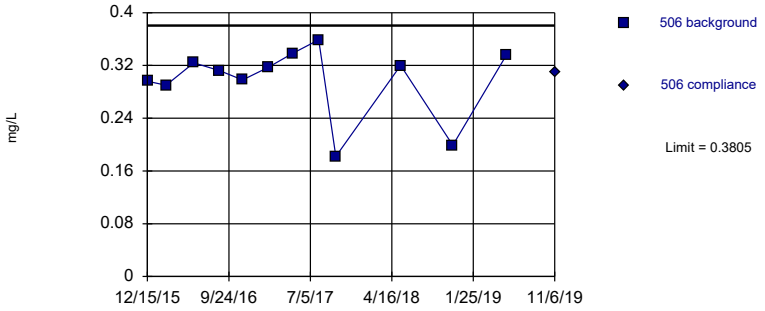
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

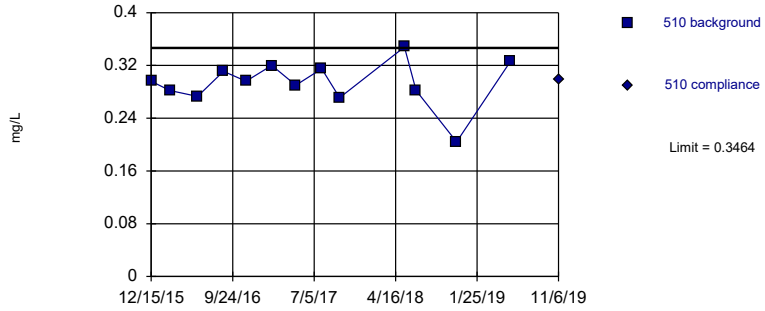
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:47 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Fluoride Analysis Run 2/21/2020 3:49 PM View: LF III

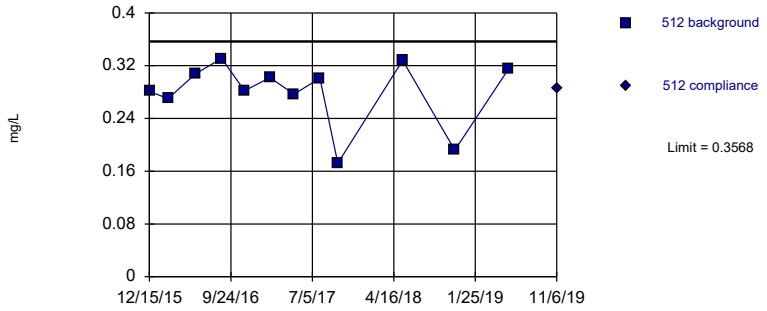
Sibley Client: SCS Engineers Data: Sibley

	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	
11/6/2019		0.182		0.198		0.309		0.298

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 2/21/2020 3:48 PM View: LF III

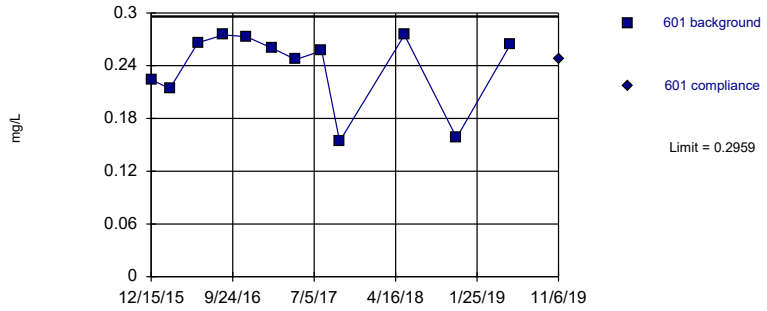
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:48 PM View: LF III

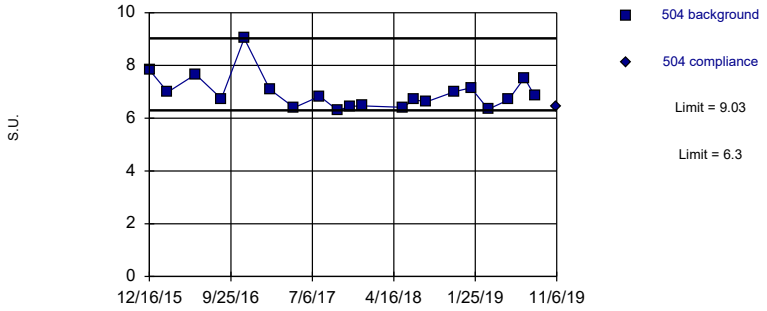
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:48 PM View: LF III

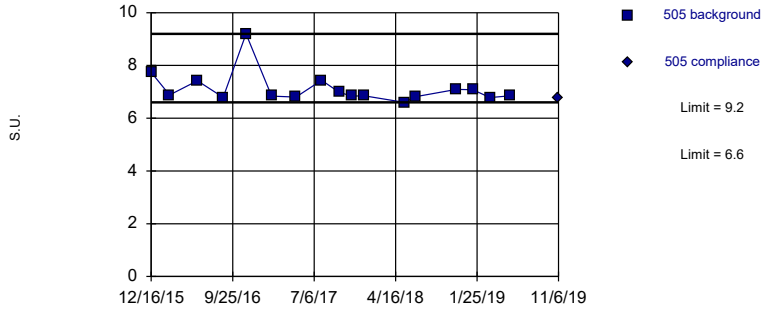
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:48 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Fluoride, pH Analysis Run 2/21/2020 3:49 PM View: LF III

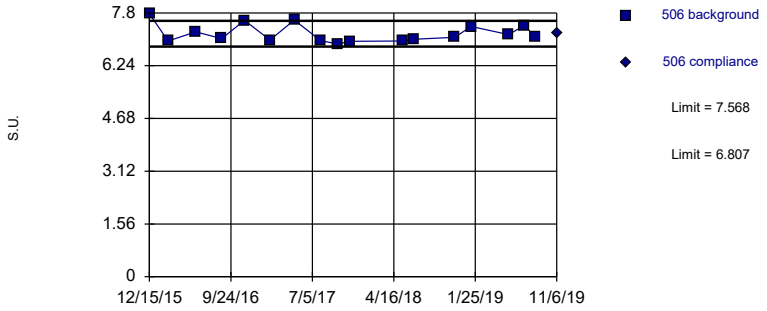
Sibley Client: SCS Engineers Data: Sibley

	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			
11/6/2019		0.286		0.248		6.45		6.75

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.

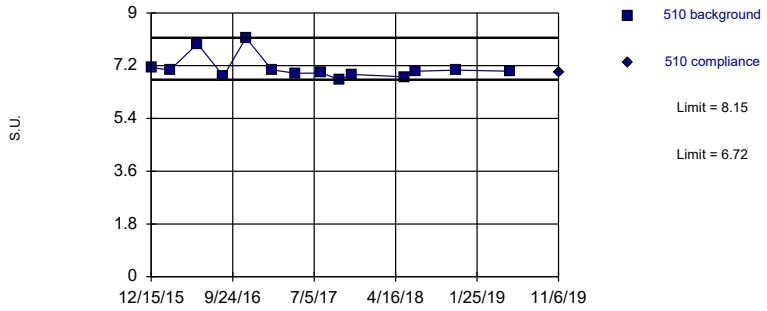
Constituent: pH Analysis Run 2/21/2020 3:48 PM View: LF III

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.

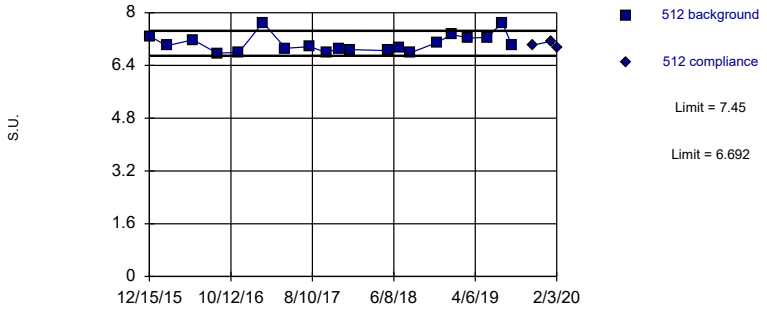
Constituent: pH Analysis Run 2/21/2020 3:48 PM View: LF III

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.

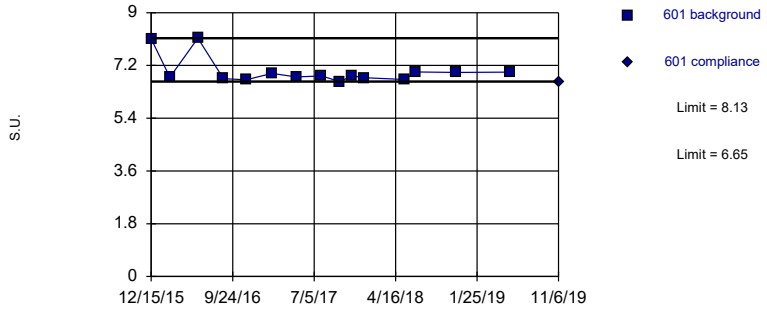
Constituent: pH Analysis Run 2/21/2020 3:48 PM View: LF III

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 2/21/2020 3:48 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: pH Analysis Run 2/21/2020 3:49 PM View: LF III

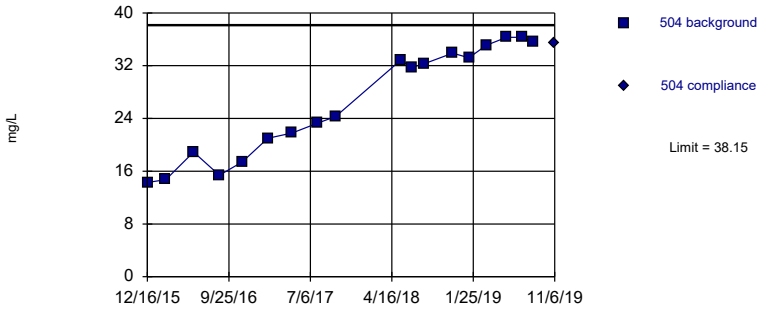
Sibley Client: SCS Engineers Data: Sibley

	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			
11/6/2019		7.2		6.97		7.02		6.65
1/13/2020						7.13 Extra Sample		
2/3/2020						6.93 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 2/21/2020 3:48 PM View: LF III

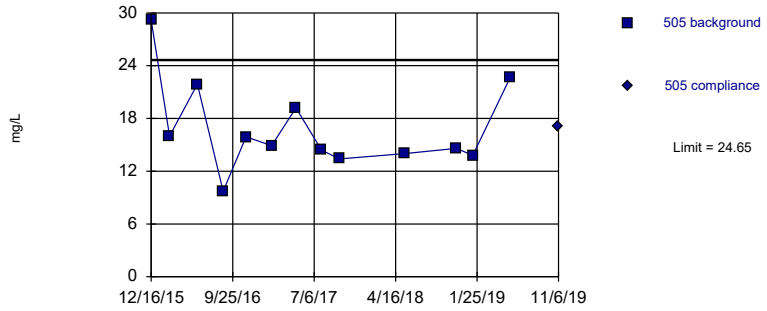
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:48 PM View: LF III

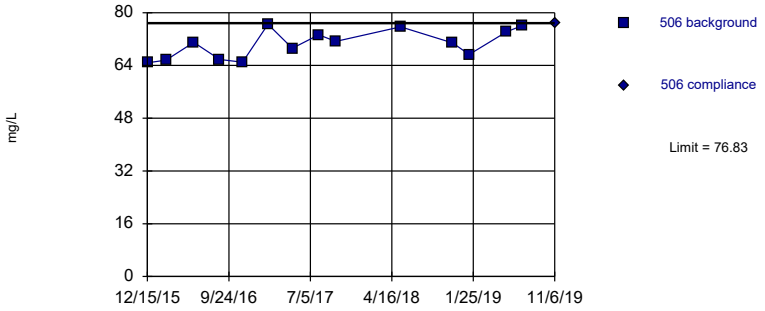
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

Within 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 2/21/2020 3:48 PM View: LF III

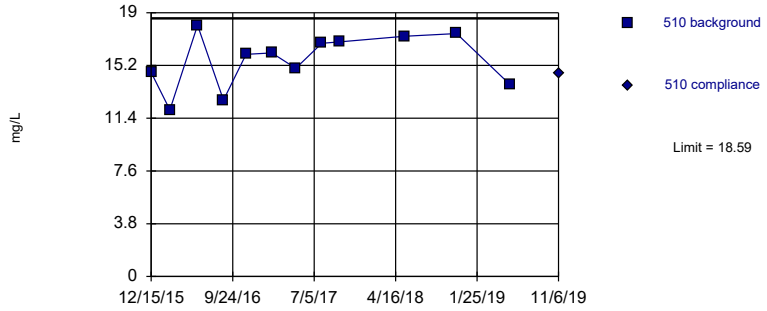
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:48 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 2/21/2020 3:49 PM View: LF III

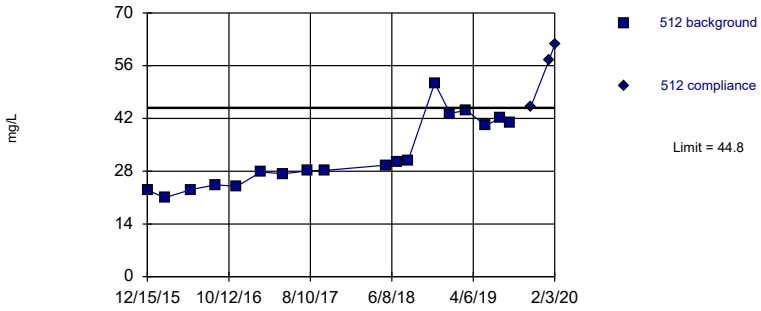
Sibley Client: SCS Engineers Data: Sibley

	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							
11/6/2019		35.4		17.1		76.8		14.6

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 2/21/2020 3:48 PM View: LF III

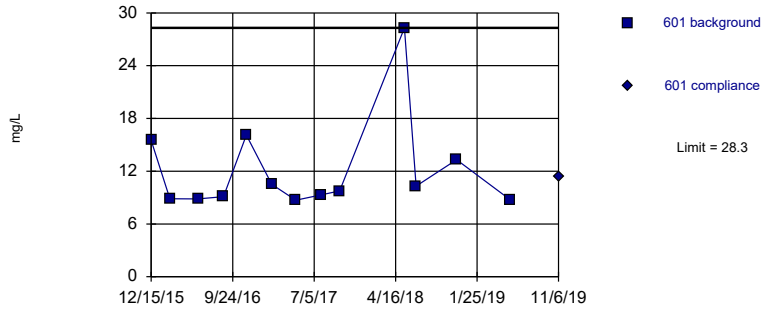
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

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 2/21/2020 3:48 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 2/21/2020 3:49 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			
11/6/2019		45		11.4
1/13/2020		57.5 1st Verification		
2/3/2020		61.6 2nd Verification		

Prediction Limit

Sibley Client: SCS Engineers Data: Sibley Printed 2/21/2020, 3:49 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	504	0.2	n/a	11/6/2019	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	505	0.2	n/a	11/6/2019	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	506	0.2	n/a	11/6/2019	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	510	0.2	n/a	11/6/2019	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	512	0.2	n/a	11/6/2019	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	601	0.2	n/a	11/6/2019	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Calcium (mg/L)	504	40.91	n/a	11/6/2019	34.1	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	505	29.31	n/a	11/6/2019	28.2	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	506	102.9	n/a	11/6/2019	93.7	No	15	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	510	127.2	n/a	11/6/2019	120	No	13	0	x^3	0.00188	Param Intra 1 of 3
Calcium (mg/L)	512	111.3	n/a	11/6/2019	105	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	601	110.7	n/a	11/6/2019	101	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	504	3.91	n/a	11/6/2019	0.5ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Chloride (mg/L)	505	3.13	n/a	11/6/2019	0.5ND	No	15	46.67	n/a	0.001313	NP Intra (normality) ...
Chloride (mg/L)	506	7.578	n/a	11/6/2019	6.66	No	17	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	510	3.762	n/a	11/6/2019	3.08	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	512	5.094	n/a	11/6/2019	4.48	No	18	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	601	6.1	n/a	11/6/2019	3.09	No	15	0	n/a	0.001313	NP Intra (normality) ...
Dissolved Solids (mg/l)	504	385	n/a	11/6/2019	177	No	12	0	n/a	0.002173	NP Intra (normality) ...
Dissolved Solids (mg/l)	505	180.3	n/a	11/6/2019	146	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	506	491.2	n/a	11/6/2019	410	No	12	0	x^5	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	510	496.5	n/a	11/6/2019	427	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	512	466.4	n/a	11/6/2019	403	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	601	440.6	n/a	11/6/2019	361	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	504	0.2116	n/a	11/6/2019	0.182	No	14	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	505	0.2529	n/a	11/6/2019	0.198	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	506	0.3805	n/a	11/6/2019	0.309	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	510	0.3464	n/a	11/6/2019	0.298	No	13	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	512	0.3568	n/a	11/6/2019	0.286	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	601	0.2959	n/a	11/6/2019	0.248	No	12	0	x^2	0.00188	Param Intra 1 of 3
pH (S.U.)	504	9.03	6.3	11/6/2019	6.45	No	20	0	n/a	0.001125	NP Intra (normality) ...
pH (S.U.)	505	9.2	6.6	11/6/2019	6.75	No	17	0	n/a	0.00182	NP Intra (normality) ...
pH (S.U.)	506	7.568	6.807	11/6/2019	7.2	No	17	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	510	8.15	6.72	11/6/2019	6.97	No	14	0	n/a	0.003199	NP Intra (normality) ...
pH (S.U.)	512	7.45	6.692	2/3/2020	6.93	No	20	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	601	8.13	6.65	11/6/2019	6.65	No	15	0	n/a	0.002625	NP Intra (normality) ...
Sulfate (mg/L)	504	38.15	n/a	11/6/2019	35.4	No	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	505	24.65	n/a	11/6/2019	17.1	No	13	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	506	76.83	n/a	11/6/2019	76.8	No	14	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	510	18.59	n/a	11/6/2019	14.6	No	12	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	**512**	**44.8**	**n/a**	**2/3/2020**	**61.6**	**Yes**	**18**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Sulfate (mg/L)	601	28.3	n/a	11/6/2019	11.4	No	13	0	n/a	0.001886	NP Intra (normality) ...

ATTACHMENT 2

Sanitas™ Configuration Settings

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

Exclude data flags: i

Data Reading Options

- (•) Individual Observations
- ( ) Mean of Each: ( ) Month
- ( ) Median of Each: ( ) Season

Non-Detect / Trace Handling...

Setup Seasons...

[ ] Automatically Process Resamples...

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

- [ ] Black and White Output
- [x] Four Plots Per Page
  - [x] Always Combine Data Pages...
  - [x] Include Tick Marks on Data Page
  - [ ] Use Constituent Name for Graph Title
- [ ] Draw Border Around Text Reports and Data Pages
- [x] Enlarge/Reduce Fonts (Graphs): 100%
- [x] Enlarge/Reduce Fonts (Data/Text Reports): 100%
- [x] Wide Margins (on reports without explicit setting)
- [ ] Use CAS# (Not Const. Name)
- [ ] Truncate File Names to 20 Characters
- [ ] Include Limit Lines when found in Database...
- [x] Show Deselected Data on Time Series Lighter
- [ ] Show Deselected Data on all Data Pages Light

Setup Symbols and Colors...

- [x] Prompt to Overwrite/Append Summary Tables
- [ ] Round Limits to 2 Sig. Digits (when not set in data file)
- [ ] User-Set Scale
- [x] Indicate Background Data
- [ ] Show Exact Dates
- [ ] Thick Plot Lines

Zoom Factor: 200%

Output Decimal Precision

- ( ) Less Precision
- (•) Normal Precision
- ( ) More Precision

- [x] Store Print Jobs in Multiple Constituent Mode

Store All Print Jobs...

Printer: Adobe PDF

Printers...

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

☐ 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.

Data | Output | Trend Test | Control Cht | **Prediction Lim** | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

☑ 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 α

Statistical Evaluations per Year: 2

Constituents Analyzed: 7

Downgradient (Compliance) Wells: 4

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)

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

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 α= 0.05 or if n > 22 Rosner's at α= 0.01 [x] Use EPA Screening to establish Suspected Outliers
- ( ) Tukey's Outlier Screening, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat

[x] Test For Normality using Shapiro-Wilk/Francia at Alpha = 0.1

- (•) Stop if Non-Normal
- ( ) Continue with Parametric Test if Non-Normal
- ( ) Tukey's if Non-Normal, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat

[x] No Outlier If Less Than 3.0 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 Edit

- [x] Label Constituents
- [x] Label Axes
- [x] Note Cation-Anion Balance (Piper only)

Jared Morrison
December 16, 2022

ATTACHMENT 2-2

Spring 2020 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

September 23, 2020

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 2020 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 18, 2020. Review and validation of the results from the May 2020 Detection Monitoring Event was completed on June 26, 2020, 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 14, 2020 and August 26, 2020.

The completed statistical evaluation identified one Appendix III constituent above the prediction limits established for monitoring wells MW-505 and MW-506, and three Appendix III constituents above the prediction limits established for monitoring well MW-512.

Constituent/Monitoring Well	*UPL	Observation May 18, 2020	1st Verification July 14, 2020	2nd Verification August 26, 2020
Calcium				
MW-505	29.31	30.5	32.4	30.3
Chloride				
MW-512	5.094	7.69	8.83	8.79
Total Dissolved Solids				
MW-512	466.4	481	501	493
Sulfate				
MW-506	76.83	80.0	78.6	79.6
MW-512	44.8	71.6	77.6	80.1

*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 five SSIs above the background prediction limits. These include calcium in upgradient monitoring well MW-505, sulfate in monitoring well MW-506, and chloride, total dissolved solids, and sulfate in 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

Sibley Generating Station
Determination of Statistically Significant Increases
CCR Landfill
September 23, 2020

ATTACHMENT 1

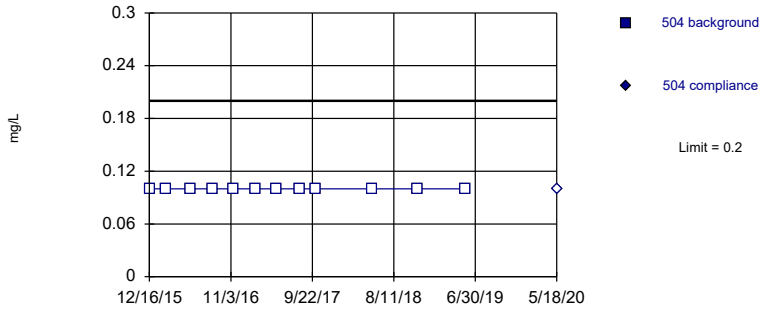
Sanitas™ Output

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:19 PM View: LF III

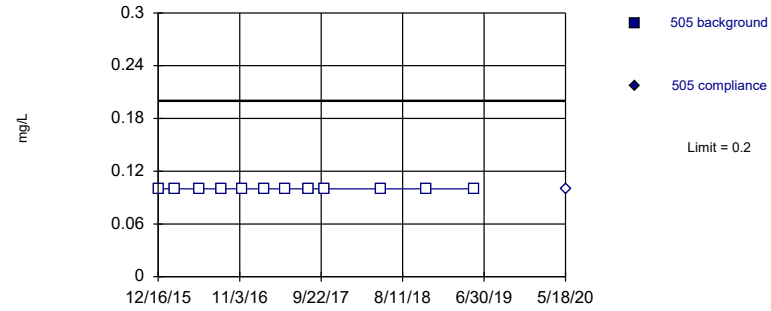
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:19 PM View: LF III

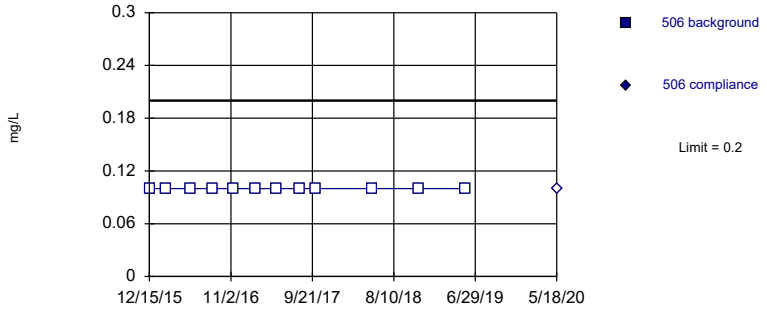
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:19 PM View: LF III

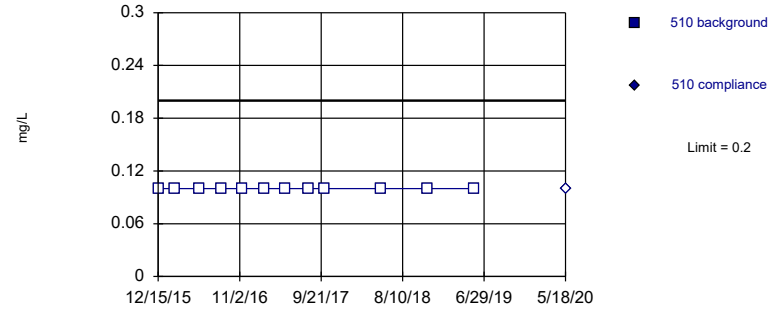
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:19 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron Analysis Run 9/8/2020 7:21 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

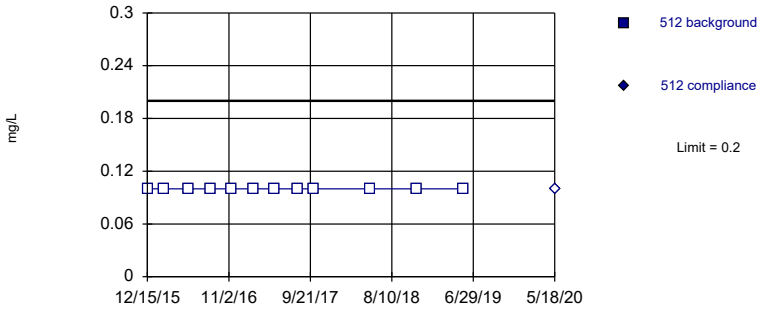
	504	504	505	505	506	506	510	510
12/15/2015					<0.2		<0.2	
12/16/2015	<0.2		<0.2					
2/18/2016	<0.2		<0.2		<0.2		<0.2	
5/25/2016	<0.2		<0.2		<0.2		<0.2	
8/23/2016	<0.2		<0.2		<0.2		<0.2	
11/10/2016							<0.2	
11/11/2016	<0.2		<0.2		<0.2			
2/8/2017	<0.2		<0.2		<0.2		<0.2	
5/3/2017							<0.2	
5/4/2017	<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	
5/18/2020		<0.2		<0.2		<0.2		<0.2

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:19 PM View: LF III

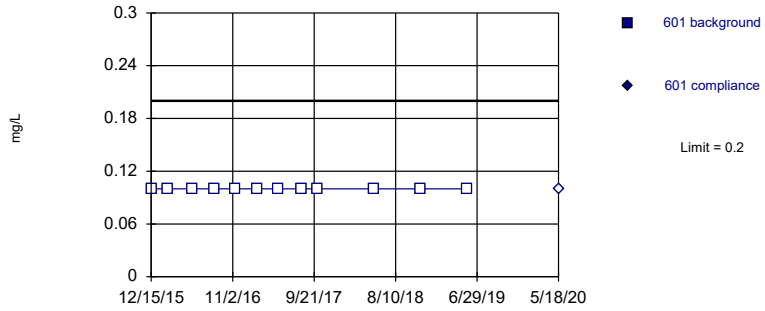
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:19 PM View: LF III

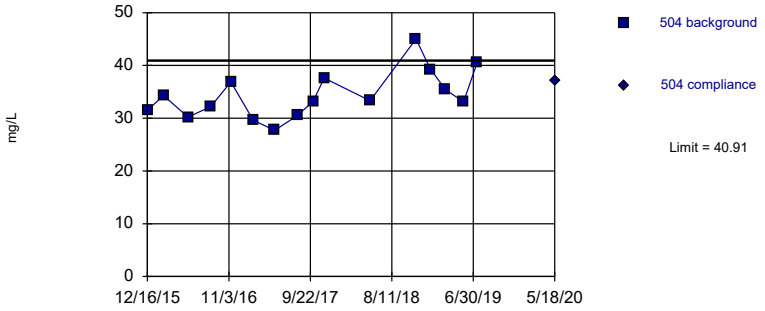
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:19 PM View: LF III

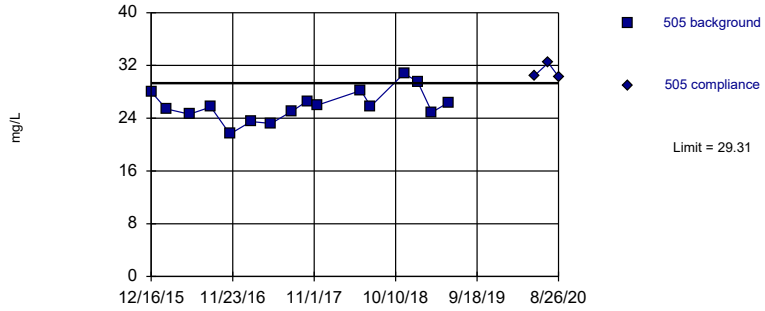
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:19 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron, Calcium Analysis Run 9/8/2020 7:21 PM View: LF III

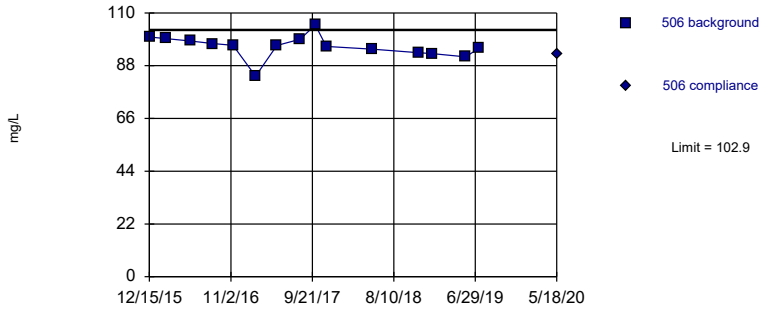
Sibley Client: SCS Engineers Data: Sibley

	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				
5/18/2020		<0.2		<0.2		37.2		30.5	
7/14/2020								32.4	1st Verification Sample
8/26/2020								30.3	2nd Verification Sample

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 9/8/2020 7:20 PM View: LF III

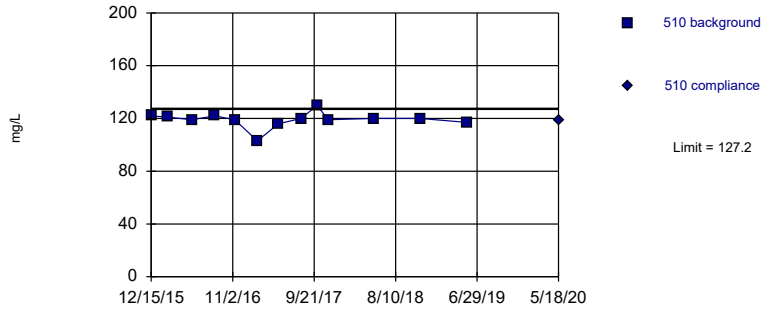
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

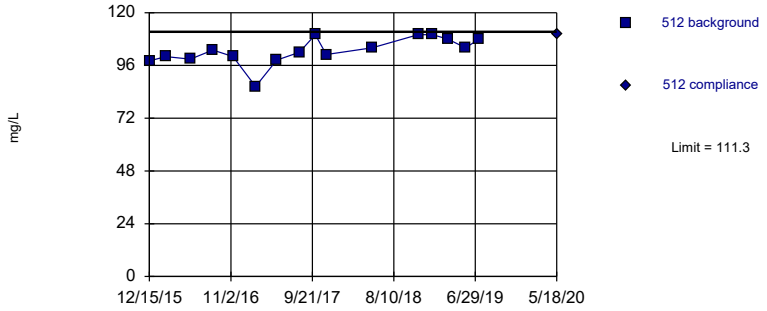
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

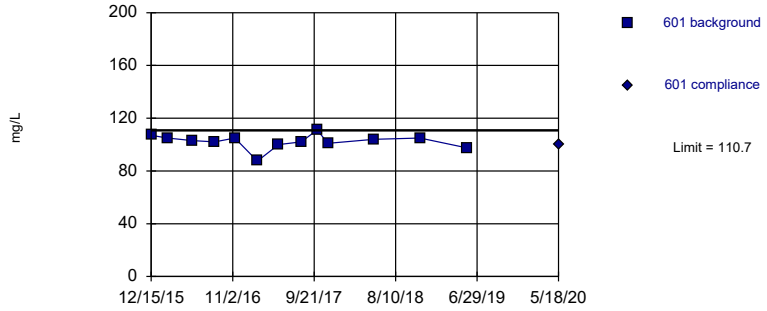
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Calcium Analysis Run 9/8/2020 7:21 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

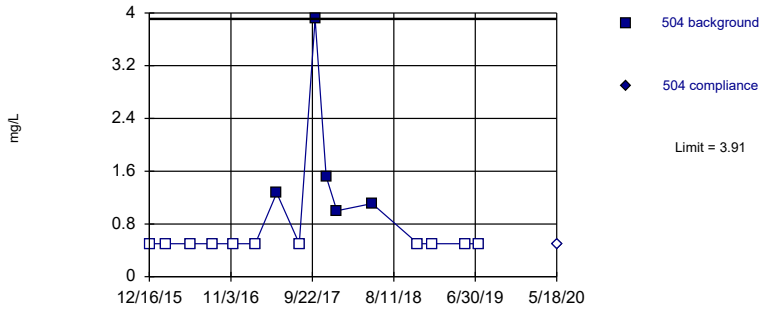
	506	506	510	510	512	512	601	601
12/15/2015	100		122		98.1		107	
2/18/2016	99.3		121		100		105	
5/25/2016	98.3		119		98.9			
5/26/2016							103	
8/23/2016	97.2		122		103		102	
11/10/2016			119					
11/11/2016	96.5				100		105	
2/8/2017	83.6		103		86.4		87.5	
5/3/2017			116		98.4		100	
5/4/2017	96.4							
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			
5/18/2020		92.7		119		110		99.6

Hollow symbols indicate censored values.

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 9/8/2020 7:20 PM View: LF III

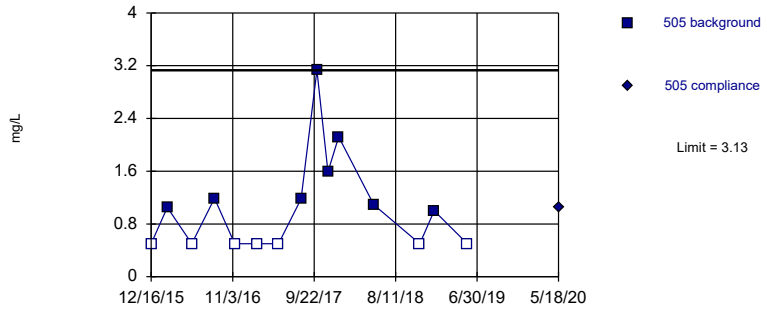
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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 9/8/2020 7:20 PM View: LF III

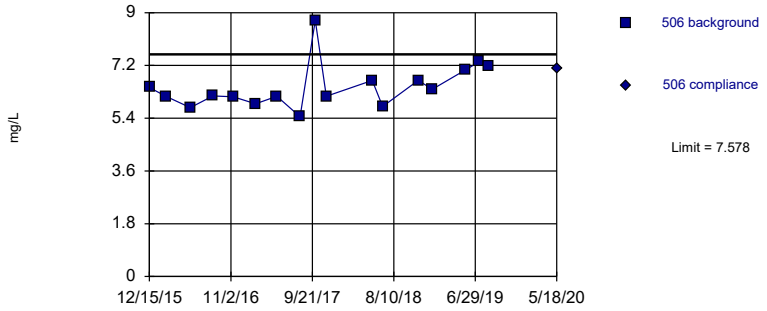
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

Within 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 9/8/2020 7:20 PM View: LF III

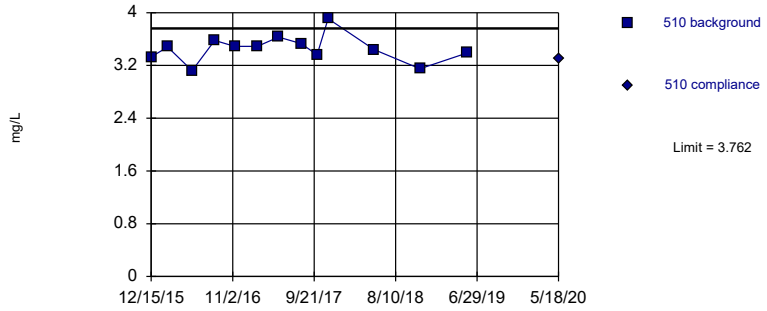
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride Analysis Run 9/8/2020 7:21 PM View: LF III

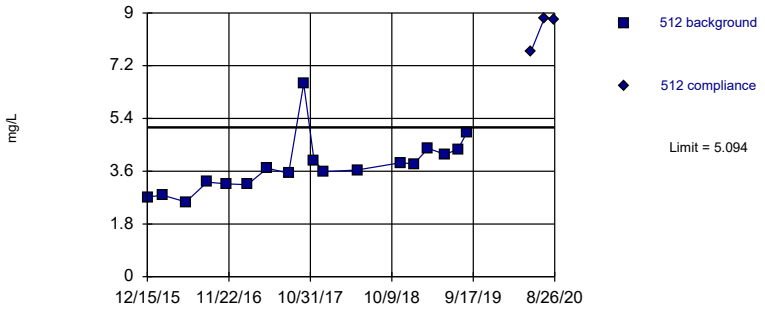
Sibley Client: SCS Engineers Data: Sibley

	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			
5/18/2020		<1		1.06		7.11		3.3

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.

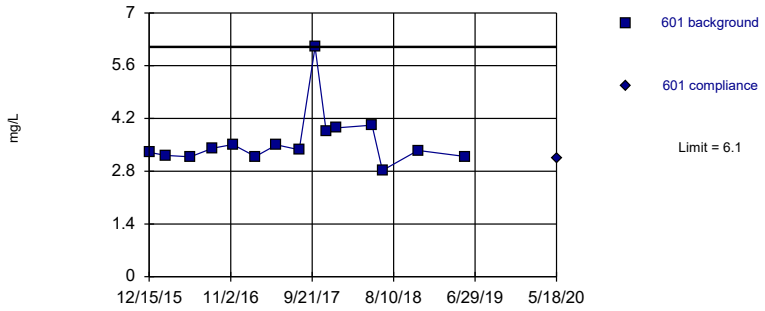
Constituent: Chloride Analysis Run 9/8/2020 7:20 PM View: LF III

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.

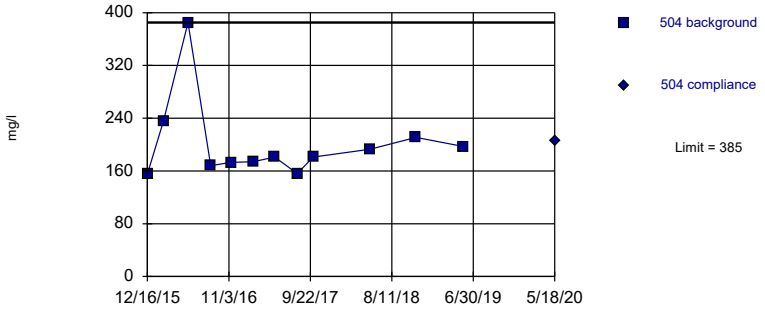
Constituent: Chloride Analysis Run 9/8/2020 7:20 PM View: LF III

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.

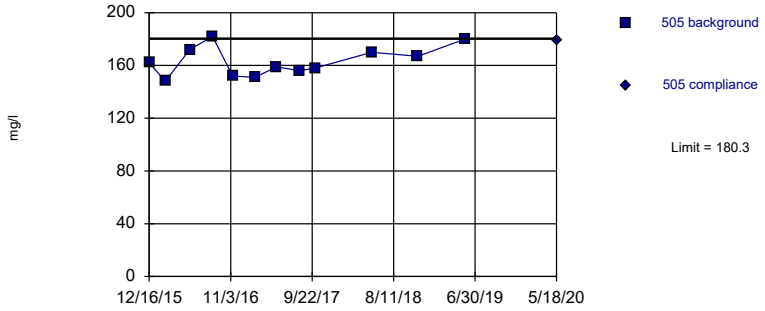
Constituent: Dissolved Solids Analysis Run 9/8/2020 7:20 PM View: LF III

Sibley 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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride, Dissolved Solids Analysis Run 9/8/2020 7:21 PM View: LF III

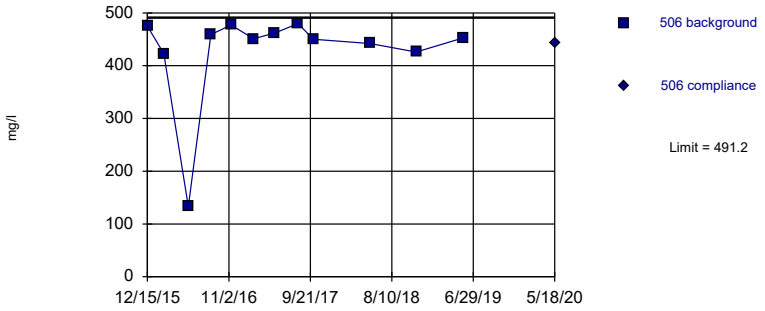
Sibley Client: SCS Engineers Data: Sibley

	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							
5/18/2020		7.69		3.13		205		179
7/14/2020		8.83	1st Verification Sample					
8/26/2020		8.79	2nd Verification Sample					

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 9/8/2020 7:20 PM View: LF III

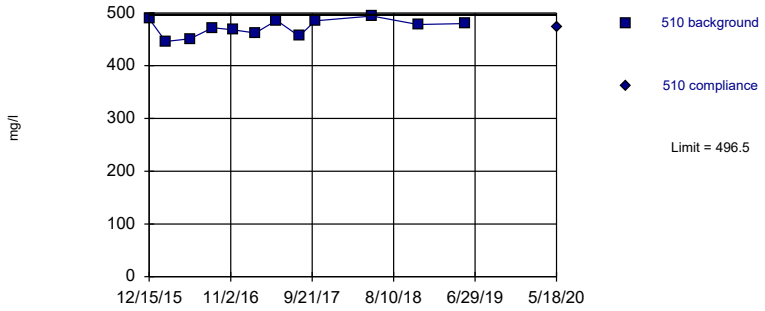
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

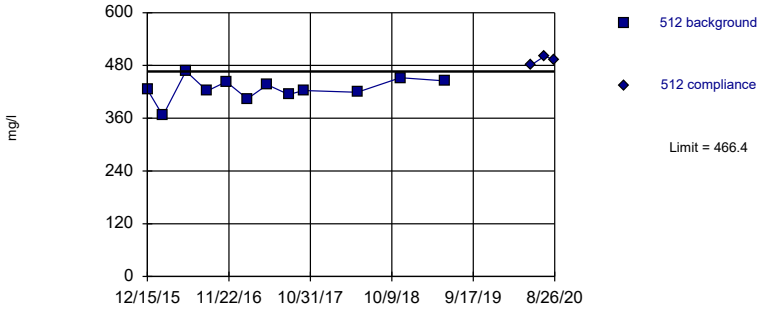
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=426.3, Std. Dev.=25.95, n=12. Insufficient data to test for seasonality: data were not deseasonalized. 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 9/8/2020 7:20 PM View: LF III

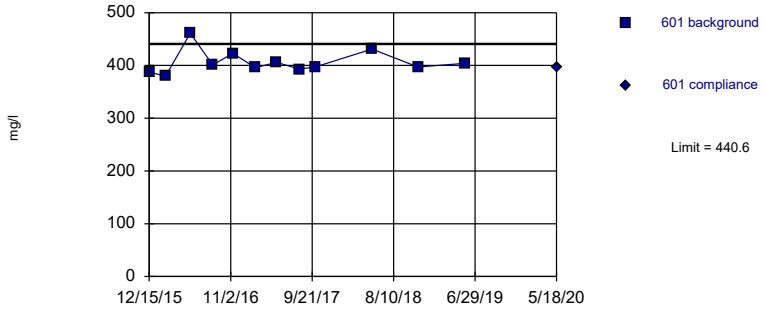
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Dissolved Solids Analysis Run 9/8/2020 7:21 PM View: LF III

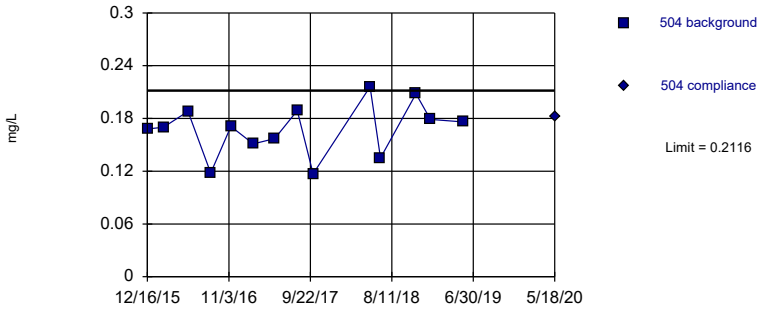
Sibley Client: SCS Engineers Data: Sibley

	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	
5/18/2020		444		474		481		396
7/14/2020						501	1st Verification Sample	
8/26/2020						493	2nd Verification Sample	

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 9/8/2020 7:20 PM View: LF III

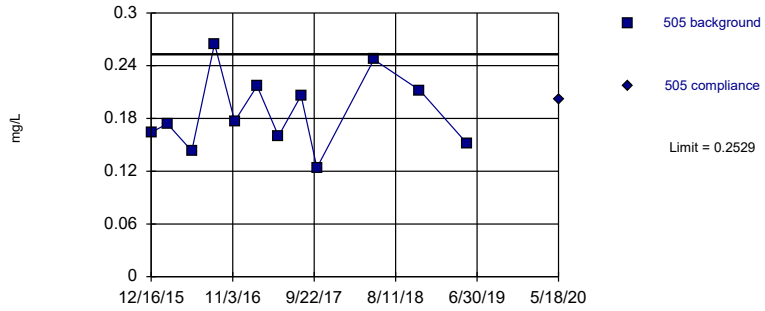
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

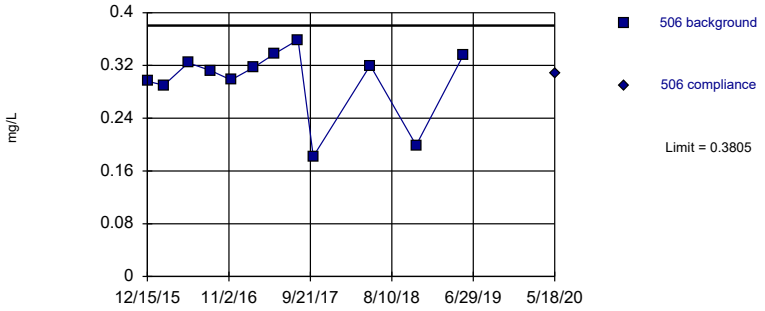
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

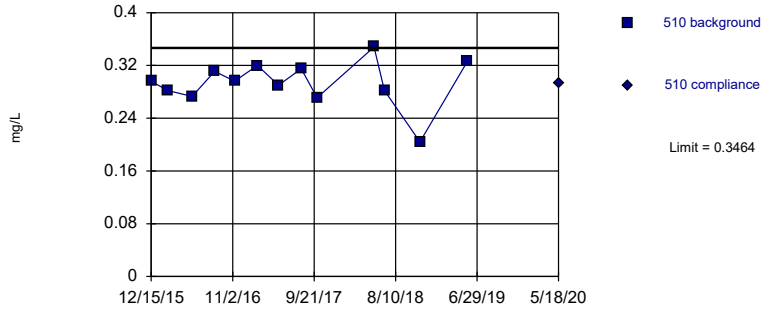
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Fluoride Analysis Run 9/8/2020 7:21 PM View: LF III

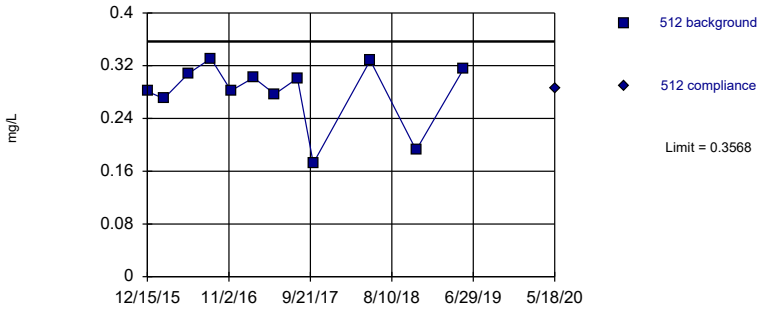
Sibley Client: SCS Engineers Data: Sibley

	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	
5/18/2020		0.182		0.202		0.308		0.293

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.

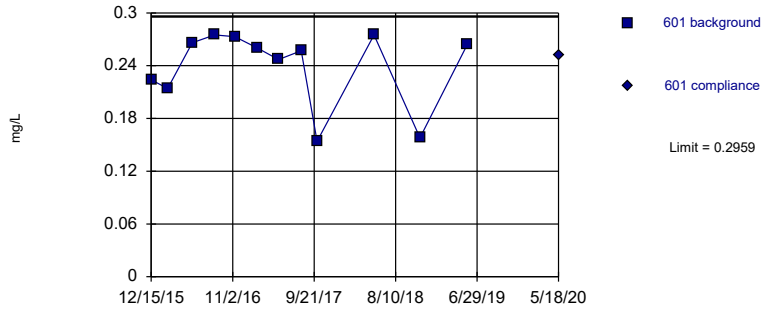
Constituent: Fluoride Analysis Run 9/8/2020 7:20 PM View: LF III

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.

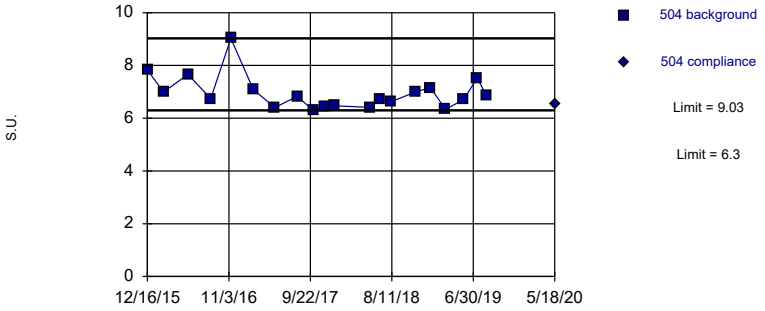
Constituent: Fluoride Analysis Run 9/8/2020 7:20 PM View: LF III

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.

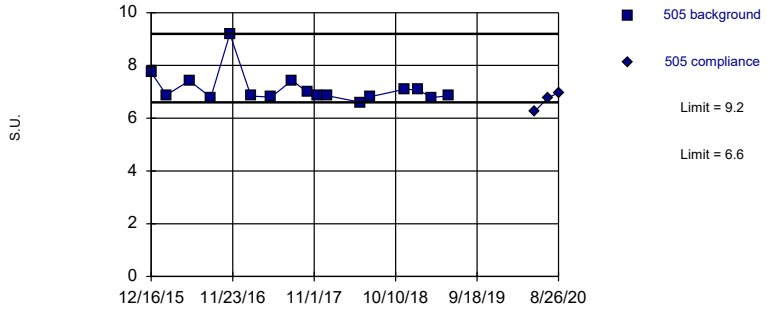
Constituent: pH Analysis Run 9/8/2020 7:20 PM View: LF III

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Fluoride, pH Analysis Run 9/8/2020 7:21 PM View: LF III

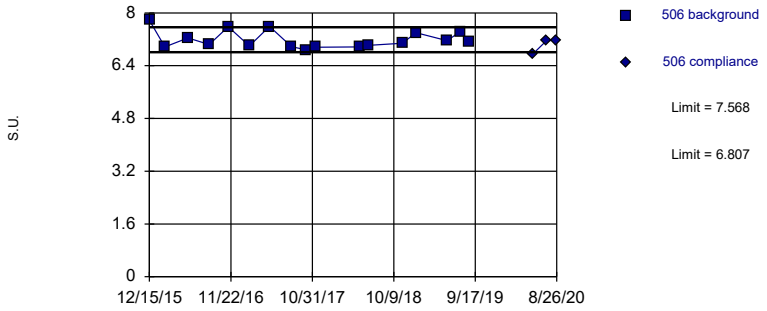
Sibley Client: SCS Engineers Data: Sibley

	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				
5/18/2020		0.286		0.252		6.55		6.26	
7/14/2020								6.79	1st Verification Sample
8/26/2020								6.96	Extra Sample

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.

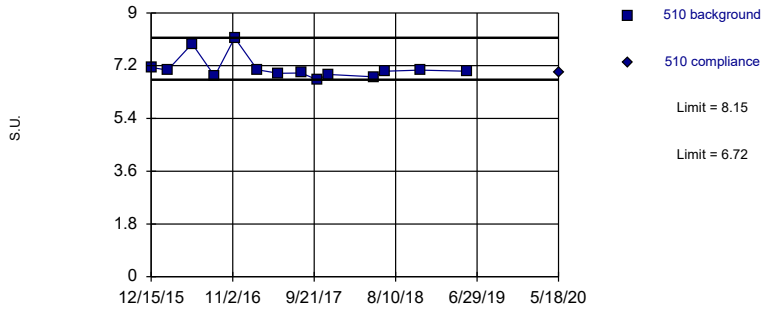
Constituent: pH Analysis Run 9/8/2020 7:20 PM View: LF III

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.

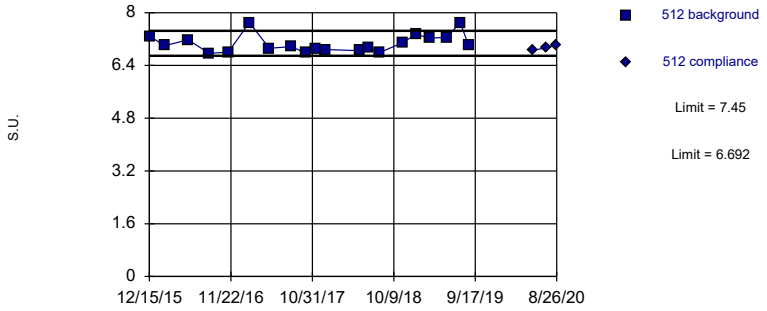
Constituent: pH Analysis Run 9/8/2020 7:20 PM View: LF III

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.

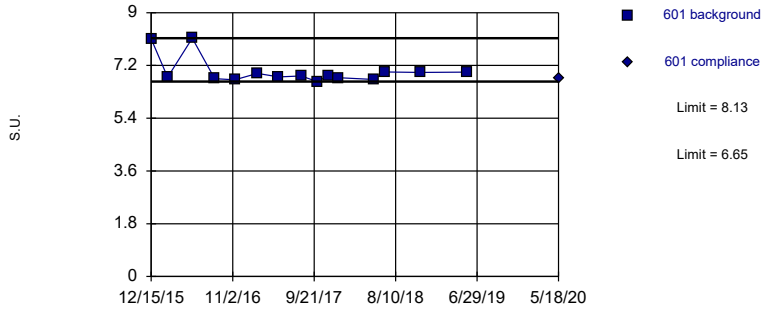
Constituent: pH Analysis Run 9/8/2020 7:20 PM View: LF III

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: pH Analysis Run 9/8/2020 7:21 PM View: LF III

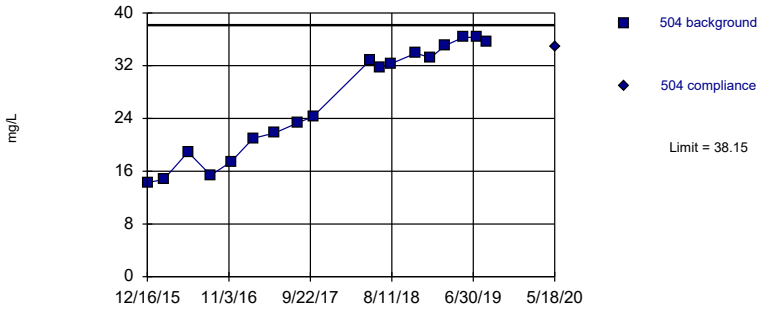
Sibley Client: SCS Engineers Data: Sibley

	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			
5/18/2020		6.76		6.95		6.86		6.77
7/14/2020		7.16 1st Verification Sample				6.94 Extra Sample		
8/26/2020		7.17 Extra Sample				7.02 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 9/8/2020 7:20 PM View: LF III

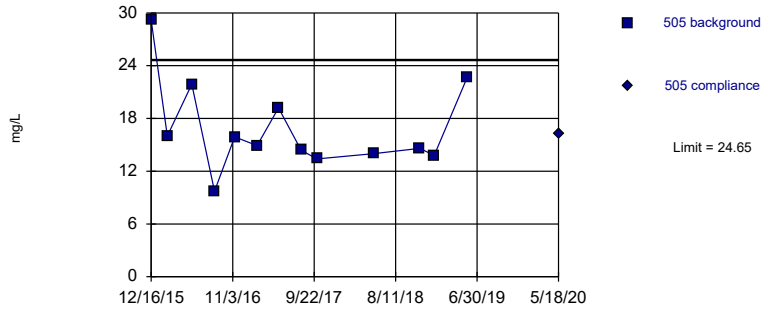
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

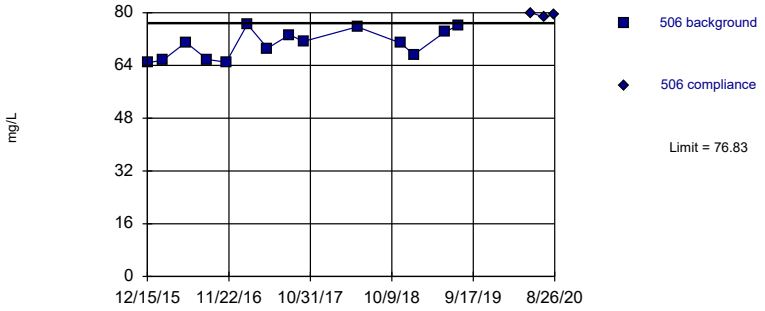
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

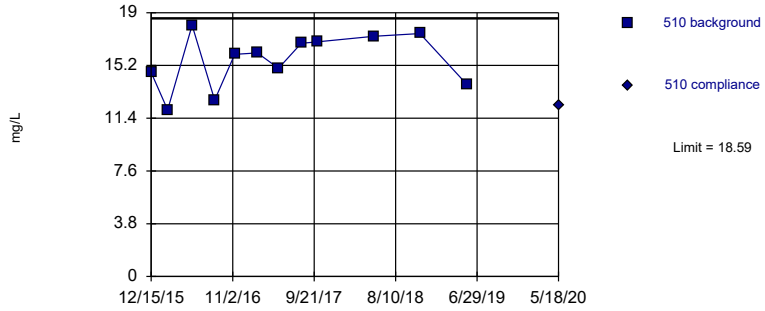
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 9/8/2020 7:21 PM View: LF III

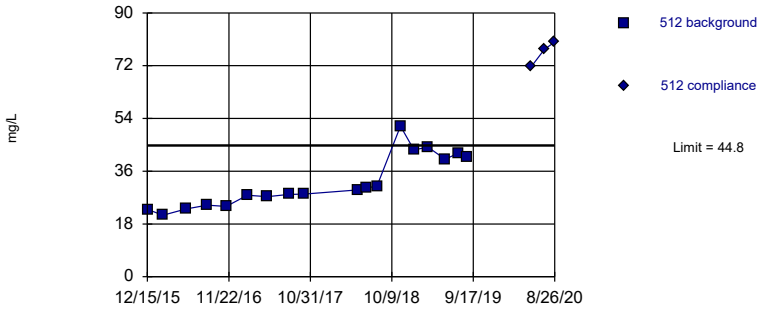
Sibley Client: SCS Engineers Data: Sibley

	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							
5/18/2020		34.8		16.3		80		12.3
7/14/2020						78.6	1st Verification Sample	
8/26/2020						79.6	2nd Verification Sample	

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 9/8/2020 7:20 PM View: LF III

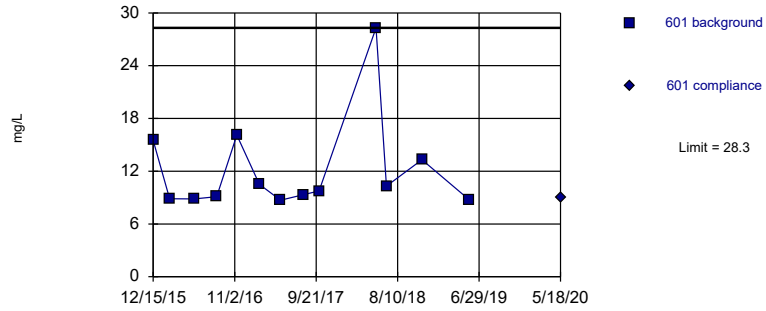
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.27 Sanitas software licensed to SCS Engineers. UG

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 9/8/2020 7:20 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate Analysis Run 9/8/2020 7:21 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				
5/18/2020		71.6		9	
7/14/2020		77.6	1st Verification Sample		
8/26/2020		80.1	2nd Verification Sample		

Prediction Limit

Sibley Client: SCS Engineers Data: Sibley Printed 9/8/2020, 7:21 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	504	0.2	n/a	5/18/2020	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	505	0.2	n/a	5/18/2020	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	506	0.2	n/a	5/18/2020	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	510	0.2	n/a	5/18/2020	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	512	0.2	n/a	5/18/2020	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Boron (mg/L)	601	0.2	n/a	5/18/2020	0.1ND	No	12	100	n/a	0.002173	NP Intra (NDs) 1 of 3
Calcium (mg/L)	504	40.91	n/a	5/18/2020	37.2	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	**505**	**29.31**	**n/a**	**8/26/2020**	**30.3**	**Yes**	**16**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Calcium (mg/L)	506	102.9	n/a	5/18/2020	92.7	No	15	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	510	127.2	n/a	5/18/2020	119	No	13	0	x^3	0.00188	Param Intra 1 of 3
Calcium (mg/L)	512	111.3	n/a	5/18/2020	110	No	16	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	601	110.7	n/a	5/18/2020	99.6	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	504	3.91	n/a	5/18/2020	0.5ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Chloride (mg/L)	505	3.13	n/a	5/18/2020	1.06	No	15	46.67	n/a	0.001313	NP Intra (normality) ...
Chloride (mg/L)	506	7.578	n/a	5/18/2020	7.11	No	17	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	510	3.762	n/a	5/18/2020	3.3	No	13	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	**512**	**5.094**	**n/a**	**8/26/2020**	**8.79**	**Yes**	**18**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Chloride (mg/L)	601	6.1	n/a	5/18/2020	3.13	No	15	0	n/a	0.001313	NP Intra (normality) ...
Dissolved Solids (mg/l)	504	385	n/a	5/18/2020	205	No	12	0	n/a	0.002173	NP Intra (normality) ...
Dissolved Solids (mg/l)	505	180.3	n/a	5/18/2020	179	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	506	491.2	n/a	5/18/2020	444	No	12	0	x^5	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	510	496.5	n/a	5/18/2020	474	No	12	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	**512**	**466.4**	**n/a**	**8/26/2020**	**493**	**Yes**	**12**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Dissolved Solids (mg/l)	601	440.6	n/a	5/18/2020	396	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	504	0.2116	n/a	5/18/2020	0.182	No	14	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	505	0.2529	n/a	5/18/2020	0.202	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	506	0.3805	n/a	5/18/2020	0.308	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	510	0.3464	n/a	5/18/2020	0.293	No	13	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	512	0.3568	n/a	5/18/2020	0.286	No	12	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	601	0.2959	n/a	5/18/2020	0.252	No	12	0	x^2	0.00188	Param Intra 1 of 3
pH (S.U.)	504	9.03	6.3	5/18/2020	6.55	No	20	0	n/a	0.001125	NP Intra (normality) ...
pH (S.U.)	505	9.2	6.6	8/26/2020	6.96	No	17	0	n/a	0.00182	NP Intra (normality) ...
pH (S.U.)	506	7.568	6.807	8/26/2020	7.17	No	17	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	510	8.15	6.72	5/18/2020	6.95	No	14	0	n/a	0.003199	NP Intra (normality) ...
pH (S.U.)	512	7.45	6.692	8/26/2020	7.02	No	20	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	601	8.13	6.65	5/18/2020	6.77	No	15	0	n/a	0.002625	NP Intra (normality) ...
Sulfate (mg/L)	504	38.15	n/a	5/18/2020	34.8	No	18	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	505	24.65	n/a	5/18/2020	16.3	No	13	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	**506**	**76.83**	**n/a**	**8/26/2020**	**79.6**	**Yes**	**14**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Sulfate (mg/L)	510	18.59	n/a	5/18/2020	12.3	No	12	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	**512**	**44.8**	**n/a**	**8/26/2020**	**80.1**	**Yes**	**18**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Sulfate (mg/L)	601	28.3	n/a	5/18/2020	9	No	13	0	n/a	0.001886	NP Intra (normality) ...

ATTACHMENT 2

Sanitas™ Configuration Settings

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

Exclude data flags: i

Data Reading Options

- (•) Individual Observations
- ( ) Mean of Each: ( ) Month
- ( ) Median of Each: ( ) Season

Non-Detect / Trace Handling...

Setup Seasons...

[ ] Automatically Process Resamples...

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

- [ ] Black and White Output
- [x] Four Plots Per Page
  - [x] Always Combine Data Pages...
  - [x] Include Tick Marks on Data Page
  - [ ] Use Constituent Name for Graph Title
- [ ] Draw Border Around Text Reports and Data Pages
- [x] Enlarge/Reduce Fonts (Graphs): 100%
- [x] Enlarge/Reduce Fonts (Data/Text Reports): 100%
- [x] Wide Margins (on reports without explicit setting)
- [ ] Use CAS# (Not Const. Name)
- [ ] Truncate File Names to 20 Characters
- [ ] Include Limit Lines when found in Database...
- [x] Show Deselected Data on Time Series Lighter
- [ ] Show Deselected Data on all Data Pages Light

Setup Symbols and Colors...

- [x] Prompt to Overwrite/Append Summary Tables
- [ ] Round Limits to 2 Sig. Digits (when not set in data file)
- [ ] User-Set Scale
- [x] Indicate Background Data
- [ ] Show Exact Dates
- [ ] Thick Plot Lines

Zoom Factor: 200%

Output Decimal Precision

- ( ) Less Precision
- (•) Normal Precision
- ( ) More Precision

- [x] Store Print Jobs in Multiple Constituent Mode

Store All Print Jobs...

Printer: Adobe PDF

Printers...

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

☐ 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.

Data | Output | Trend Test | Control Cht | **Prediction Lim** | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

☑ 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 α

Statistical Evaluations per Year: 2

Constituents Analyzed: 7

Downgradient (Compliance) Wells: 4

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)

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

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 α= 0.05 or if n > 22 Rosner's at α= 0.01 [x] Use EPA Screening to establish Suspected Outliers
- ( ) Tukey's Outlier Screening, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat

[x] Test For Normality using Shapiro-Wilk/Francia at Alpha = 0.1

- (•) Stop if Non-Normal
- ( ) Continue with Parametric Test if Non-Normal
- ( ) Tukey's if Non-Normal, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat

[x] No Outlier If Less Than 3.0 Times Median

[ ] Apply Rules found in Ohio Guidance Document 0715

[ ] Combine Background Wells on the Outlier Report...

Piper, Stiff Diagram

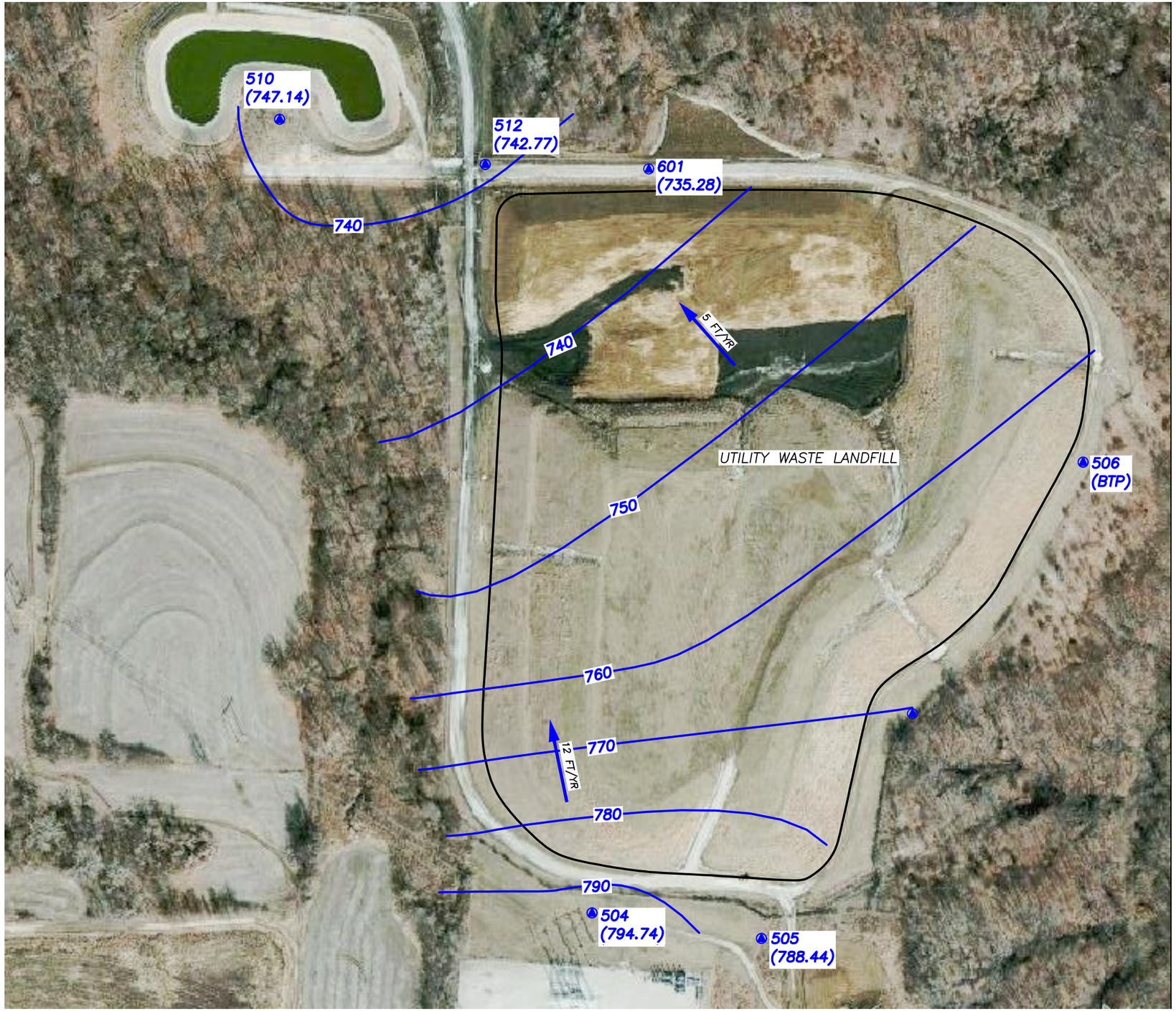
- [ ] Combine Wells
- [ ] Combine Dates
- (•) Use Default Constituent Names
- ( ) Use Constituent Definition File Edit

- [x] Label Constituents
- [x] Label Axes
- [x] Note Cation-Anion Balance (Piper only)

Jared Morrison
December 16, 2022

ATTACHMENT 3

Groundwater Potentiometric Surface Maps



LEGEND:

- 760 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- 601 (738.07) GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
- UTILITY WASTE LANDFILL UNIT BOUNDARY
- 12 FT/YR GROUNDWATER FLOW DIRECTION AND FLOW RATE (FEET/YEAR)
- 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.
4. WATER LEVEL MEASUREMENTS COMPLETED ON MAY 18, 2020.

200 0 200 400
SCALE FEET

REV.	DATE
-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP
(MAY 2020)
CCR LANDFILL

PROJECT TITLE
2020 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

CLIENT
EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St, Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

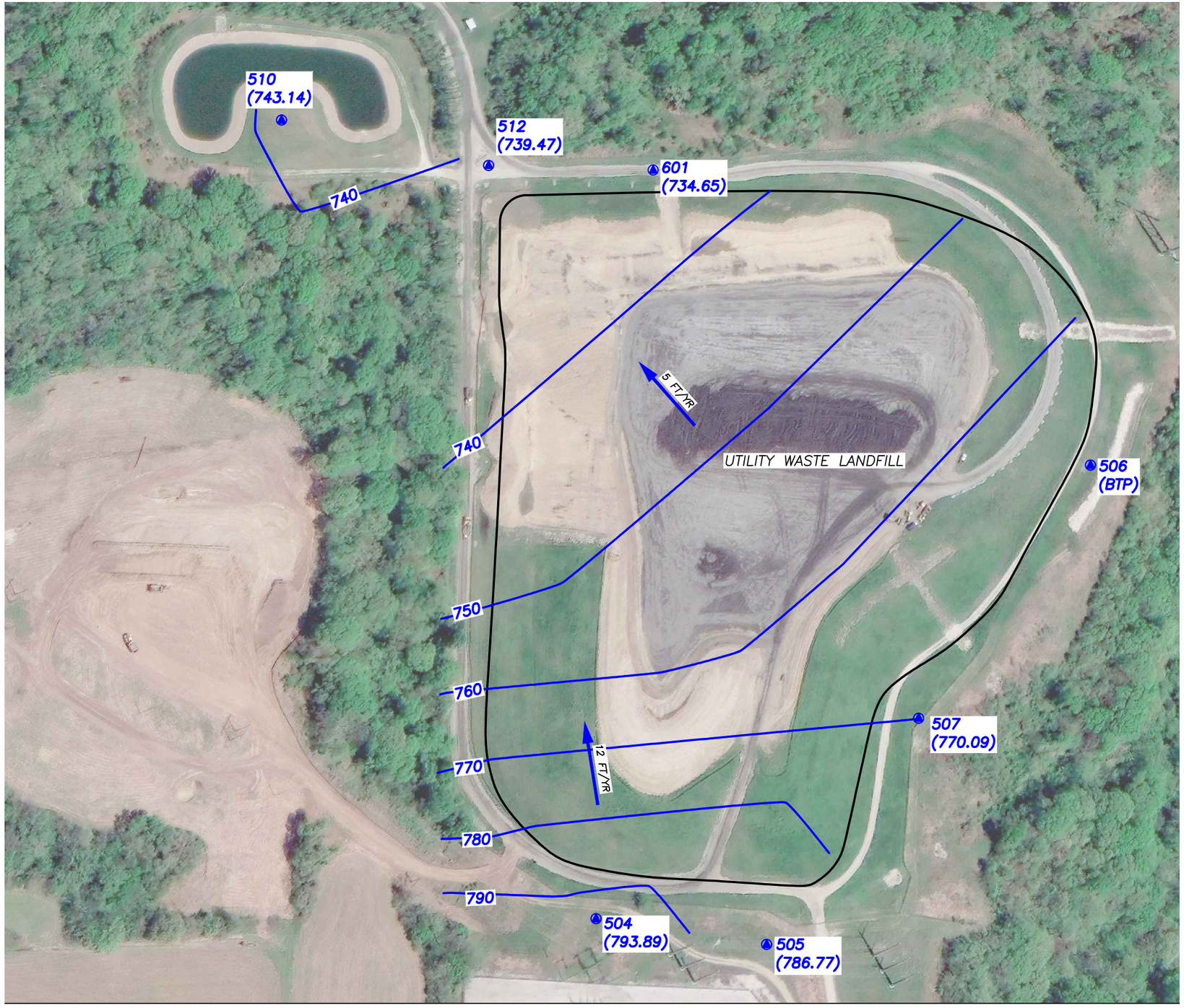
PROJ. NO. 27213167.20
DSN. BY: TCW
DWN. BY: MBJ
CHK. BY: JRR
QA RVW BY: JRR
PROJ. MGR. JRF

CADD FILE:
20 - MAY_GW.DWG

DATE:
12/13/22

FIGURE NO.
2

N:\KCPL\Projects\Groundwater\DWG\Sibley\2020\GW\20 - MAY_GW.dwg Dec 14, 2022 - 1:58pm Layout Name: Fig 2 By: swyly



LEGEND:

- 760 — *GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)*
- 601 (738.07) — *GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)*
- *UTILITY WASTE LANDFILL UNIT BOUNDARY*
- 5 FT/YR — *GROUNDWATER FLOW DIRECTION AND FLOW RATE (FEET/YEAR)*
- 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. APRIL 2020.*
3. *BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.*
4. WATER LEVEL MEASUREMENTS COMPLETED ON NOVEMBER 11, 2020

200 0 200 400
SCALE FEET

REV. | DATE
1 | -

SHEET TITLE
POTENTIOMETRIC SURFACE MAP (NOVEMBER 2020) CCR LANDFILL

PROJECT TITLE
2020 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

CLIENT
EVERGY MISSOURI WEST, INC.
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

SCS ENGINEERS
8575 W. 110th St, Ste. 100
Overland Park, Kansas 66210
PH. (913) 681-0030 FAX. (913) 681-0012

PROJ. NO. 27213167.20 | DWN. BY: MBJ | CHK. BY: JRR | QA/QC RVW BY: JRR | PROJ. MGR: JRF
DSN. BY: TGW

CADD FILE:
20 - NOVEMBER_GW.DWG

DATE:
12/13/22

FIGURE NO.
3

N:\KCPL\Projects\Groundwater\DWG\Sibley\2020\GW\NOVEMBER 2020\20 - NOVEMBER_GW.dwg Dec 13, 2022 - 6:10pm Layout Name: Fig 2 By: swyly