2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

SLAG SETTLING IMPOUNDMENT
SIBLEY GENERATING STATION
SIBLEY, MISSOURI

Presented To:
Evergy Missouri West, Inc. (f/k/a KCP&L Greater Missouri Operations Co.)

SCS ENGINEERS

27213169.19 | January 2020, Revised December 20, 2022

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

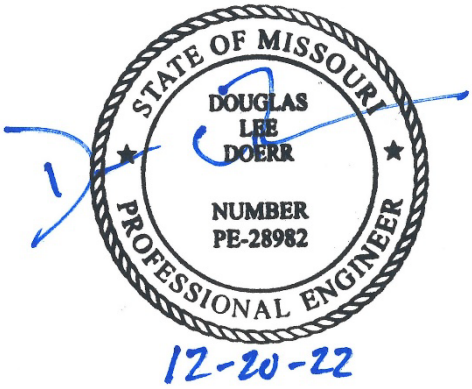
CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2019 Annual Groundwater Monitoring and Corrective Action Report for the Slag Settling Impoundment 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 2019 Annual Groundwater Monitoring and Corrective Action Report for the Slag Settling Impoundment 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 Section	Summary of Revisions
0	January 2020	NA	Original Report.
1	December 20, 2022	Addendum 1	Added Addendum 1

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Appendices

1 INTRODUCTION

This 2019 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). Specifically, this report was prepared for Evergy Missouri West, Inc. (f/k/a KCP&L Greater Missouri Operations Company, Inc.) 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 2019 Annual Groundwater Monitoring and Corrective Action Report for the Slag Settling Impoundment at the Sibley Generating Station.

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 Slag Settling Impoundment and all background (or upgradient) and downgradient monitoring wells with identification numbers for the Slag Settling Impoundment 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 Slag Settling Impoundment in 2019.

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 conducted during the reporting period (2019). Samples collected in 2019 were collected and analyzed for Appendix III detection monitoring constituents as indicated in **Appendix B**, **Table 1** (Appendix III Detection Monitoring Results, and **Table 2** (Detection Monitoring Field Measurements). The dates of sample collection, the monitoring program requiring the sample, and the results of the analyses are also provided in these tables. These tables include both the Spring 2019 semiannual detection monitoring data and the Fall 2019 semiannual detection monitoring data.

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 2019. Only detection monitoring was conducted in 2019.

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 statistical evaluation of the Fall 2018 semiannual detection monitoring sampling and analysis event per the certified statistical method,

b. completion of the 2018 Annual Groundwater Monitoring and Corrective Action Report,

c. completion of the Spring 2019 semiannual detection monitoring sampling and analysis event, and subsequent verification sampling per the certified statistical method,

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

e. completion of a successful alternative source demonstration for the Spring 2019 semiannual

detection monitoring sampling and analysis event, and

f. initiation of the Fall 2019 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 (2020).

Completion of verification sampling and data analysis, and the statistical evaluation of Fall 2019 detection monitoring sampling and analysis event. Semiannual Spring and Fall 2020 groundwater sampling and analysis. Completion of the statistical evaluation of the Spring 2020 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 report is included as **Appendix C:**

CCR Groundwater Monitoring Alternative Source Demonstration Report May 2019 Groundwater Monitoring Event, Slag Settling Impoundment, Sibley Generating Station (December 2019).

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.

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 Slag Settling Impoundment. No warranties, express or implied, are intended or made.

APPENDIX A

FIGURES

Figure 1: Site Map

LEGEND:

701 — CCR GROUNDWATER MONITORING SYSTEM WELLS

CCR UNIT BOUNDARY

200 0 200 400

SCALE FEET

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. MONITOR WELL LOCATIONS ARE APPROXIMATE.
3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.

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EVERGY MISSOURI WEST, INC
SIBLEY SLAG SETTLING IMPOUNDMENT
SIBLEY GENERATING STATION
2019 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CHK. BY: JRR	DWN. BY: TGW	DSN. BY: TGW	PROJ. NO. 27213169.19
PROJ. MGR: JRR	DATE: 1/07/20	CADD FILE: FIG 1 – SIBLEY SLAG IMP2019.DWG	FIG. NO. 1

APPENDIX B

TABLES

Table 1: Appendix III Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

Table 1
Slag Settling Impoundment
Appendix III Detection Monitoring Results
Evergy Sibley Generating Station

Well Number	Sample Date	Appendix III Constituents						
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Dissolved Solids (mg/L)
MW-701	5/22/2019	<0.200	86.9	8.36	0.144	6.94	13.4	312
MW-701	11/6/2019	<0.200	82.8	7.91	0.145	7.07	12.6	275
MW-702	5/22/2019	<0.200	88.4	8.09	0.142	7.02	17.0	301
MW-702	11/6/2019	<0.200	82.8	8.30	0.131	7.28	17.0	266
MW-703	5/22/2019	0.535	89.9	15.0	0.251	6.99	17.8	381
MW-703	7/16/2019	---	---	---	---	**7.10	*11.1	---
MW-703	8/21/2019	---	---	---	---	**7.02	*5.73	---
MW-703	11/6/2019	0.476	129	22.2	0.353	7.15	<5.00	512
MW-704	5/22/2019	<0.200	101	18.1	0.177	6.98	37.6	376
MW-704	7/16/2019	---	---	*19.5	*0.157	**7.16	---	---
MW-704	8/21/2019	---	---	*15.2	---	**7.18	---	---
MW-704	11/6/2019	<0.200	88.5	13.7	0.172	7.26	20.1	303

* 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
Slag Settling Impoundment
Detection Monitoring Field Measurements
Evergy Sibley Generating Station

Well Number	Sample Date	pH (S.U.)	Specific Conductivity (µS)	Temperature (^{o}C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Water Level (ft btoc)	Groundwater Elevation (ft NGVD)
MW-701	5/22/2019	6.94	526	14.57	14.4	35	3.15	10.03	717.23
MW-701	11/6/2019	7.07	524	14.44	17.1	97	3.92	13.82	713.44
MW-702	5/22/2019	7.02	544	13.80	18.7	-113	4.47	11.54	715.75
MW-702	11/6/2019	7.28	529	15.31	0.0	-74	1.27	17.63	709.66
MW-703	5/22/2019	6.99	718	14.44	10.8	-177	0.21	11.63	715.68
MW-703	7/16/2019	**7.10	922	16.86	0.0	-181	4.17	15.83	711.48
MW-703	8/21/2019	**7.02	1060	18.47	0.0	-98	0.00	16.26	711.05
MW-703	11/6/2019	7.15	1150	15.31	0.0	-166	0.49	17.35	709.96
MW-704	5/22/2019	6.98	644	14.42	5.7	-48	0.00	12.09	715.56
MW-704	7/16/2019	**7.16	576	18.01	0.0	-75	0.00	16.12	711.53
MW-704	8/21/2019	**7.18	514	20.82	0.0	106	0.00	16.35	711.30
MW-704	11/6/2019	7.26	564	16.99	0.0	-22	0.66	17.41	710.24

* 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

^{o}C - Degrees Celsius

ft btoc - Feet Below Top of Casing

ft NGVD - National Geodetic Vertical Datum (NAVD 88)

NTU - Nephelometric Turbidity Unit

APPENDIX C

ALTERNATIVE SOURCE DEMONSTRATION

Groundwater Monitoring Alternative Source Demonstration Report May 2019 Groundwater Monitoring Event, Sibley Generating Station (December 2019)

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

SLAG SETTLING IMPOUNDMENT
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 2019

File No. 27213169.18

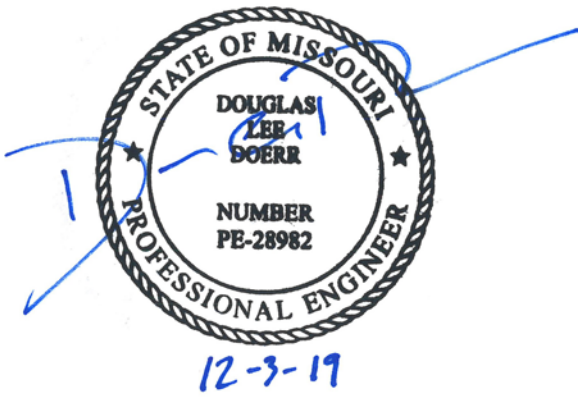
CERTIFICATIONS

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 Slag Settling Impoundment 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 Slag Settling Impoundment 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

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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 Slag Settling Impoundment 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 22, 2019. Review and validation of the results from the May 2019 Detection Monitoring Event was completed on July 3, 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 July 16, 2019 and August 21, 2019.

The completed statistical evaluation identified one Appendix III constituent above its prediction limit in monitoring well MW-704.

Constituent/Monitoring Well	*UPL	Observation May 22, 2019	1st Verification July 16, 2019	2nd Verification August 21, 2019
Chloride				
704	14.12	18.1	19.5	15.2

*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 confirmed one SSI above the background prediction limit for chloride in downgradient monitoring well MW-704.

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 Slag Settling Impoundment 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 Slag Settling Impoundment. 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.

Box and whiskers plots for chloride in monitoring well MW-704 were compared to box and whisker plots for chloride in samples from the river and the Slag Settling Impoundment. Chloride comparisons indicate the concentrations in MW-704 are well below the concentration levels for the river and the Slag Settling Impoundment. Additionally, the chloride concentrations in the river and Slag Settling Impoundment are very similar indicating the chloride concentrations in MW-704 could be naturally occurring or from the river. This demonstrates that a source other than the Slag Settling Impoundment caused the SSI over 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 chloride are provided in **Appendix A**.

3.2 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.

Time series plots for chloride in monitoring well MW-704 were compared to time series plots for chloride in samples from the river and the Slag Settling Impoundment. Chloride comparisons indicate the concentrations in MW-704 are well below the concentration levels for the river and the Slag Settling Impoundment. Additionally, the chloride concentrations in the river and Slag Settling Impoundment are very similar indicating the chloride concentrations in MW-704 could be naturally occurring or from the river. This demonstrates that a source other than the Slag Settling Impoundment caused the SSI over background level, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Additionally, a time series plot was prepared for groundwater elevations for MW-704. The groundwater elevation for MW-704 increased significantly from the elevations observed during background sampling events. The background data set does not include data collected under the full spectrum of natural conditions such as those experienced during and after the historic Missouri River flooding in the spring and fall of 2019. This demonstrates that a source other than the Slag Settling Impoundment could have caused the SSI over background levels, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Time series plots for chloride are provided in **Appendix B**.

3.3 PIPER DIAGRAM PLOTS

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

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

A piper diagram generated for MW-704 and water from the Slag Settling Impoundment is provided in **Appendix C** and indicates the groundwater from MW-704 does not exhibit the same geochemical characteristics as the Slag Settling Impoundment. The groundwater and water from the Slag Settling Impoundment plot in separate clusters indicating there is no mixing of the two types of water (groundwater and Slag Settling Impoundment water). This demonstrates that a source other than the Slag Settling Impoundment caused the SSI over background levels for chloride, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

4 CONCLUSION

Our opinion is that a sufficient body of evidence is available and presented above to demonstrate that a source other than the Slag Settling Impoundment caused the SSI over background levels, 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 Slag Settling Impoundment may continue with the detection monitoring program under § 257.94.

5 GENERAL COMMENTS

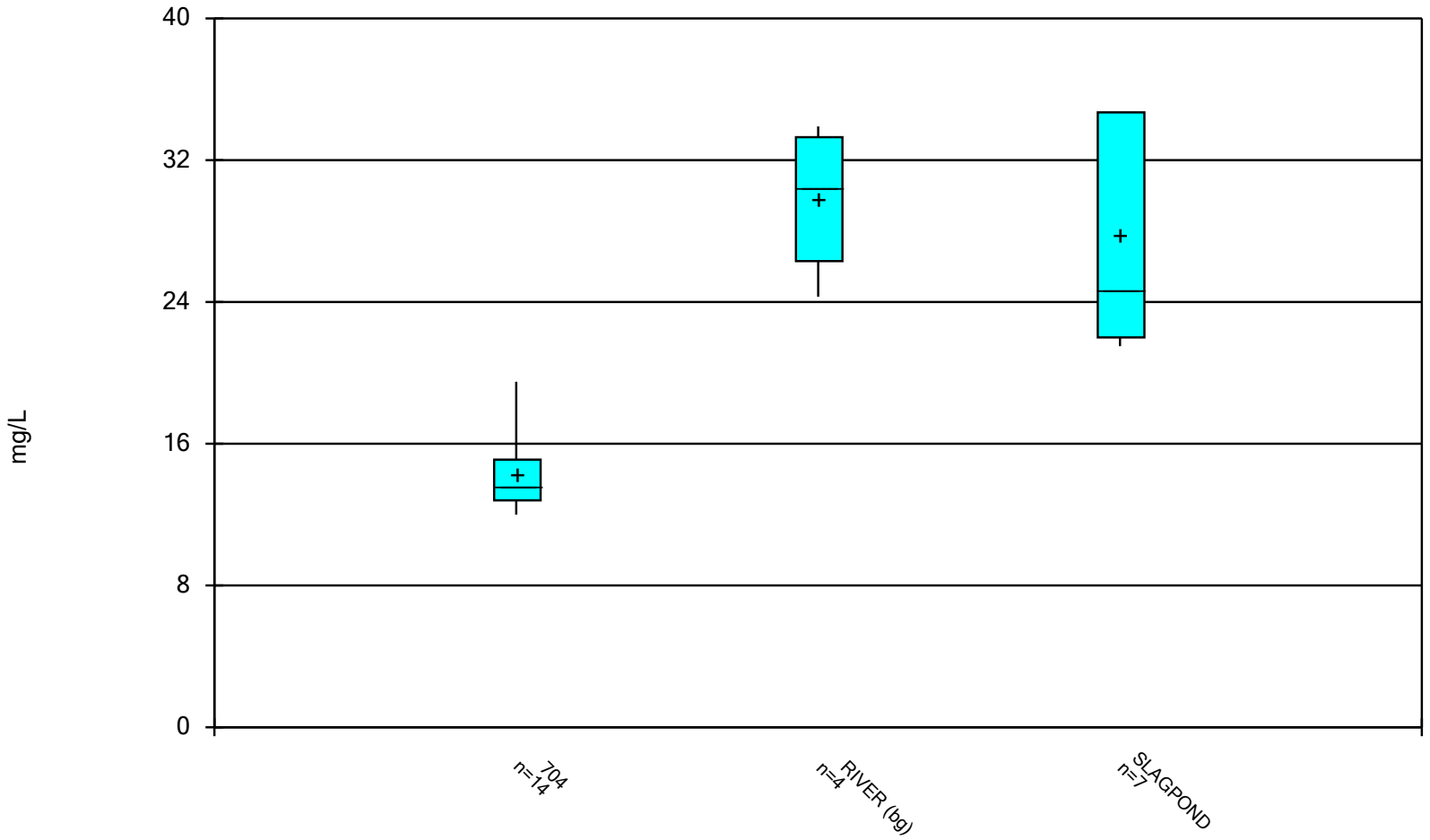
This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report.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

Box and Whiskers Plots

Box & Whiskers Plot



Constituent: Chloride Analysis Run 11/1/2019 1:14 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Box & Whiskers Plot

Constituent: Chloride (mg/L) Analysis Run 11/1/2019 1:14 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	704	RIVER (bg)	SLAGPOND
5/26/2016	12.8	24.3	21.5
7/19/2016		32.7	
8/23/2016	13.4		24.7
11/10/2016	13.9	28.3	23.7
2/8/2017	13.4		34.7
2/9/2017		33.9	
5/3/2017	13.8		
5/4/2017			22
8/1/2017	13.6		33.2
10/3/2017	15		34.7
10/5/2017	13.6		
11/17/2017	12		
5/16/2018	12.8		
11/15/2018	12.8		
5/22/2019	18.1		
7/16/2019	19.5		
8/21/2019	15.2		
Median	13.6	30.5	24.7
LowerQ.	12.8	26.3	22
UpperQ.	15.1	33.3	34.7
Min	12	24.3	21.5
Max	19.5	33.9	34.7
Mean	14.28	29.8	27.79

Box & Whiskers Plot

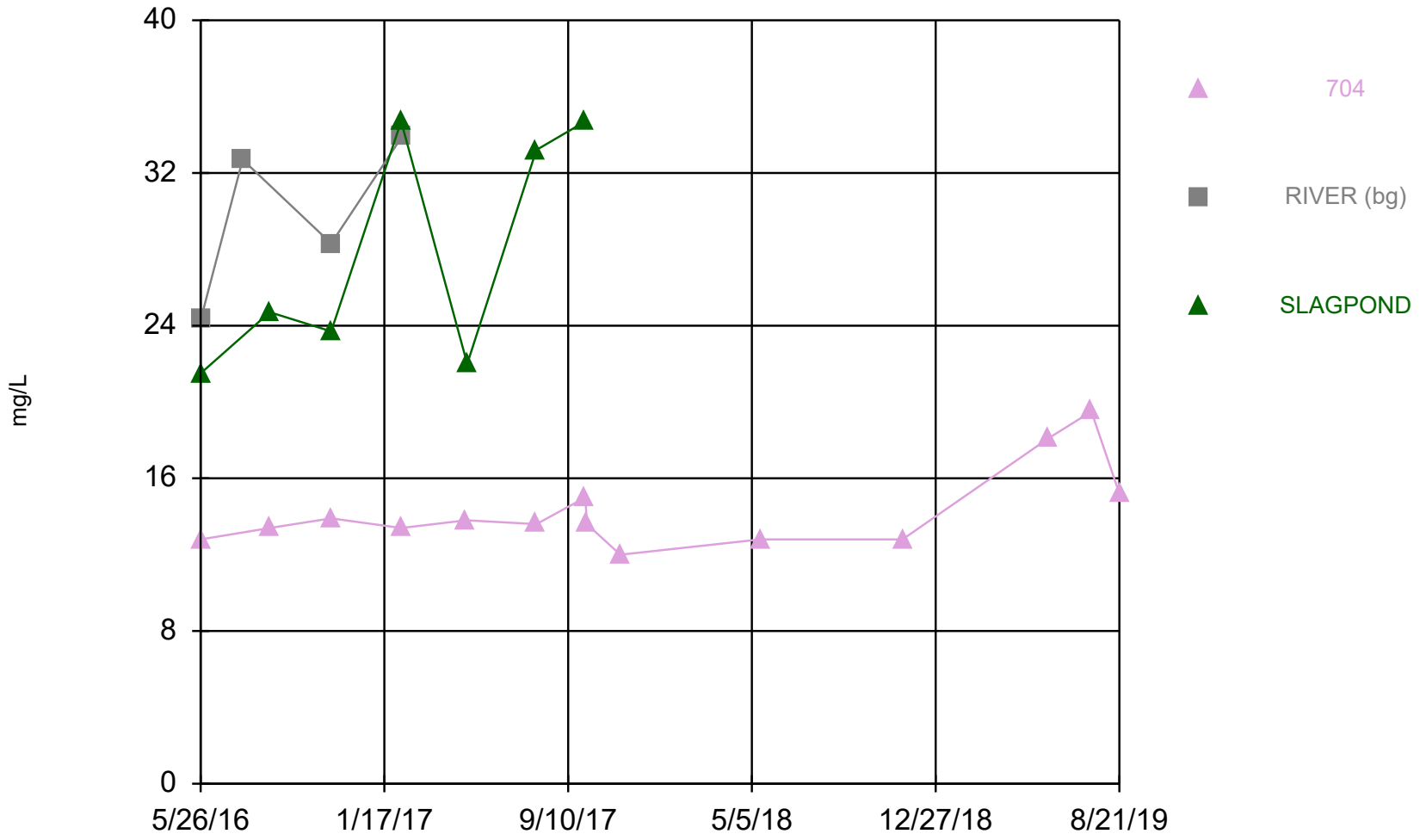
Sibley Client: SCS Engineers Data: Sibley Printed 11/1/2019, 1:14 PM

Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Chloride (mg/L)	704	14	14.28	2.109	0.5637	13.6	12	19.5	0
Chloride (mg/L)	RIVER (bg)	4	29.8	4.386	2.193	30.5	24.3	33.9	0
Chloride (mg/L)	SLAGPOND	7	27.79	6.112	2.31	24.7	21.5	34.7	0

Appendix B

Time Series Plots

Time Series



Constituent: Chloride Analysis Run 11/1/2019 1:12 PM View: LF III Sibley Client: SCS Engineers Data: Sibley

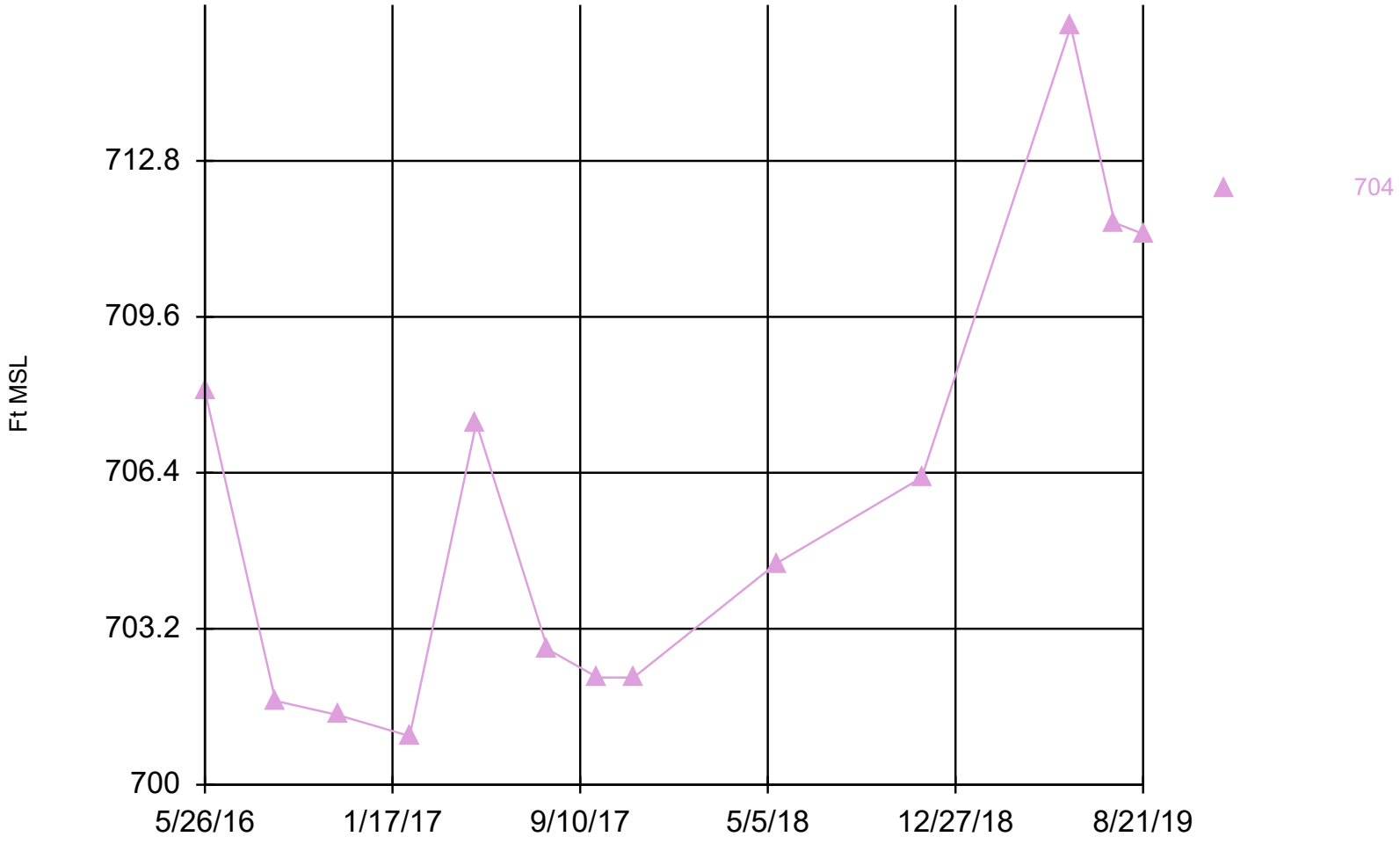
Time Series

Constituent: Chloride (mg/L) Analysis Run 11/1/2019 1:13 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

	704	RIVER (bg)	SLAGPOND
5/26/2016	12.8	24.3	21.5
7/19/2016		32.7	
8/23/2016	13.4		24.7
11/10/2016	13.9	28.3	23.7
2/8/2017	13.4		34.7
2/9/2017		33.9	
5/3/2017	13.8		
5/4/2017			22
8/1/2017	13.6		33.2
10/3/2017	15		34.7
10/5/2017	13.6		
11/17/2017	12		
5/16/2018	12.8		
11/15/2018	12.8		
5/22/2019	18.1		
7/16/2019	19.5		
8/21/2019	15.2		

Time Series



Constituent: Groundwater Elevation Analysis Run 11/1/2019 1:21 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

Time Series

Constituent: Groundwater Elevation (Ft MSL) Analysis Run 11/1/2019 1:22 PM View: LF III

Sibley Client: SCS Engineers Data: Sibley

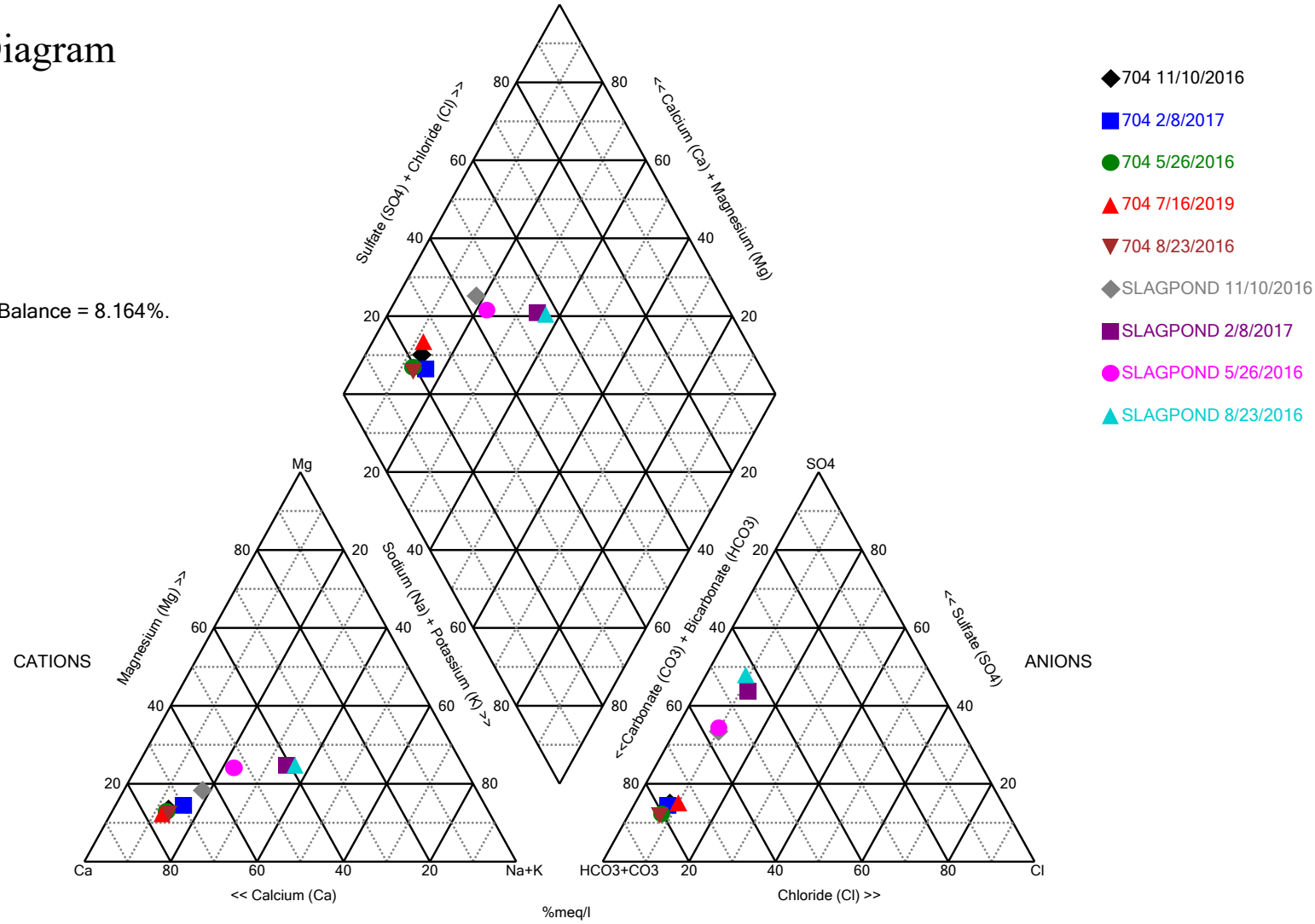
	704
5/26/2016	708.08
8/23/2016	701.72
11/10/2016	701.43
2/8/2017	701
5/3/2017	707.42
8/1/2017	702.78
10/3/2017	702.2
11/17/2017	702.2
5/16/2018	704.54
11/15/2018	706.3
5/22/2019	715.56
7/16/2019	711.53
8/21/2019	711.3

Appendix C

Piper Diagram

Piper Diagram

Cation-Anion Balance = 8.164%.



Analysis Run 11/1/2019 4:43 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Piper Diagram

Analysis Run 11/1/2019 4:44 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3	CO3
704 5/26/2016	17.3	2.06	93.3	9.74	12.8	31.6	231	20
704 8/23/2016	18.8	1.87	95.2	9.61	13.4	31.7	245	20
704 11/10/2016	17.8	1.9	93.9	10.4	13.9	39.8	225	20
704 2/8/2017	19.5	1.98	80.9	9.96	13.4	37.7	225	20
704 7/16/2019	17.9	1.77	103	10.2	19.5	42.8	236	20
SLAGPOND 5/26/2016	36.1	6.13	82	22.5	21.5	111	193	20
SLAGPOND 8/23/2016	73.5	7.59	72	27.7	24.7	192	184	20
SLAGPOND 11/10/2016	52.6	5.83	169	28.9	23.7	118	217	20
SLAGPOND 2/8/2017	63.4	8.03	70.3	25.9	34.7	188	210	20

Addendum 1

2019 Annual Groundwater Monitoring and Corrective Action Report Addendum 1

December 20, 2022
File No. 27213167.19

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: 2019 Annual Groundwater Monitoring and Corrective Action Report Addendum 1
Evergy Missouri West, Inc.
Slag Settling Impoundment
Sibley Generating Station – Sibley, Missouri

The Slag Settling Impoundment 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 2019 for the Slag Settling Impoundment was completed and placed in the facility's operating record on January 30, 2020, as required by the Rule. 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:

  - May 2019 – Spring 2019 semiannual detection monitoring sampling event.
  - July 2019 – First verification sampling for the Spring 2019 detection monitoring sampling event.
  - August 2019 – Second verification sampling for the Spring 2019 detection monitoring sampling event.
  - November 2019 - Fall 2019 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 2019 included the following:

  - Fall 2018 semiannual detection monitoring statistical analyses.
  - Spring 2019 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 2019 - Spring 2019 semiannual detection monitoring sampling event.
  - November 2019 - Fall 2019 semiannual detection monitoring sampling event.

Jared Morrison
December 20, 2022

ATTACHMENT 1

Laboratory Analytical Reports

Jared Morrison
December 20, 2022

ATTACHMENT 1-1
May 2019 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

June 04, 2019

SCS Engineers - KS

Sample Delivery Group:	L1102423
Samples Received:	05/24/2019
Project Number:	27213169.18
Description:	KCP&L 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-701 L1102423-01 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 14:20 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287420	1	05/29/19 14:17	05/29/19 15:02	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 16:35	06/03/19 16:35	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 20:54	CCE	Mt. Juliet, TN

MW-702 L1102423-02 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 12:40 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287420	1	05/29/19 14:17	05/29/19 15:02	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 17:32	06/03/19 17:32	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 20:56	CCE	Mt. Juliet, TN

MW-703 L1102423-03 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 13:15 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287420	1	05/29/19 14:17	05/29/19 15:02	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 17:47	06/03/19 17:47	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:04	CCE	Mt. Juliet, TN

MW-704 L1102423-04 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 13:45 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287420	1	05/29/19 14:17	05/29/19 15:02	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 18:03	06/03/19 18:03	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:07	CCE	Mt. Juliet, TN

MW-801 L1102423-05 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 16:05 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 18:19	06/03/19 18:19	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	5	06/03/19 19:07	06/03/19 19:07	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:09	CCE	Mt. Juliet, TN

MW-802 L1102423-06 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 15:20 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 19:23	06/03/19 19:23	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:12	CCE	Mt. Juliet, TN

MW-803 L1102423-07 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 16:50 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 19:39	06/03/19 19:39	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	5	06/04/19 10:10	06/04/19 10:10	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:14	CCE	Mt. Juliet, TN

MW-804 L1102423-08 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 17:25 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 19:55	06/03/19 19:55	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:17	CCE	Mt. Juliet, TN

MW-805 L1102423-09 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 17:15 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 20:10	06/03/19 20:10	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:19	CCE	Mt. Juliet, TN

MW-806R L1102423-10 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 16:35 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 20:26	06/03/19 20:26	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	5	06/03/19 21:14	06/03/19 21:14	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 20:20	RDS	Mt. Juliet, TN

DUPLICATE 2 L1102423-11 GW

Collected by: Jason R. Franks | Collected date/time: 05/22/19 16:35 | Received date/time: 05/24/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1287421	1	05/29/19 12:36	05/29/19 13:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	1	06/03/19 21:30	06/03/19 21:30	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1290091	5	06/04/19 10:26	06/04/19 10:26	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1286570	1	05/26/19 18:31	05/28/19 21:22	CCE	Mt. Juliet, TN

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

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	312000		10000	1	05/29/2019 15:02	WG1287420

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8360		1000	1	06/03/2019 16:35	WG1290091
Fluoride	144		100	1	06/03/2019 16:35	WG1290091
Sulfate	13400		5000	1	06/03/2019 16:35	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/28/2019 20:54	WG1286570
Calcium	86900		1000	1	05/28/2019 20:54	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	301000		10000	1	05/29/2019 15:02	WG1287420

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8090		1000	1	06/03/2019 17:32	WG1290091
Fluoride	142		100	1	06/03/2019 17:32	WG1290091
Sulfate	17000		5000	1	06/03/2019 17:32	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/28/2019 20:56	WG1286570
Calcium	88400		1000	1	05/28/2019 20:56	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	381000		10000	1	05/29/2019 15:02	WG1287420

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	15000		1000	1	06/03/2019 17:47	WG1290091
Fluoride	251		100	1	06/03/2019 17:47	WG1290091
Sulfate	17800		5000	1	06/03/2019 17:47	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	535		200	1	05/28/2019 21:04	WG1286570
Calcium	89900		1000	1	05/28/2019 21:04	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	376000		10000	1	05/29/2019 15:02	WG1287420

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18100		1000	1	06/03/2019 18:03	WG1290091
Fluoride	177		100	1	06/03/2019 18:03	WG1290091
Sulfate	37600		5000	1	06/03/2019 18:03	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/28/2019 21:07	WG1286570
Calcium	101000		1000	1	05/28/2019 21:07	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	817000		13300	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	154000		5000	5	06/03/2019 19:07	WG1290091
Fluoride	151		100	1	06/03/2019 18:19	WG1290091
Sulfate	88300		5000	1	06/03/2019 18:19	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	549		200	1	05/28/2019 21:09	WG1286570
Calcium	178000		1000	1	05/28/2019 21:09	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	383000		10000	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	62000		1000	1	06/03/2019 19:23	WG1290091
Fluoride	227		100	1	06/03/2019 19:23	WG1290091
Sulfate	35400		5000	1	06/03/2019 19:23	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/28/2019 21:12	WG1286570
Calcium	85500		1000	1	05/28/2019 21:12	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	535000		10000	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	15900		1000	1	06/03/2019 19:39	WG1290091
Fluoride	272		100	1	06/03/2019 19:39	WG1290091
Sulfate	120000		25000	5	06/04/2019 10:10	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	2770		200	1	05/28/2019 21:14	WG1286570
Calcium	119000		1000	1	05/28/2019 21:14	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	719000		13300	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	17700		1000	1	06/03/2019 19:55	WG1290091
Fluoride	233		100	1	06/03/2019 19:55	WG1290091
Sulfate	ND		5000	1	06/03/2019 19:55	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	7640		200	1	05/28/2019 21:17	WG1286570
Calcium	169000		1000	1	05/28/2019 21:17	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	357000		10000	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8650		1000	1	06/03/2019 20:10	WG1290091
Fluoride	201		100	1	06/03/2019 20:10	WG1290091
Sulfate	51100		5000	1	06/03/2019 20:10	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/28/2019 21:19	WG1286570
Calcium	98700		1000	1	05/28/2019 21:19	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	731000		13300	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	28700		1000	1	06/03/2019 20:26	WG1290091
Fluoride	215		100	1	06/03/2019 20:26	WG1290091
Sulfate	238000		25000	5	06/03/2019 21:14	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	5580		200	1	05/28/2019 20:20	WG1286570
Calcium	171000	V	1000	1	05/28/2019 20:20	WG1286570

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	726000		10000	1	05/29/2019 13:33	WG1287421

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	28700		1000	1	06/03/2019 21:30	WG1290091
Fluoride	214		100	1	06/03/2019 21:30	WG1290091
Sulfate	231000		25000	5	06/04/2019 10:26	WG1290091

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	5630		200	1	05/28/2019 21:22	WG1286570
Calcium	171000		1000	1	05/28/2019 21:22	WG1286570

Method Blank (MB)

(MB) R3416932-1 05/29/19 15:02

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

L1102352-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1102352-08 05/29/19 15:02 • (DUP) R3416932-3 05/29/19 15:02

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1940000	1920000	1	1.30		5

Laboratory Control Sample (LCS)

(LCS) R3416932-2 05/29/19 15:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8700000	98.9	85.0-115	

Method Blank (MB)

(MB) R3416805-1 05/29/19 13:33

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

L1102435-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1102435-02 05/29/19 13:33 • (DUP) R3416805-3 05/29/19 13:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	168000	168000	1	0.000		5

Laboratory Control Sample (LCS)

(LCS) R3416805-2 05/29/19 13:33

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8890000	101	85.0-115	

Method Blank (MB)

(MB) R3417535-1 06/03/19 14:52

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

L1102430-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1102430-03 06/03/19 22:50 • (DUP) R3417535-7 06/03/19 23:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	8620	8620	1	0.0395		15
Fluoride	ND	58.0	1	0.000		15
Sulfate	105000	105000	1	0.0563	E	15

Laboratory Control Sample (LCS)

(LCS) R3417535-2 06/03/19 15:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	40500	101	80.0-120	
Fluoride	8000	8490	106	80.0-120	
Sulfate	40000	40200	100	80.0-120	

L1102400-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1102400-09 06/03/19 15:48 • (MS) R3417535-4 06/03/19 16:19

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Chloride	50000	ND	51200	102	1	80.0-120	
Fluoride	5000	ND	5190	104	1	80.0-120	
Sulfate	50000	ND	50900	102	1	80.0-120	

L1102423-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1102423-10 06/03/19 20:26 • (MS) R3417535-5 06/03/19 20:42 • (MSD) R3417535-6 06/03/19 20:58

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	%	%		%			%	%
Chloride	50000	28700	80000	80300	103	103	1	80.0-120			0.379	15
Fluoride	5000	215	5410	5440	104	105	1	80.0-120			0.612	15

L1102423-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1102423-10 06/03/19 20:26 • (MS) R3417535-5 06/03/19 20:42 • (MSD) R3417535-6 06/03/19 20:58

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 %
Sulfate	50000	250000	293000	293000	84.4	84.8	1	80.0-120	E	E	0.0739	15

Method Blank (MB)

(MB) R3415615-1 05/28/19 20:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		12.6	200
Calcium	U		46.3	1000

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

(LCS) R3415615-2 05/28/19 20:04 • (LCSD) R3415615-3 05/28/19 20:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	1010	979	101	97.9	80.0-120			2.94	20
Calcium	10000	9880	9680	98.8	96.8	80.0-120			2.10	20

L1102021-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1102021-01 05/28/19 20:09 • (MS) R3415615-5 05/28/19 20:15 • (MSD) R3415615-6 05/28/19 20:17

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	1010	1030	95.9	97.2	1	75.0-125			1.23	20
Calcium	10000	5970	15200	15300	92.7	93.7	1	75.0-125			0.656	20

L1102423-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1102423-10 05/28/19 20:20 • (MS) R3415615-7 05/28/19 20:22 • (MSD) R3415615-8 05/28/19 20:24

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	5580	6480	6500	90.4	92.1	1	75.0-125			0.258	20
Calcium	10000	171000	178000	178000	75.9	71.3	1	75.0-125		V	0.256	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.

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

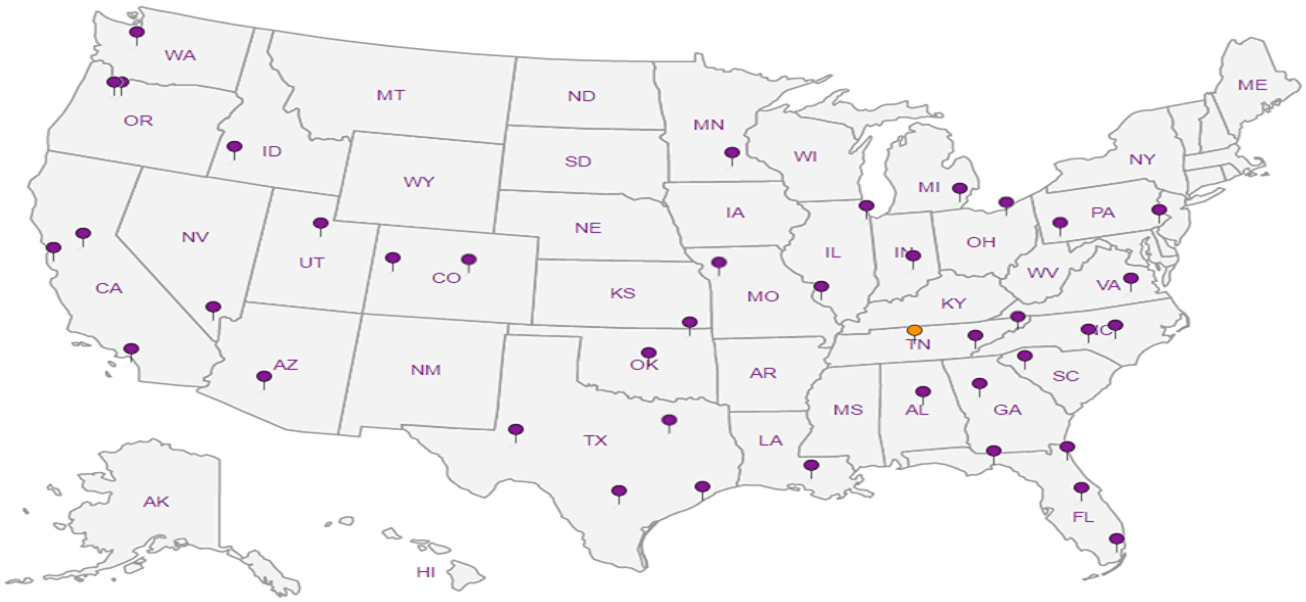
Third Party Federal Accreditations

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@kcpl.com;

Project Description: KCP&L Sibley Generating Station
City/State Collected: SIBLEY, MO

Phone: 913-681-0030
Fax: 913-681-0012
Client Project # 27213169.18
Lab Project # AQUAOPKS-SIBLEY

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

Collected by (signature): Jason R. Franks
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
Date Results Needed
Quote #

Chain of Custody Page 1 of 2

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

L# L1162423
1214

Acctnum: AQUAOPKS
Template: T136014
Prelogin: P709155
TSR: 206 - Jeff Carr
PB:
Shipped Via:

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-701	GRAB	GW	-	5/22/19	1420	3	X	X	X				RAD SCREEN: <0.5 mR/hr				-01
MW-702		GW	-		1240	3	X	X	X								02
MW-703		GW	-		1315	3	X	X	X								03
MW-704		GW	-		1345	3	X	X	X								04
MW-801		GW	-		1605	3	X	X	X								05
MW-802		GW	-		1520	3	X	X	X								06
MW-803		GW	-		1650	3	X	X	X								07
MW-804		GW	-		1725	3	X	X	X								08
MW-805		GW	-		1715	3	X	X	X								09
MW-806R		GW	-		1635	3	X	X	X								10

* 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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Jason R. Franks	5/23/19	1220	[illegible]	5-23-19 1220
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.0+0.1=1.1 °C GW Bottles Received: 36
[illegible]	5/23/19	1700	SWA	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Hold: / Condition: NCF / OK
			[illegible]	Date: 5/24/19 Time: 8:00

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@kcpl.com;**

Project Description: **KCP&L Sibley Generating Station**

City/State Collected: **SIBLEY, MO**

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

Client Project # **27213169.18**

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

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	RAD SCREEN: <0.5 mR/hr	Remarks	Sample # (lab only)
806R MS / MSD	GRAB	GW	–	5/22/19	1635	3	X	X	X			-10
DUPLICATE #2	↓	GW	–	↓	1635	3	X	X	X			11

Chain of Custody Page ___ of ___

National Center for Testing & Innovation

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

L# L1102423

Table #

Acctnum: **AQUAOPKS**

Template: **T136014**

Prelogin: **P709155**

TSR: **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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR
Jason R. Franks	5/23/19	1220	[signature] 5-23-19 1220	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.6 +0.1=1.7 °C Bottles Received: 36
[signature]	5/23/19	1700	SWA	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Hold: / Condition: NCF / (OK)
			[signature]	Date: 5/24/19 Time: 8:00

Jared Morrison
December 20, 2022

ATTACHMENT 1-2

July 2019 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 29, 2019

SCS Engineers - KS

Sample Delivery Group:	L1119586
Samples Received:	07/17/2019
Project Number:	27213168.18
Description:	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 L1119586-01 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 10:55 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 20:43	07/22/19 20:43	LDC	Mt. Juliet, TN

MW-506 L1119586-02 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 11:47 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 20:57	07/22/19 20:57	LDC	Mt. Juliet, TN

MW-512 L1119586-03 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 12:30 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 21:27	07/22/19 21:27	LDC	Mt. Juliet, TN

MW-703 L1119586-04 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 12:40 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 21:42	07/22/19 21:42	LDC	Mt. Juliet, TN

MW-704 L1119586-05 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 13:15 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 21:57	07/22/19 21:57	LDC	Mt. Juliet, TN

DUPLICATE 1 L1119586-06 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 13:15 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 23:11	07/22/19 23:11	LDC	Mt. Juliet, TN

MW-801 L1119586-07 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 13:55 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1313293	1	07/19/19 07:21	07/19/19 07:42	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1314866	1	07/22/19 23:26	07/22/19 23:26	LDC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1314866	5	07/23/19 00:11	07/23/19 00:11	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1313404	1	07/18/19 17:12	07/19/19 18:36	EL	Mt. Juliet, TN

DUPLICATE 2 L1119586-08 GW

Collected by: Whit Martin | Collected date/time: 07/16/19 13:55 | Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1313293	1	07/19/19 07:21	07/19/19 07:42	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1314866	1	07/23/19 00:26	07/23/19 00:26	LDC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1314866	5	07/23/19 00:41	07/23/19 00:41	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1313404	1	07/18/19 17:12	07/19/19 18:48	EL	Mt. Juliet, TN

MW-804 L1119586-09 GW

Collected by: Whit Martin
Collected date/time: 07/16/19 13:20
Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1313293	1	07/19/19 07:21	07/19/19 07:42	TH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1313404	1	07/18/19 17:12	07/19/19 18:51	EL	Mt. Juliet, TN

MW-806R L1119586-10 GW

Collected by: Whit Martin
Collected date/time: 07/16/19 14:05
Received date/time: 07/17/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1313293	1	07/19/19 07:21	07/19/19 07:42	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1317958	5	07/26/19 17:29	07/26/19 17:29	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1313404	1	07/18/19 17:12	07/19/19 18:59	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

Project Narrative

This report has been revised. Sample L1119586-10 was re-analyzed for Sulfate and the results of the second run are presented within this report.

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	36300		5000	1	07/22/2019 20:43	WG1314866

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7330		1000	1	07/22/2019 20:57	WG1314866

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4350		1000	1	07/22/2019 21:27	WG1314866
Sulfate	42100		5000	1	07/22/2019 21:27	WG1314866

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	11100		5000	1	07/22/2019 21:42	WG1314866

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19500		1000	1	07/22/2019 21:57	WG1314866
Fluoride	157		100	1	07/22/2019 21:57	WG1314866

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19500		1000	1	07/22/2019 23:11	WG1314866
Fluoride	160		100	1	07/22/2019 23:11	WG1314866

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	613000		13300	1	07/19/2019 07:42	WG1313293

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	127000		5000	5	07/23/2019 00:11	WG1314866
Sulfate	56600		5000	1	07/22/2019 23:26	WG1314866

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	326		200	1	07/19/2019 18:36	WG1313404
Calcium	152000	V	1000	1	07/19/2019 18:36	WG1313404

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	612000		13300	1	07/19/2019 07:42	WG1313293

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	128000		5000	5	07/23/2019 00:41	WG1314866
Sulfate	56700		5000	1	07/23/2019 00:26	WG1314866

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	321		200	1	07/19/2019 18:48	WG1313404
Calcium	152000		1000	1	07/19/2019 18:48	WG1313404

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	585000		13300	1	07/19/2019 07:42	WG1313293

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	7590		200	1	07/19/2019 18:51	WG1313404

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	671000		13300	1	07/19/2019 07:42	WG1313293

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	244000		25000	5	07/26/2019 17:29	WG1317958

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	5640		200	1	07/19/2019 18:59	WG1313404
Calcium	172000		1000	1	07/19/2019 18:59	WG1313404

Method Blank (MB)

(MB) R3432683-1 07/19/19 07:42

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

L1119481-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1119481-01 07/19/19 07:42 • (DUP) R3432683-3 07/19/19 07:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	93000	97000	1	4.21		5

Laboratory Control Sample (LCS)

(LCS) R3432683-2 07/19/19 07:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8470000	96.3	85.0-115	

Method Blank (MB)

(MB) R3433129-1 07/22/19 19:56

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

L1119586-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1119586-02 07/22/19 20:57 • (DUP) R3433129-3 07/22/19 21:12

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	7330	7360	1	0.475		15
Fluoride	325	325	1	0.0924		15
Sulfate	75900	75800	1	0.120		15

L1119894-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1119894-04 07/23/19 04:10 • (DUP) R3433129-8 07/23/19 04:25

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4090	4170	1	1.98		15
Fluoride	ND	0.000	1	0.000		15
Sulfate	ND	0.000	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3433129-2 07/22/19 20:10

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39800	99.4	80.0-120	
Fluoride	8000	8090	101	80.0-120	
Sulfate	40000	41000	102	80.0-120	

L1119586-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1119586-05 07/22/19 21:57 • (MS) R3433129-4 07/22/19 22:12 • (MSD) R3433129-5 07/22/19 22:27

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	19500	70100	70200	101	101	1	80.0-120			0.177	15
Fluoride	5000	157	5270	5300	102	103	1	80.0-120			0.594	15
Sulfate	50000	43000	91600	91900	97.1	97.7	1	80.0-120			0.359	15

L1119586-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1119586-07 07/22/19 23:26 • (MS) R3433129-6 07/22/19 23:41 • (MSD) R3433129-7 07/22/19 23:56

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	170	5170	5280	100	102	1	80.0-120			2.01	15
Sulfate	50000	56600	104000	104000	94.0	95.4	1	80.0-120	E	E	0.660	15

Method Blank (MB)

(MB) R3434874-1 07/26/19 09:08

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

L1122561-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1122561-11 07/26/19 14:11 • (DUP) R3434874-6 07/26/19 14:29

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	62000	61800	1	0.310		15

L1121946-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1121946-01 07/26/19 17:48 • (DUP) R3434874-8 07/26/19 18:06

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	20900	20800	1	0.554		15

Laboratory Control Sample (LCS)

(LCS) R3434874-2 07/26/19 09:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	40200	100	80.0-120	

L1122561-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1122561-11 07/26/19 14:11 • (MS) R3434874-7 07/26/19 14:46

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	62000	109000	94.1	1	80.0-120	E

L1121946-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1121946-01 07/26/19 17:48 • (MS) R3434874-9 07/26/19 18:23 • (MSD) R3434874-10 07/26/19 18:41

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 %
Sulfate	50000	20900	70800	70600	99.8	99.3	1	80.0-120			0.326	15

Method Blank (MB)

(MB) R3432671-1 07/19/19 18:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		12.6	200
Calcium	U		46.3	1000

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

(LCS) R3432671-2 07/19/19 18:31 • (LCSD) R3432671-3 07/19/19 18:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	963	995	96.3	99.5	80.0-120			3.26	20
Calcium	10000	9800	9910	98.0	99.1	80.0-120			1.17	20

L1119586-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1119586-07 07/19/19 18:36 • (MS) R3432671-5 07/19/19 18:41 • (MSD) R3432671-6 07/19/19 18:43

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	326	1280	1300	95.5	97.8	1	75.0-125			1.79	20
Calcium	10000	152000	158000	158000	60.2	60.3	1	75.0-125	V	V	0.00424	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

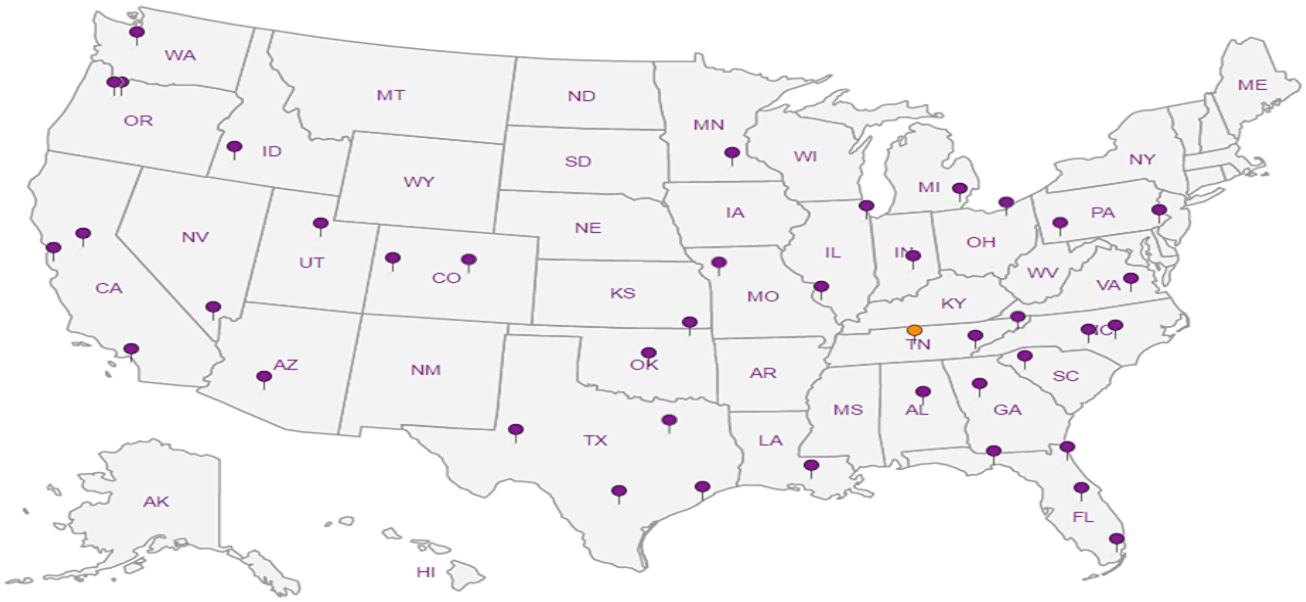
Third Party Federal Accreditations

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

Pres Chk

Report to: Jason Franks

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

Project Description: Sibley Generating Station

City/State Collected:

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

Client Project # 27213168.18

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature): Whit Martin

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	Boron - 6010 250mlHDPE-HNO3	Ca, B - 6010 250mlHDPE-HNO3	Chloride - 9056 125mlHDPE-NoPres	Chloride, F - 9056 125mlHDPE-NoPres	Chloride, SO4 - 9056 125mlHDPE-NoPres	Sulfate - 9056 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres				Remarks	Sample # (lab only)
MW-504	Grab	GW		7/16/19	1055	1						X						-01
MW-506	Grab	GW		7/16/19	1147	1			X									02
MW-512	Grab	GW		7/16/19	1230	1					X							03
MW-703	Grab	GW		7/16/19	1240	1						X						04
MW-704	Grab	GW		7/16/19	1315	1				X								05
MW-704 MS/MSD	Grab	GW		7/16/19	1315	1				X								05
DUPLICATE 1	Grab	GW		7/16/19	1315	1				X								06
MW-801	Grab	GW		7/16/19	1355	3		X			X		X					07
MW-801 MS/MSD	Grab	GW		7/16/19	1355	3		X			X		X					07
DUPLICATE 2	Grab	GW		7/16/19	1355	3		X			X		X					08

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

Remarks:

RAD SCREEN: <0.5 mR/hr

Samples returned via: __ UPS __ FedEx __ Courier __ _____

Tracking # 479419839 2426

pH _____ Temp _____

Flow _____ Other _____

Chain of Custody Page 1 of 2

National Center for Testing & Innovation

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Mount Juliet, TN 37122
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Phone: 800-767-5859
Fax: 615-758-5859

L# L1195586
J222

Acctnum: AQUAOPKS
Template: T129789
Prelogin: P719408
TSR: 206 - Jeff Carr
PB:
Shipped Via:

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

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received: 21
1.7-0.1=1.6 2.3

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Whit Martin	7/16/19	1515	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	7/16/19	1800	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Date: 7/17/19 Time: 8:45

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: Sibley Generating Station

City/State Collected:

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

Client Project # 27213169.18

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Whit Martin

Collected by (signature):

Site/Facility ID #

P.O. #

Quote #

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

Date Results Needed: Std

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Boron - 6010 250mlHDPE-HNO3	Ca, B - 6010 250mlHDPE-HNO3	Chloride - 9056 125mlHDPE-NoPres	Chloride, F - 9056 125mlHDPE-NoPres	Chloride, SO4 - 9056 125mlHDPE-NoPres	Sulfate - 9056 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres				Remarks	Sample # (lab only)
MW-804	Grab	GW		7/16/19	1320	2	X						X					-09
MW-806R	Grab	GW		7/16/19	1405	3		X				X	X					10

Analysis / Container / Preservative

Pres Chk

Chain of Custody Page 1 of 2

National Center for Testing & Innovation

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

L# L1119586

Table #

Acctnum: AQUAOPKS

Template: T129789

Prelogin: P719408

TSR: 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: RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 4794 8839 2426

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Whit Martin	7/16/19	1515	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	7-16-19	1800	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			JA

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

Temp: 1.9 -0.1 1.8 °C Bottles Received: 21

Date: 7/17/19 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Jared Morrison
December 20, 2022

ATTACHMENT 1-3

August 2019 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

August 30, 2019

SCS Engineers - KS

Sample Delivery Group:	L1132073
Samples Received:	08/23/2019
Project Number:	27213168.18
Description:	Sibley Generating Station

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

Entire Report Reviewed By:

Jason Romer
Project Manager

TABLE OF CONTENTS

MW-504 L1132073-01 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 16:20 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1333739	1	08/23/19 22:09	08/23/19 22:09	LDC	Mt. Juliet, TN

MW-506 L1132073-02 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 13:10 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1333739	1	08/23/19 22:24	08/23/19 22:24	LDC	Mt. Juliet, TN

MW-512 L1132073-03 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 13:50 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1333739	1	08/23/19 22:39	08/23/19 22:39	LDC	Mt. Juliet, TN

MW-703 L1132073-04 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 11:50 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1334249	1	08/24/19 12:29	08/24/19 12:29	ST	Mt. Juliet, TN

MW-704 L1132073-05 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 12:20 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1334249	1	08/24/19 13:02	08/24/19 13:02	ST	Mt. Juliet, TN

MW-801 L1132073-06 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 14:20 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1334249	5	08/24/19 14:07	08/24/19 14:07	ST	Mt. Juliet, TN

MW-804 L1132073-07 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 15:00 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1334216	1	08/24/19 11:18	08/25/19 08:57	EL	Mt. Juliet, TN

MW-806R L1132073-08 GW

Collected by: Whit Martin | Collected date/time: 08/21/19 15:30 | Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1334249	5	08/25/19 14:32	08/25/19 14:32	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1334216	1	08/24/19 11:18	08/25/19 08:17	EL	Mt. Juliet, TN

DUPLICATE 1 L1132073-09 GW

Collected by: Whit Martin
Collected date/time: 08/21/19 12:20
Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1334249	1	08/24/19 15:46	08/24/19 15:46	ST	Mt. Juliet, TN

DUPLICATE 2 L1132073-10 GW

Collected by: Whit Martin
Collected date/time: 08/21/19 15:30
Received date/time: 08/23/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1334249	5	08/24/19 16:19	08/24/19 16:19	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1334216	1	08/24/19 11:18	08/25/19 09:00	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.

Jason Romer
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	35600		5000	1	08/23/2019 22:09	WG1333739

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7170		1000	1	08/23/2019 22:24	WG1333739

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4910		1000	1	08/23/2019 22:39	WG1333739
Sulfate	41000		5000	1	08/23/2019 22:39	WG1333739

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	5730		5000	1	08/24/2019 12:29	WG1334249

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	15200		1000	1	08/24/2019 13:02	WG1334249

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	124000		5000	5	08/24/2019 14:07	WG1334249

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	8140		200	1	08/25/2019 08:57	WG1334216

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	241000		25000	5	08/25/2019 14:32	WG1334249

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	5660		200	1	08/25/2019 08:17	WG1334216
Calcium	170000		1000	1	08/25/2019 08:17	WG1334216

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	16500		1000	1	08/24/2019 15:46	WG1334249

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	243000		25000	5	08/24/2019 16:19	WG1334249

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	5720		200	1	08/25/2019 09:00	WG1334216
Calcium	172000		1000	1	08/25/2019 09:00	WG1334216

Method Blank (MB)

(MB) R3443601-1 08/23/19 08:00

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

L1131956-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1131956-01 08/23/19 13:42 • (DUP) R3443601-3 08/23/19 13:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	271000	271000	1	0.0581	E	15
Sulfate	161000	160000	1	0.0640	E	15

L1131956-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1131956-01 08/23/19 14:12 • (DUP) R3443601-4 08/23/19 14:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	271000	318000	5	15.7	J3	15
Sulfate	160000	161000	5	0.579		15

L1131992-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1131992-01 08/23/19 19:10 • (DUP) R3443601-7 08/23/19 19:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	4190	4140	1	1.20		15
Sulfate	ND	2500	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3443601-2 08/23/19 08:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	39200	98.0	80.0-120	
Sulfate	40000	40200	101	80.0-120	

L1131956-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1131956-02 08/23/19 15:11 • (MS) R3443601-5 08/23/19 15:26 • (MSD) R3443601-6 08/23/19 15:41

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	267000	303000	304000	71.9	73.2	1	80.0-120	E V	E V	0.206	15
Sulfate	50000	151000	193000	193000	83.8	83.2	1	80.0-120	E	E	0.153	15

L1132011-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1132011-01 08/23/19 19:40 • (MS) R3443601-8 08/23/19 19:55

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	54100	102000	95.6	1	80.0-120	E
Sulfate	50000	276000	309000	66.8	1	80.0-120	E V

Method Blank (MB)

(MB) R3443951-1 08/24/19 09:56

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

L1132073-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1132073-05 08/24/19 13:02 • (DUP) R3443951-4 08/24/19 13:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	15200	15100	1	0.528		15
Sulfate	26000	26000	1	0.219		15

L1132269-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1132269-02 08/24/19 20:08 • (DUP) R3443951-9 08/24/19 20:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	185000	184000	20	0.549		15
Sulfate	11400	11300	20	1.53	J	15

Laboratory Control Sample (LCS)

(LCS) R3443951-3 08/24/19 10:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	38400	96.1	80.0-120	
Sulfate	40000	38400	96.1	80.0-120	

L1132073-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1132073-05 08/24/19 13:02 • (MS) R3443951-5 08/24/19 13:35

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Chloride	50000	15200	65200	100	1	80.0-120	
Sulfate	50000	26000	76200	100	1	80.0-120	

L1132073-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1132073-08 08/24/19 14:57 • (MS) R3443951-7 08/24/19 15:13 • (MSD) R3443951-8 08/24/19 15:29

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	28500	79100	79000	101	101	1	80.0-120			0.0506	15
Sulfate	50000	254000	297000	297000	86.6	85.7	1	80.0-120	E	E	0.149	15

Method Blank (MB)

(MB) R3443985-1 08/25/19 08:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		12.6	200
Calcium	U		46.3	1000

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

(LCS) R3443985-2 08/25/19 08:12 • (LCSD) R3443985-3 08/25/19 08:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	955	954	95.5	95.4	80.0-120			0.149	20
Calcium	10000	9720	9920	97.2	99.2	80.0-120			2.08	20

L1132073-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1132073-08 08/25/19 08:17 • (MS) R3443985-5 08/25/19 08:22 • (MSD) R3443985-6 08/25/19 08:25

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	5660	6550	6640	89.2	98.5	1	75.0-125			1.41	20
Calcium	10000	170000	179000	181000	83.7	106	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
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.
J3	The associated batch QC was outside the established quality control range for precision.
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

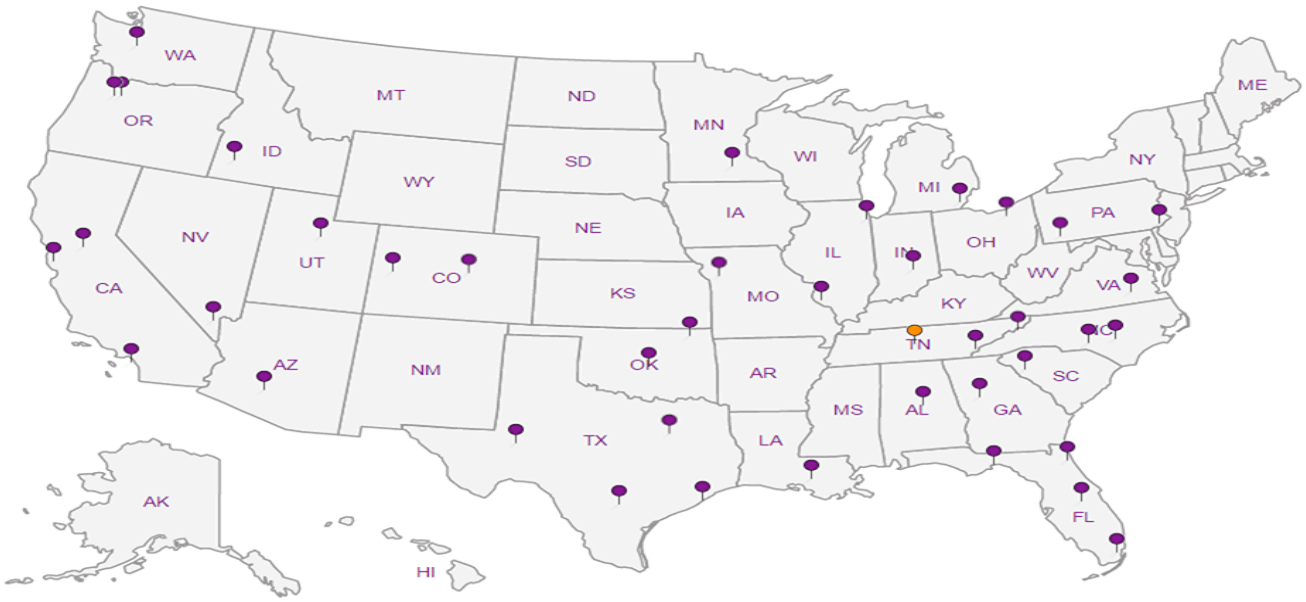
Third Party Federal Accreditations

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: Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

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

Client Project # 27213168.18

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Whit Martin

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

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Boron - 6010 250mlHDPE-HNO3	Ca, B - 6010 250mlHDPE-HNO3	Chloride - 9056 125mlHDPE-NoPres	Chloride, SO4 - 9056 125mlHDPE-NoPres	Sulfate - 9056 125mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-504	Grab	GW		8/21/19	1620	1					X		-1
MW-506	Grab	GW		8/21/19	1310	1			X				-2
MW-512	Grab	GW		8/21/19	1350	1				X			-3
MW-703	Grab	GW		8/21/19	1150	1					X		-4
MW-704	Grab	GW		8/21/19	1220	1			X				-5
MW-801	Grab	GW		8/21/19	1420	1			X				-6
MW-804	Grab	GW		8/21/19	1500	1	X						-7
MW-806R	Grab	GW		8/21/19	1530	2		X			X		-8
DUPLICATE 1	Grab	GW		8/21/19	1220	1			X				-9
704 MS/MSD	Grab	GW		8/21/19	1220	1			X				

Chain of Custody Page ___ of ___

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 # 132073

Table # A050

Acctnum: AQUAOPKS

Template: T129789

Prelogin: P724464

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

	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	8/22/19	0955	
Relinquished by : (Signature)	8/22/19	1700	
Relinquished by : (Signature)			Received for lab by: (Signature)

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

Temp: 4.3°F °C 2.7±0=2.7

Bottles Received: 11

If preservation required by Login: Date/Time

Date: 08/23 Time: 8145

Hold:

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

Report to: Jason Franks

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

Project Description: Sibley Generating Station

City/State Collected: Sibley, MO

Please Circle: PT MT CT ET

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

Client Project # 27213168.18

Lab Project # AQUAOPKS-SIBLEY

Collected by (print): Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature): Whit Martin

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

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Boron - 6010 250mlHDPE-HNO3	Ca, B - 6010 250mlHDPE-HNO3	Chloride - 9056 125mlHDPE-NoPres	Chloride, SO4 - 9056 125mlHDPE-NoPres	Sulfate - 9056 125mlHDPE-NoPres	12												
DUPLICATE 2	Grab	GW		8/21/19	1530	2		X			X													-70
MW-806R MS/MSD	Grab	GW		8/21/19	1530	2		X			X													-03

Chain of Custody Page ___ of ___

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 # 132058 N 8/23/19

TA A048

Acctnum: KCMO2073

Template: T129789

Prelogin: P724464

PM: 206 - Jeff Carr

PB:

Shipped Via:

Remarks | Sample # (lab only)

* 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) Whit Martin — Date: 8/22/19 — Time: 0955 — Received by: (Signature)

Relinquished by : (Signature) — Date: 8/22/19 — Time: 1600 — Received by: (Signature)

Relinquished by : (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: 4.3 °C 2.7 +0 = 2.7 — Bottles Received: 4

If preservation required by Login: Date/Time

Date: 08/23 — Time: 8:45

Hold:

Condition: NCF / OK

Jared Morrison
December 20, 2022

ATTACHMENT 1-4

November 2019 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 18, 2019

SCS Engineers - KS

Sample Delivery Group:	L1158873
Samples Received:	11/08/2019
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-701 L1158873-01 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 10:08 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378166	1	11/11/19 06:34	11/11/19 08:05	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378892	1	11/12/19 18:37	11/12/19 18:37	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:02	TRB	Mt. Juliet, TN

MW-702 L1158873-02 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 10:50 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378166	1	11/11/19 06:34	11/11/19 08:05	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378892	1	11/12/19 18:53	11/12/19 18:53	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:04	TRB	Mt. Juliet, TN

MW-703 L1158873-03 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 11:30 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378166	1	11/11/19 06:34	11/11/19 08:05	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378892	1	11/12/19 19:09	11/12/19 19:09	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:07	TRB	Mt. Juliet, TN

MW-704 L1158873-04 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 12:10 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378166	1	11/11/19 06:34	11/11/19 08:05	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 14:38	11/12/19 14:38	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:10	TRB	Mt. Juliet, TN

MW-801 L1158873-05 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 13:20 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378166	1	11/11/19 06:34	11/11/19 08:05	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 15:06	11/12/19 15:06	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	5	11/12/19 15:50	11/12/19 15:50	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 05:20	TRB	Mt. Juliet, TN

MW-802 L1158873-06 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 14:10 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378167	1	11/13/19 00:33	11/13/19 01:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 16:04	11/12/19 16:04	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:19	TRB	Mt. Juliet, TN

MW-803 L1158873-07 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 14:25 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378167	1	11/13/19 00:33	11/13/19 01:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 16:18	11/12/19 16:18	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	5	11/13/19 00:10	11/13/19 00:10	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:21	TRB	Mt. Juliet, TN

MW-804 L1158873-08 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 14:55 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378167	1	11/13/19 00:33	11/13/19 01:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 17:02	11/12/19 17:02	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:24	TRB	Mt. Juliet, TN

MW-805 L1158873-09 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 15:10 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378167	1	11/13/19 00:33	11/13/19 01:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 17:16	11/12/19 17:16	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:27	TRB	Mt. Juliet, TN

MW-806R L1158873-10 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 15:40 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378167	1	11/13/19 00:33	11/13/19 01:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 17:31	11/12/19 17:31	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	5	11/12/19 17:45	11/12/19 17:45	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:30	TRB	Mt. Juliet, TN

DUPLICATE 2 L1158873-11 GW

Collected by: Jason R. Franks | Collected date/time: 11/06/19 13:20 | Received date/time: 11/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1378167	1	11/13/19 00:33	11/13/19 01:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	1	11/12/19 17:59	11/12/19 17:59	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1378924	5	11/12/19 18:14	11/12/19 18:14	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1379882	1	11/14/19 09:03	11/15/19 06:33	TRB	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	275000		10000	1	11/11/2019 08:05	WG1378166

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7910		1000	1	11/12/2019 18:37	WG1378892
Fluoride	145		100	1	11/12/2019 18:37	WG1378892
Sulfate	12600		5000	1	11/12/2019 18:37	WG1378892

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2019 06:02	WG1379882
Calcium	82800		1000	1	11/15/2019 06:02	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	266000		10000	1	11/11/2019 08:05	WG1378166

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8300		1000	1	11/12/2019 18:53	WG1378892
Fluoride	131		100	1	11/12/2019 18:53	WG1378892
Sulfate	17000		5000	1	11/12/2019 18:53	WG1378892

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2019 06:04	WG1379882
Calcium	82800		1000	1	11/15/2019 06:04	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	512000		10000	1	11/11/2019 08:05	WG1378166

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	22200		1000	1	11/12/2019 19:09	WG1378892
Fluoride	353		100	1	11/12/2019 19:09	WG1378892
Sulfate	ND		5000	1	11/12/2019 19:09	WG1378892

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	476		200	1	11/15/2019 06:07	WG1379882
Calcium	129000		1000	1	11/15/2019 06:07	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	303000		10000	1	11/11/2019 08:05	WG1378166

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	13700		1000	1	11/12/2019 14:38	WG1378924
Fluoride	172		100	1	11/12/2019 14:38	WG1378924
Sulfate	20100		5000	1	11/12/2019 14:38	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2019 06:10	WG1379882
Calcium	88500		1000	1	11/15/2019 06:10	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	567000		10000	1	11/11/2019 08:05	WG1378166

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	109000		5000	5	11/12/2019 15:50	WG1378924
Fluoride	172		100	1	11/12/2019 15:06	WG1378924
Sulfate	59000		5000	1	11/12/2019 15:06	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	278		200	1	11/15/2019 05:20	WG1379882
Calcium	144000		1000	1	11/15/2019 05:20	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	285000		10000	1	11/13/2019 01:52	WG1378167

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	32000		1000	1	11/12/2019 16:04	WG1378924
Fluoride	157		100	1	11/12/2019 16:04	WG1378924
Sulfate	49900		5000	1	11/12/2019 16:04	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2019 06:19	WG1379882
Calcium	52200		1000	1	11/15/2019 06:19	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	495000		10000	1	11/13/2019 01:52	WG1378167

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	17700		1000	1	11/12/2019 16:18	WG1378924
Fluoride	300		100	1	11/12/2019 16:18	WG1378924
Sulfate	107000		25000	5	11/13/2019 00:10	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	2740		200	1	11/15/2019 06:21	WG1379882
Calcium	112000		1000	1	11/15/2019 06:21	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	615000		10000	1	11/13/2019 01:52	WG1378167

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19200		1000	1	11/12/2019 17:02	WG1378924
Fluoride	269		100	1	11/12/2019 17:02	WG1378924
Sulfate	ND		5000	1	11/12/2019 17:02	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	8310		200	1	11/15/2019 06:24	WG1379882
Calcium	151000		1000	1	11/15/2019 06:24	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	302000		10000	1	11/13/2019 01:52	WG1378167

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8650		1000	1	11/12/2019 17:16	WG1378924
Fluoride	197		100	1	11/12/2019 17:16	WG1378924
Sulfate	50500		5000	1	11/12/2019 17:16	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2019 06:27	WG1379882
Calcium	94000		1000	1	11/15/2019 06:27	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	691000		10000	1	11/13/2019 01:52	WG1378167

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	28200		1000	1	11/12/2019 17:31	WG1378924
Fluoride	213		100	1	11/12/2019 17:31	WG1378924
Sulfate	249000		25000	5	11/12/2019 17:45	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	5620		200	1	11/15/2019 06:30	WG1379882
Calcium	164000		1000	1	11/15/2019 06:30	WG1379882

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	603000		10000	1	11/13/2019 01:52	WG1378167

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	110000		5000	5	11/12/2019 18:14	WG1378924
Fluoride	215		100	1	11/12/2019 17:59	WG1378924
Sulfate	59800		5000	1	11/12/2019 17:59	WG1378924

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	272		200	1	11/15/2019 06:33	WG1379882
Calcium	143000		1000	1	11/15/2019 06:33	WG1379882

Method Blank (MB)

(MB) R3470987-1 11/11/19 08:05

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	3000	J	2820	10000

L1158861-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1158861-04 11/11/19 08:05 • (DUP) R3470987-3 11/11/19 08:05

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	197000	198000	1	0.506		5

L1158873-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1158873-05 11/11/19 08:05 • (DUP) R3470987-4 11/11/19 08:05

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	567000	585000	1	3.13		5

Laboratory Control Sample (LCS)

(LCS) R3470987-2 11/11/19 08:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8270000	94.0	85.0-115	

Method Blank (MB)

(MB) R3472048-1 11/13/19 01:52

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

L1158914-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1158914-01 11/13/19 01:52 • (DUP) R3472048-3 11/13/19 01:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	300000	303000	1	0.995		5

L1158930-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1158930-01 11/13/19 01:52 • (DUP) R3472048-4 11/13/19 01:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	259000	293000	1	12.3	J3	5

Sample Narrative:

OS: Choosing to report in hold data as 1st result confirmed.

Laboratory Control Sample (LCS)

(LCS) R3472048-2 11/13/19 01:52

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8730000	99.2	85.0-115	

Method Blank (MB)

(MB) R3471242-1 11/12/19 09:25

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

L1158858-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1158858-01 11/12/19 11:27 • (DUP) R3471242-3 11/12/19 11:43

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	19900	19900	1	0.177		15
Fluoride	309	312	1	0.838		15

L1158865-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1158865-03 11/12/19 15:42 • (DUP) R3471242-6 11/12/19 15:58

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	6660	6640	1	0.329		15
Fluoride	309	310	1	0.259		15
Sulfate	76800	76700	1	0.163		15

L1158858-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1158858-01 11/12/19 19:25 • (DUP) R3471242-8 11/12/19 20:12

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	181000	180000	5	0.212		15

Laboratory Control Sample (LCS)

(LCS) R3471242-2 11/12/19 09:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38400	96.1	80.0-120	
Fluoride	8000	8040	101	80.0-120	
Sulfate	40000	38900	97.2	80.0-120	

L1158861-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158861-01 11/12/19 12:31 • (MS) R3471242-4 11/12/19 12:47 • (MSD) R3471242-5 11/12/19 13:03

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	1720	50900	51100	98.4	98.8	1	80.0-120			0.420	15
Fluoride	5000	193	5040	5160	97.0	99.4	1	80.0-120			2.36	15
Sulfate	50000	38900	88100	88100	98.4	98.4	1	80.0-120			0.0267	15

L1158865-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1158865-04 11/12/19 16:14 • (MS) R3471242-7 11/12/19 17:01

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	3080	52000	97.9	1	80.0-120	
Fluoride	5000	298	5210	98.1	1	80.0-120	
Sulfate	50000	14600	63800	98.5	1	80.0-120	

Method Blank (MB)

(MB) R3471252-1 11/12/19 12:10

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

L1158873-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1158873-04 11/12/19 14:38 • (DUP) R3471252-3 11/12/19 14:52

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	13700	13700	1	0.0466		15
Fluoride	172	166	1	3.37		15
Sulfate	20100	20100	1	0.132		15

L1159002-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1159002-02 11/12/19 20:38 • (DUP) R3471252-6 11/12/19 20:52

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1350	1340	1	0.268		15
Fluoride	157	176	1	11.4		15
Sulfate	117000	119000	1	1.82	E	15

Laboratory Control Sample (LCS)

(LCS) R3471252-2 11/12/19 12:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38900	97.3	80.0-120	
Fluoride	8000	7980	99.8	80.0-120	
Sulfate	40000	40400	101	80.0-120	

L1158873-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158873-05 11/12/19 15:06 • (MS) R3471252-4 11/12/19 15:21 • (MSD) R3471252-5 11/12/19 15:35

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	111000	154000	154000	86.9	87.8	1	80.0-120	E	E	0.273	15
Fluoride	5000	172	4990	5150	96.4	99.6	1	80.0-120			3.13	15
Sulfate	50000	59000	107000	107000	95.6	95.4	1	80.0-120	E	E	0.0755	15

L1159002-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1159002-03 11/12/19 21:07 • (MS) R3471252-7 11/12/19 21:21

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	1450	51100	99.3	1	80.0-120	
Fluoride	5000	174	5340	103	1	80.0-120	
Sulfate	50000	124000	162000	76.2	1	80.0-120	E J6

Method Blank (MB)

(MB) R3472373-1 11/15/19 05:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		12.6	200
Calcium	U		46.3	1000

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

(LCS) R3472373-2 11/15/19 05:14 • (LCSD) R3472373-3 11/15/19 05:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	947	919	94.7	91.9	80.0-120			2.98	20
Calcium	10000	9560	9390	95.6	93.9	80.0-120			1.84	20

L1158873-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158873-05 11/15/19 05:20 • (MS) R3472373-5 11/15/19 05:25 • (MSD) R3472373-6 11/15/19 05:28

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	278	1230	1240	94.9	96.0	1	75.0-125			0.900	20
Calcium	10000	144000	152000	151000	85.9	77.5	1	75.0-125			0.552	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.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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

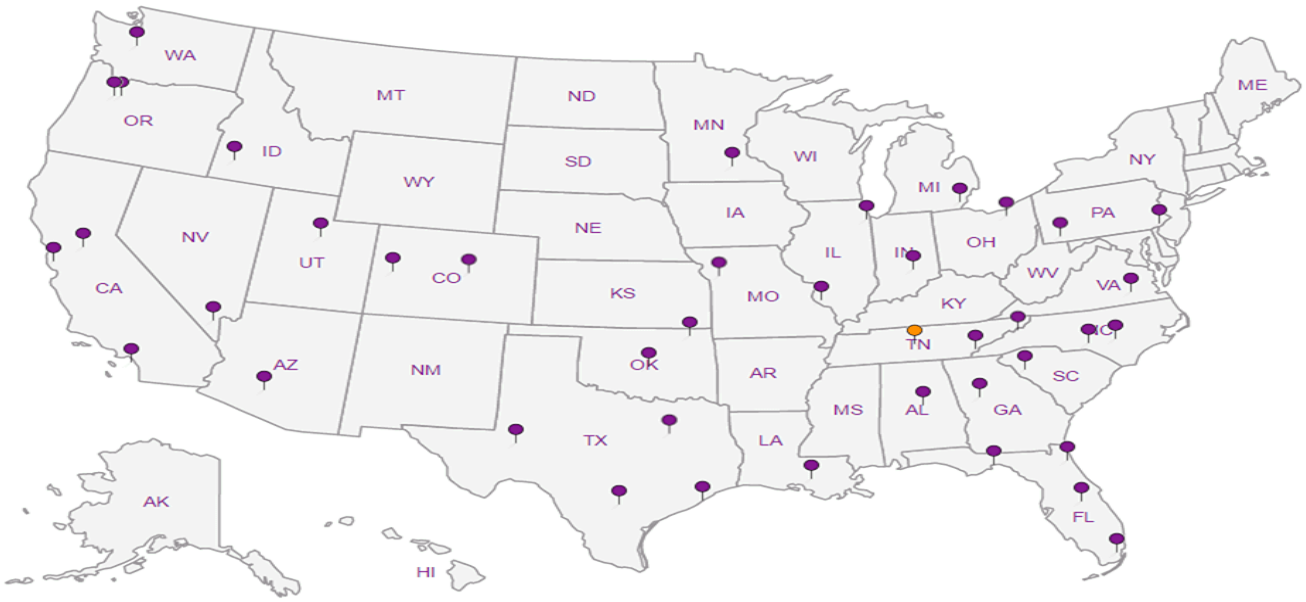
Third Party Federal Accreditations

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.



Page 1 of 2

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@kcpl.com;**

Project Description: EVERGY **KCP&L Sibley Generating Statio**

City/State Collected: SIBLEY, MO

Please Circle: PT MT CT ET

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

Client Project # **27213169.18**

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

No. of Cntrs

Analysis / Container / Preservative

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-701	GRAB	GW	-	11/6/19	1008	3	X	X	X		-01
MW-702		GW	-		1050	3	X	X	X		-02
MW-703		GW	-		1130	3	X	X	X		-03
MW-704		GW	-		1210	3	X	X	X		-04
MW-801		GW	-		1320	3	X	X	X		-05
MW-802		GW	-		1410	3	X	X	X		-06
MW-803		GW	-		1425	3	X	X	X		-07
MW-804		GW	-		1455	3	X	X	X		-08
MW-805		GW	-		1510	3	X	X	X		-09
MW-806R		GW	-		1540	3	X	X	X		-10

Chain of Custody

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 # 1158873

Tat B185

Acctnum: **AQUAOPKS**
Template: **T136014**
Prelogin: **P736940**
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

	Date:	Time:		
Relinquished by : (Signature)	11/7/19	1455	Received by: (Signature)	11-7-19 1455
Relinquished by : (Signature)	11/7/19	1800	Received by: (Signature)	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/8 Time: 0830

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.2 °C 0.1+.3=0.4
Bottles Received: 12

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Page 2 of 2

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@kcpl.com;**

Project Description: **EVERGY KCP&L 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**

Site/Facility ID #

P.O. #

Collected by (signature): **Jason R. Franks**

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

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)
801 MS/MSD	GRAB	GW	-	11/6/19	1325	3	X	X	X		
DUPLICATE 2	GRAB	GW	-	11/6/19	1320	3	X	X	X		-12

Chain of Custody

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 # 1159873

Table #

Acctnum: **AQUAOPKS**

Template: **T136014**

Prelogin: **P736940**

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

	Date:	Time:		
Relinquished by: (Signature) Jason R. Franks	11/7/19	1455	Received by: (Signature) Allen Nelson	11-7-19 1455
Relinquished by: (Signature) Allen Nelson	11/7/19	1800	Received by: (Signature)	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/8 Time: 0830

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: A2, 2 °C
0.1+3=0.4

Bottles Received: 12

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 20, 2022

ATTACHMENT 2

Statistical Analyses

Jared Morrison
December 20, 2022

ATTACHMENT 2-1

Fall 2018 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

March 29, 2019

To: Sibley Generating Station
33200 E Johnson Road
Sibley, Missouri 64088
KCP&L Greater Missouri Operations Company

From: SCS Engineers

RE: Determination of Statistically Significant Increases
Slag Settling Impoundment
Fall 2018 Semiannual Detection Monitoring 40 CFR 257.94

Statistical analysis of monitoring data from the groundwater monitoring system for the Slag Settling Impoundment at the Sibley Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated October 12, 2017. Detection monitoring groundwater samples were collected on November 15, 2018. Review and validation of the results from the November 2018 Detection Monitoring Event was completed on January 2, 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.

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation did not identify any SSIs above background.

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), extra sample results for pH for wells which were re-sampled for verification, 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
Slag Settling Impoundment
March 29, 2019

ATTACHMENT 1

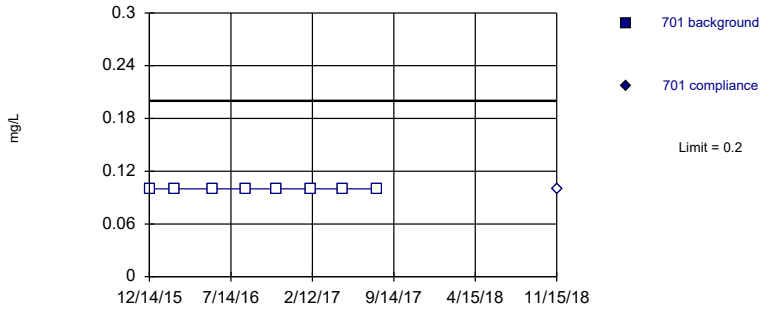
Sanitas™ Output

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 = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

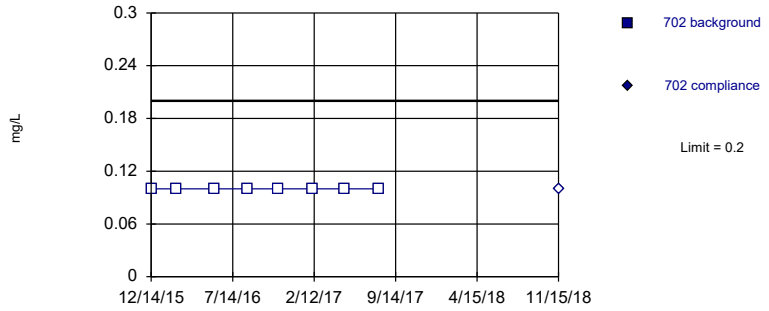
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 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 = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

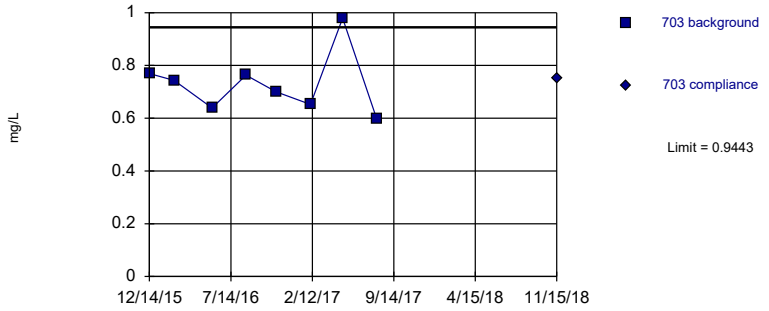
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.7301, Std. Dev.=0.1183, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8861, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Boron Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

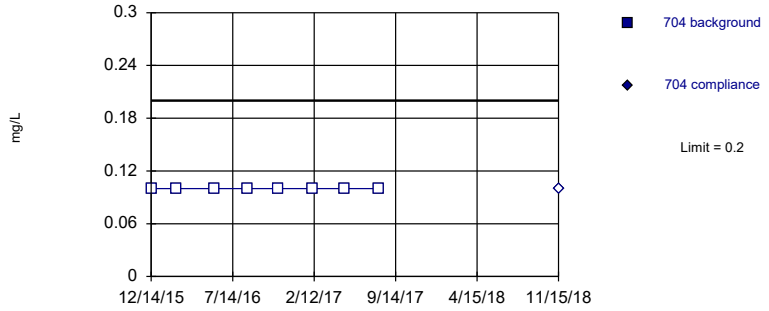
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 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 = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	<0.2	
2/17/2016	<0.2	
5/26/2016	<0.2	
8/23/2016	<0.2	
11/10/2016	<0.2	
2/8/2017	<0.2	
5/3/2017	<0.2	
8/1/2017	<0.2	
11/15/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	<0.2	
2/17/2016	<0.2	
5/26/2016	<0.2	
8/23/2016	<0.2	
11/10/2016	<0.2	
2/8/2017	<0.2	
5/3/2017	<0.2	
8/1/2017	<0.2	
11/15/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	0.769	
2/17/2016	0.743	
5/26/2016	0.639	
8/23/2016	0.763	
11/10/2016	0.7	
2/8/2017	0.652	
5/3/2017	0.979	
8/1/2017	0.596	
11/15/2018		0.752

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

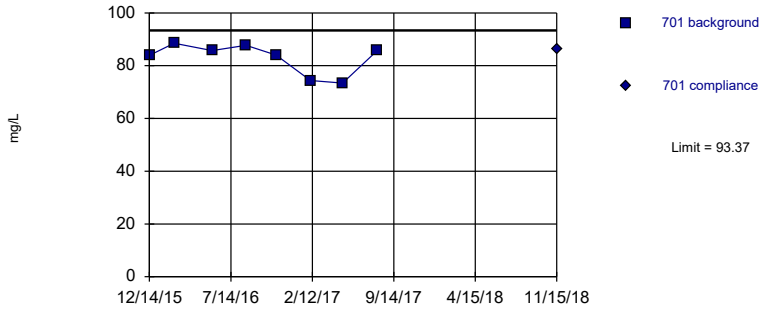
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	<0.2	
2/17/2016	<0.2	
5/26/2016	<0.2	
8/23/2016	<0.2	
11/10/2016	<0.2	
2/8/2017	<0.2	
5/3/2017	<0.2	
8/1/2017	<0.2	
11/15/2018		<0.2

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=82.9, Std. Dev.=5.785, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8071, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

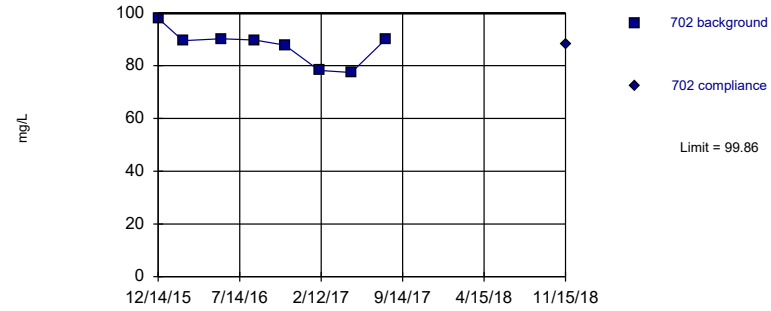
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=87.6, Std. Dev.=6.773, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8641, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

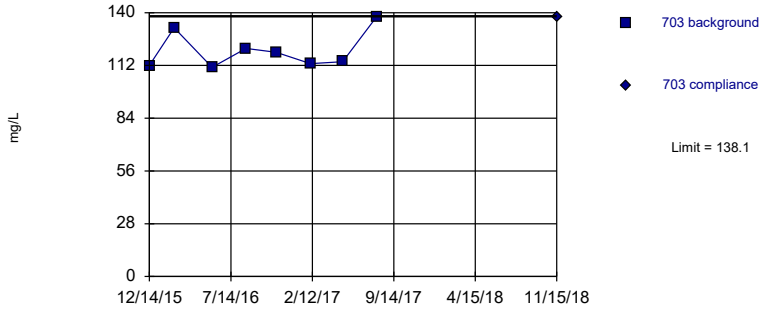
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=120, Std. Dev.=10, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8466, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

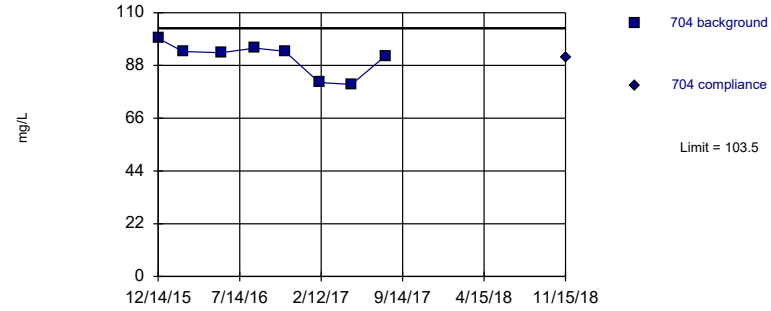
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=91.06, Std. Dev.=6.865, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8257, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	83.9	
2/17/2016	88.5	
5/26/2016	85.7	
8/23/2016	87.7	
11/10/2016	84	
2/8/2017	74.4	
5/3/2017	73.4	
8/1/2017	85.6	
11/15/2018		86.4

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	98	
2/17/2016	89.5	
5/26/2016	90.2	
8/23/2016	89.7	
11/10/2016	87.8	
2/8/2017	78.2	
5/3/2017	77.4	
8/1/2017	90	
11/15/2018		88

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	112	
2/17/2016	132	
5/26/2016	111	
8/23/2016	121	
11/10/2016	119	
2/8/2017	113	
5/3/2017	114	
8/1/2017	138	
11/15/2018		138

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

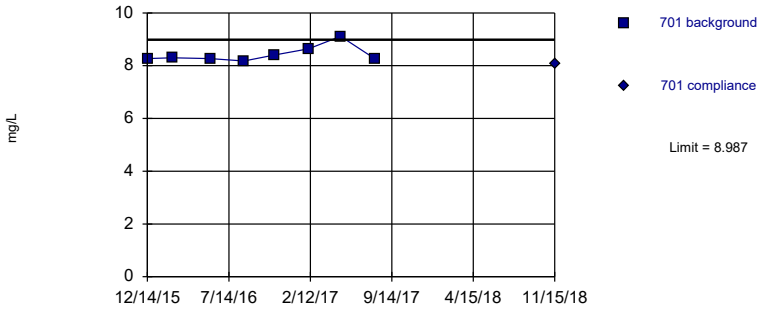
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	99.3	
2/17/2016	93.8	
5/26/2016	93.3	
8/23/2016	95.2	
11/10/2016	93.9	
2/8/2017	80.9	
5/3/2017	80.1	
8/1/2017	92	
11/15/2018		91.4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.429, Std. Dev.=0.3087, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7504, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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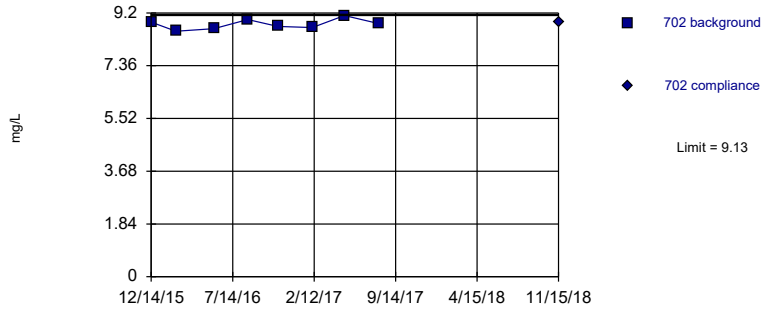
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.803, Std. Dev.=0.181, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9748, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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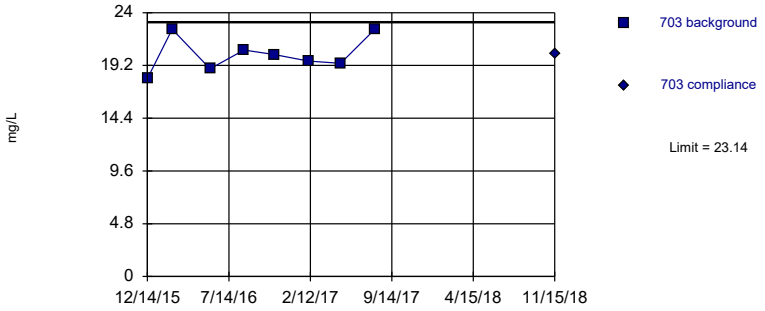
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=20.21, Std. Dev.=1.615, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9225, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

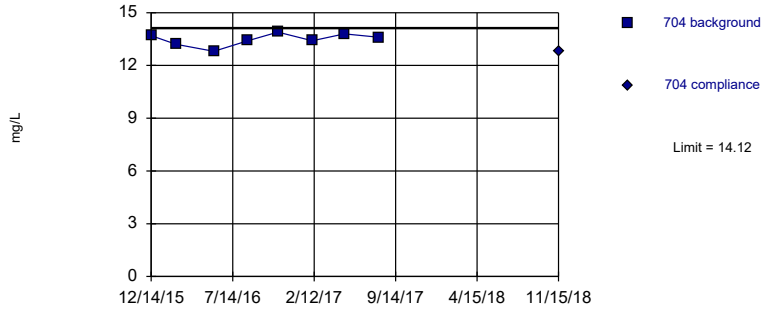
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=13.48, Std. Dev.=0.3576, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9438, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	8.27	
2/17/2016	8.3	
5/26/2016	8.27	
8/23/2016	8.18	
11/10/2016	8.4	
2/8/2017	8.64	
5/3/2017	9.11	
8/1/2017	8.26	
11/15/2018		8.09

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	8.88	
2/17/2016	8.56	
5/26/2016	8.65	
8/23/2016	8.97	
11/10/2016	8.73	
2/8/2017	8.69	
5/3/2017	9.11	
8/1/2017	8.83	
11/15/2018		8.87

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	18	
2/17/2016	22.5	
5/26/2016	18.9	
8/23/2016	20.6	
11/10/2016	20.2	
2/8/2017	19.6	
5/3/2017	19.4	
8/1/2017	22.5	
11/15/2018		20.3

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

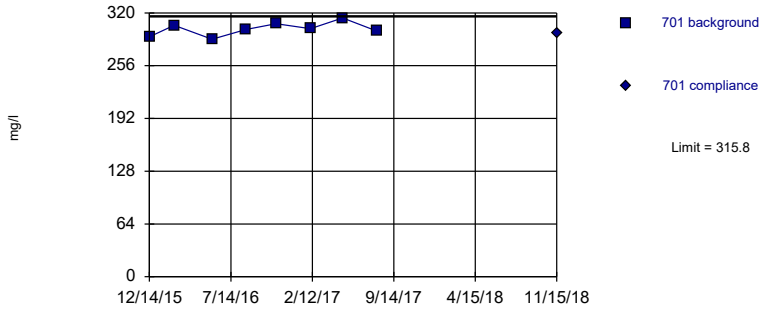
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	13.7	
2/17/2016	13.2	
5/26/2016	12.8	
8/23/2016	13.4	
11/10/2016	13.9	
2/8/2017	13.4	
5/3/2017	13.8	
8/1/2017	13.6	
11/15/2018		12.8

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=300.5, Std. Dev.=8.435, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9784, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

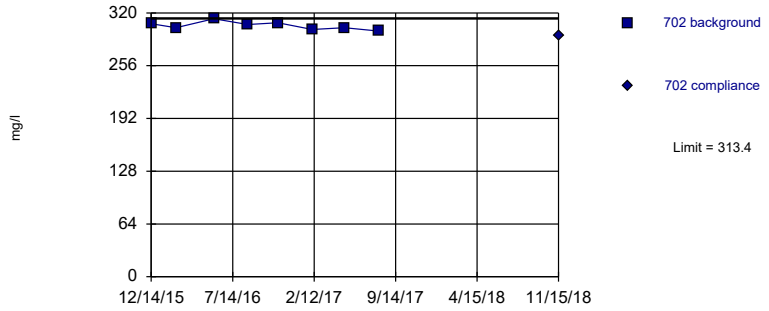
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=304.5, Std. Dev.=4.899, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9608, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

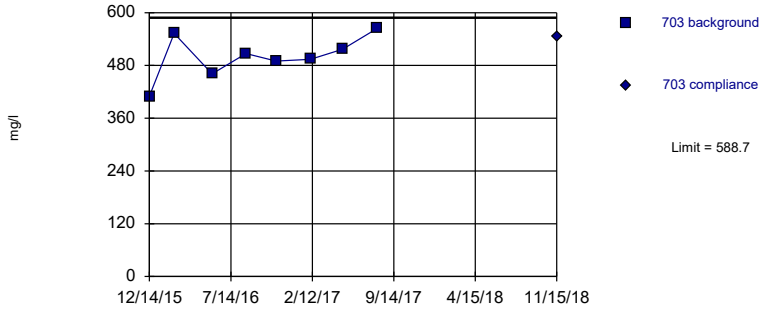
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=499.5, Std. Dev.=49.28, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.96, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

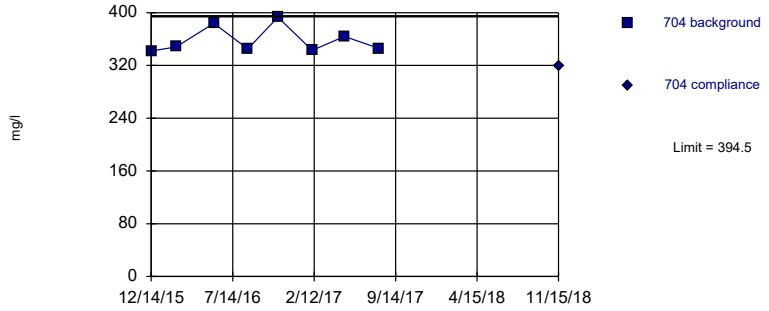
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=358.1, Std. Dev.=20.11, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.789, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	291	
2/17/2016	305	
5/26/2016	288	
8/23/2016	300	
11/10/2016	307	
2/8/2017	301	
5/3/2017	314	
8/1/2017	298	
11/15/2018		296

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	307	
2/17/2016	302	
5/26/2016	313	
8/23/2016	306	
11/10/2016	308	
2/8/2017	300	
5/3/2017	302	
8/1/2017	298	
11/15/2018		292

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	410	
2/17/2016	553	
5/26/2016	461	
8/23/2016	507	
11/10/2016	490	
2/8/2017	494	
5/3/2017	517	
8/1/2017	564	
11/15/2018		546

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	342	
2/17/2016	348	
5/26/2016	384	
8/23/2016	345	
11/10/2016	393	
2/8/2017	343	
5/3/2017	364	
8/1/2017	346	
11/15/2018		319

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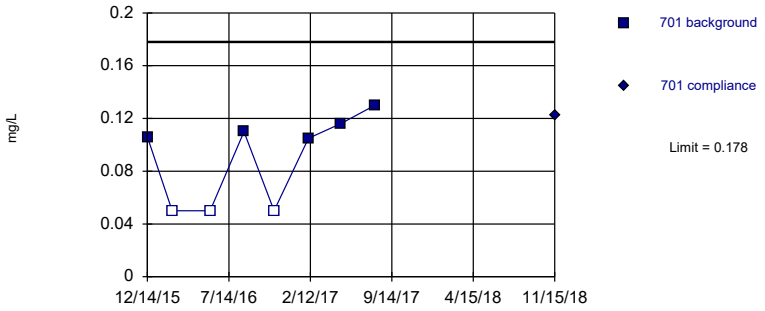
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Aitchison`s Adjustment): Mean=0.07088, Std. Dev.=0.0592, n=8, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8007, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

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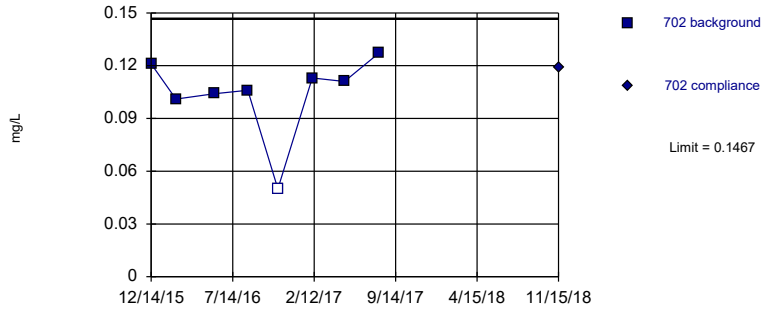
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.1041, Std. Dev.=0.02353, n=8, 12.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.774, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

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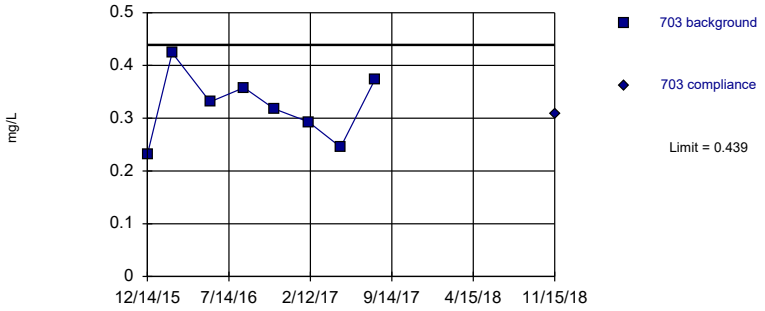
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.3216, Std. Dev.=0.06486, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.974, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

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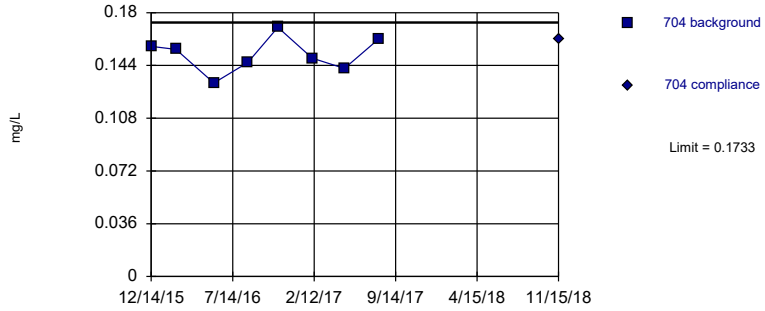
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.1516, Std. Dev.=0.01196, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9954, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 12/14/2018 10:31 AM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	0.106	
2/17/2016	<0.1	
5/26/2016	<0.1	
8/23/2016	0.11	
11/10/2016	<0.1	
2/8/2017	0.105	
5/3/2017	0.116	
8/1/2017	0.13	
11/15/2018		0.122

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	0.121	
2/17/2016	0.101	
5/26/2016	0.104	
8/23/2016	0.106	
11/10/2016	<0.1	
2/8/2017	0.113	
5/3/2017	0.111	
8/1/2017	0.127	
11/15/2018		0.119

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	0.231	
2/17/2016	0.424	
5/26/2016	0.331	
8/23/2016	0.358	
11/10/2016	0.318	
2/8/2017	0.293	
5/3/2017	0.245	
8/1/2017	0.373	
11/15/2018		0.307

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

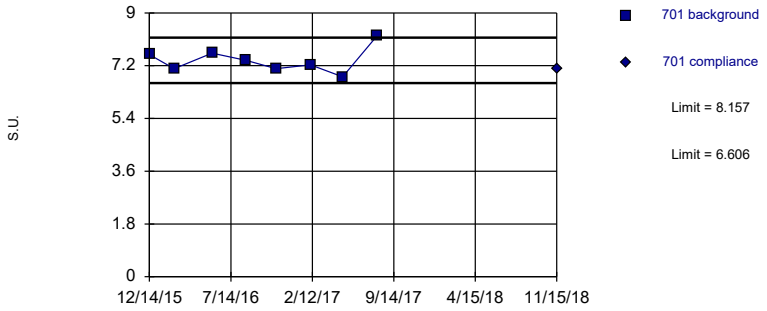
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	0.157	
2/17/2016	0.155	
5/26/2016	0.132	
8/23/2016	0.146	
11/10/2016	0.17	
2/8/2017	0.149	
5/3/2017	0.142	
8/1/2017	0.162	
11/15/2018		0.162

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.381, Std. Dev.=0.4283, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9439, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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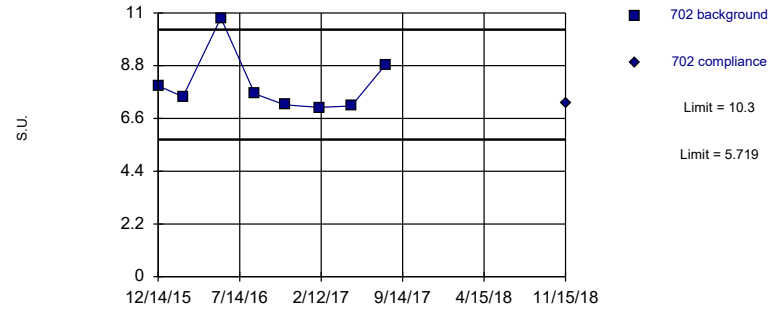
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.011, Std. Dev.=1.267, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7744, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

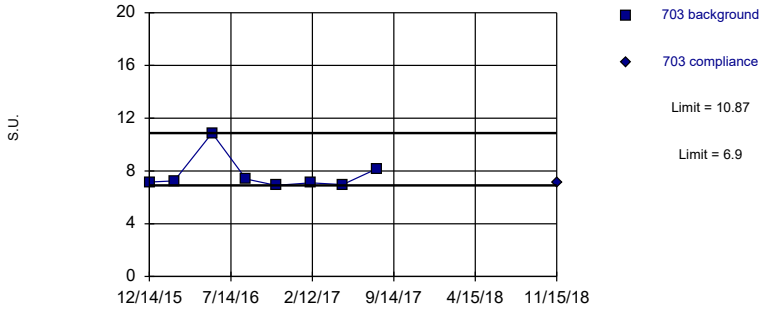
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 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 8 background values. Well-constituent pair annual alpha = 0.02358. Individual comparison alpha = 0.01182 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

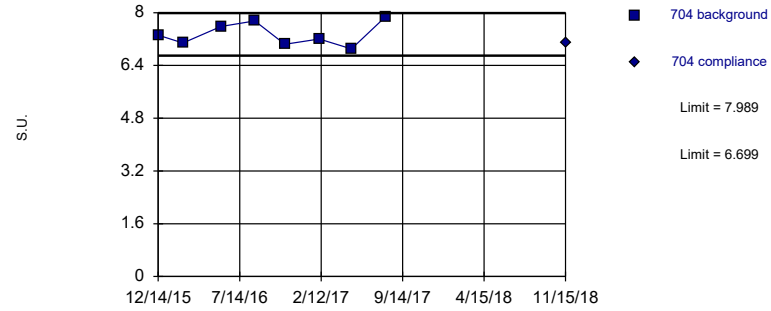
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.11 Sanitas software licensed to SCS Engineers. UG

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.344, Std. Dev.=0.3562, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9355, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: pH (S.U.) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	7.58	
2/17/2016	7.1	
5/26/2016	7.63	
8/23/2016	7.38	
11/10/2016	7.1	
2/8/2017	7.23	
5/3/2017	6.82	
8/1/2017	8.21	
11/15/2018		7.11

Prediction Limit

Constituent: pH (S.U.) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	7.96	
2/17/2016	7.51	
5/26/2016	10.79	
8/23/2016	7.63	
11/10/2016	7.17	
2/8/2017	7.06	
5/3/2017	7.12	
8/1/2017	8.85	
11/15/2018		7.24

Prediction Limit

Constituent: pH (S.U.) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	7.16	
2/17/2016	7.24	
5/26/2016	10.87	
8/23/2016	7.39	
11/10/2016	6.9	
2/8/2017	7.1	
5/3/2017	6.97	
8/1/2017	8.17	
11/15/2018		7.07

Prediction Limit

Constituent: pH (S.U.) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

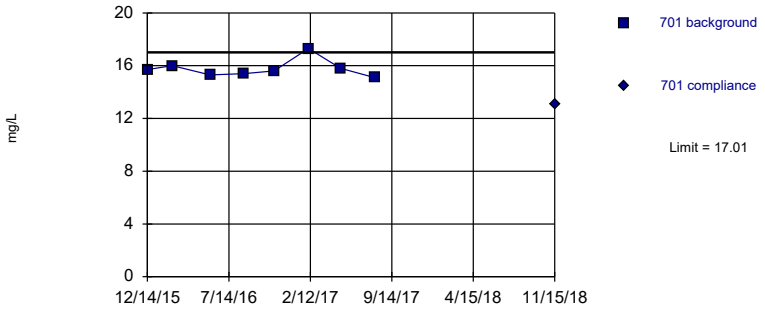
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	7.32	
2/17/2016	7.08	
5/26/2016	7.58	
8/23/2016	7.75	
11/10/2016	7.04	
2/8/2017	7.2	
5/3/2017	6.9	
8/1/2017	7.88	
11/15/2018		7.09

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=15.78, Std. Dev.=0.6798, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8195, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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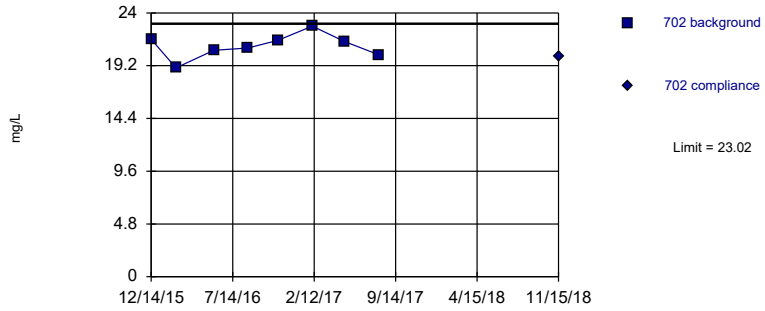
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=20.99, Std. Dev.=1.124, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9723, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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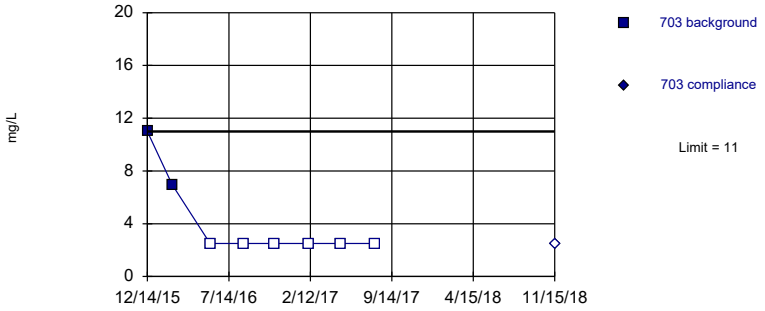
Hollow symbols indicate censored values.

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 8 background values. 75% NDs. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Sulfate Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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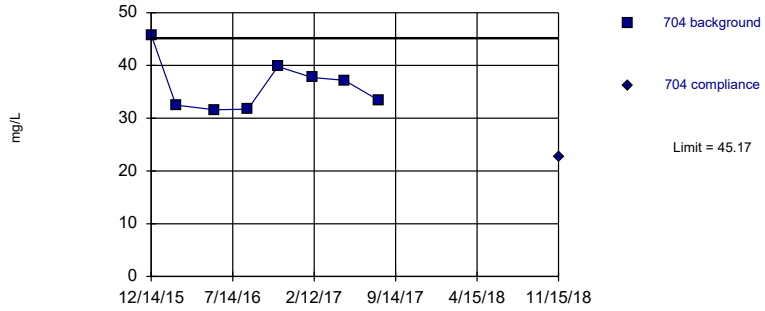
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=36.21, Std. Dev.=4.947, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8797, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 12/14/2018 10:31 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	15.7	
2/17/2016	16	
5/26/2016	15.3	
8/23/2016	15.4	
11/10/2016	15.6	
2/8/2017	17.3	
5/3/2017	15.8	
8/1/2017	15.1	
11/15/2018		13.1

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	21.6	
2/17/2016	19	
5/26/2016	20.6	
8/23/2016	20.8	
11/10/2016	21.5	
2/8/2017	22.8	
5/3/2017	21.4	
8/1/2017	20.2	
11/15/2018		20

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	11	
2/17/2016	6.97	
5/26/2016	<5	
8/23/2016	<5	
11/10/2016	<5	
2/8/2017	<5	
5/3/2017	<5	
8/1/2017	<5	
11/15/2018		<5

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 12/14/2018 10:32 AM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	45.8	
2/17/2016	32.5	
5/26/2016	31.6	
8/23/2016	31.7	
11/10/2016	39.8	
2/8/2017	37.7	
5/3/2017	37.2	
8/1/2017	33.4	
11/15/2018		22.7

Prediction Limit

Sibley Client: SCS Engineers Data: Sibley Printed 12/14/2018, 10:32 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	701	0.2	n/a	11/15/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	702	0.2	n/a	11/15/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	703	0.9443	n/a	11/15/2018	0.752	No	8	0	No	0.00188	Param Intra 1 of 3
Boron (mg/L)	704	0.2	n/a	11/15/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Calcium (mg/L)	701	93.37	n/a	11/15/2018	86.4	No	8	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	702	99.86	n/a	11/15/2018	88	No	8	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	703	138.1	n/a	11/15/2018	138	No	8	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	704	103.5	n/a	11/15/2018	91.4	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	701	8.987	n/a	11/15/2018	8.09	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	702	9.13	n/a	11/15/2018	8.87	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	703	23.14	n/a	11/15/2018	20.3	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	704	14.12	n/a	11/15/2018	12.8	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	701	315.8	n/a	11/15/2018	296	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	702	313.4	n/a	11/15/2018	292	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	703	588.7	n/a	11/15/2018	546	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	704	394.5	n/a	11/15/2018	319	No	8	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	701	0.178	n/a	11/15/2018	0.122	No	8	37.5	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	702	0.1467	n/a	11/15/2018	0.119	No	8	12.5	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	703	0.439	n/a	11/15/2018	0.307	No	8	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	704	0.1733	n/a	11/15/2018	0.162	No	8	0	No	0.00188	Param Intra 1 of 3
pH (S.U.)	701	8.157	6.606	11/15/2018	7.11	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	702	10.3	5.719	11/15/2018	7.24	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	703	10.87	6.9	11/15/2018	7.07	No	8	0	n/a	0.01182	NP Intra (normality) ...
pH (S.U.)	704	7.989	6.699	11/15/2018	7.09	No	8	0	No	0.000...	Param Intra 1 of 3
Sulfate (mg/L)	701	17.01	n/a	11/15/2018	13.1	No	8	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	702	23.02	n/a	11/15/2018	20	No	8	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	703	11	n/a	11/15/2018	2.5ND	No	8	75	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	704	45.17	n/a	11/15/2018	22.7	No	8	0	No	0.00188	Param Intra 1 of 3

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
  - [ ] 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
- [x] 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)
- [x] 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

☑ 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...

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 20, 2022

ATTACHMENT 2-2

Spring 2019 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

September 27, 2019

To: Sibley Generating Station
33200 E Johnson Road
Sibley, Missouri 64088
KCP&L Greater Missouri Operations Company

From: SCS Engineers

RE: Determination of Statistically Significant Increases
Slag Settling Impoundment
Spring 2019 Semiannual Detection Monitoring 40 CFR 257.94

Statistical analysis of monitoring data from the groundwater monitoring system for the Slag Settling Impoundment 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 22, 2019. Review and validation of the results from the May 2019 Detection Monitoring Event was completed on July 3, 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 July 16, 2019 and August 21, 2019.

The completed statistical evaluation identified one Appendix III constituent above its prediction limit in monitoring well MW-704.

Constituent/Monitoring Well	*UPL	Observation May 22, 2019	1st Verification July 16, 2019	2nd Verification August 21, 2019
Chloride				
704	14.12	18.1	19.5	15.2

*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 confirmed one SSI above the background prediction limit for chloride in downgradient monitoring wells MW-704.

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), extra sample results for pH for wells

which were re-sampled for verification, 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
Slag Settling Impoundment
September 27, 2019

ATTACHMENT 1

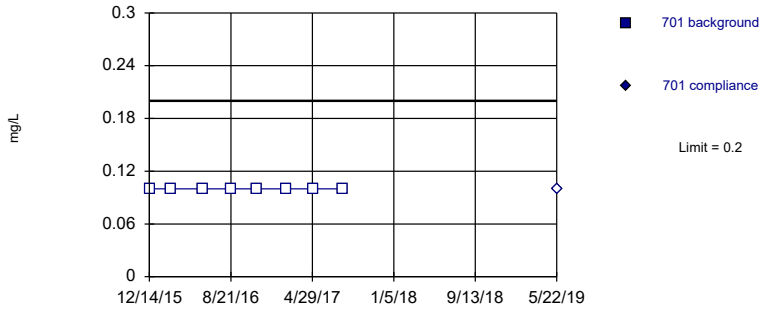
Sanitas™ Output

Sanitas™ v.9.6.23 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 = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

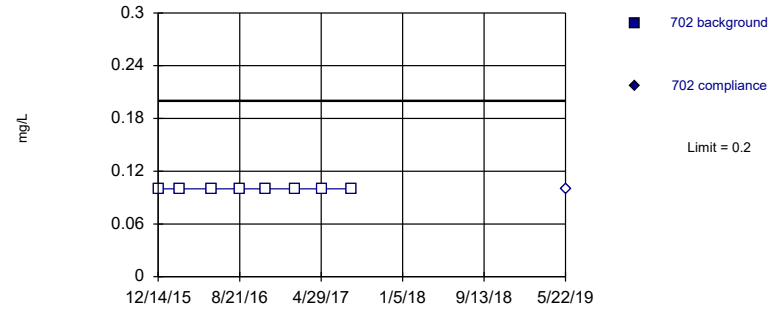
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 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 = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

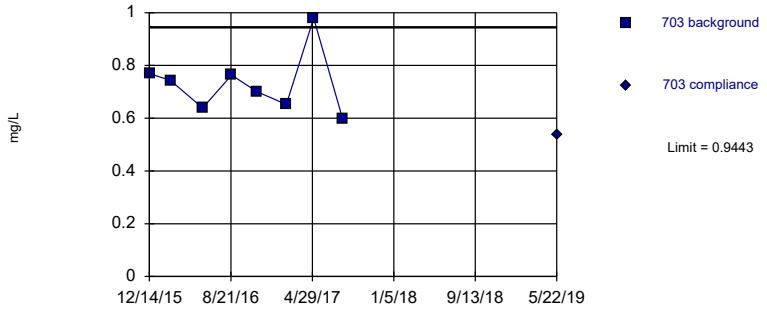
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.7301, Std. Dev.=0.1183, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8861, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Boron Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

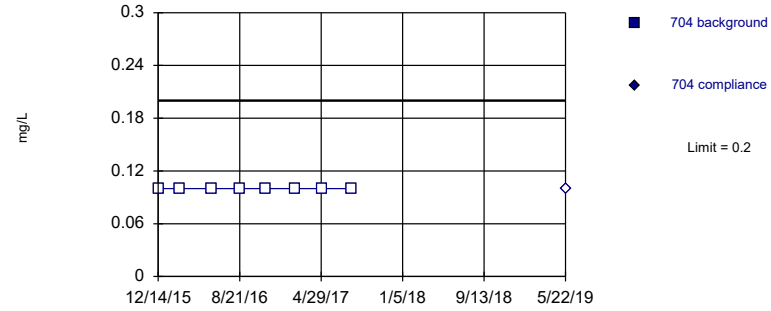
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 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 = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	<0.2	
2/17/2016	<0.2	
5/26/2016	<0.2	
8/23/2016	<0.2	
11/10/2016	<0.2	
2/8/2017	<0.2	
5/3/2017	<0.2	
8/1/2017	<0.2	
5/22/2019		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	<0.2	
2/17/2016	<0.2	
5/26/2016	<0.2	
8/23/2016	<0.2	
11/10/2016	<0.2	
2/8/2017	<0.2	
5/3/2017	<0.2	
8/1/2017	<0.2	
5/22/2019		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	0.769	
2/17/2016	0.743	
5/26/2016	0.639	
8/23/2016	0.763	
11/10/2016	0.7	
2/8/2017	0.652	
5/3/2017	0.979	
8/1/2017	0.596	
5/22/2019		0.535

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

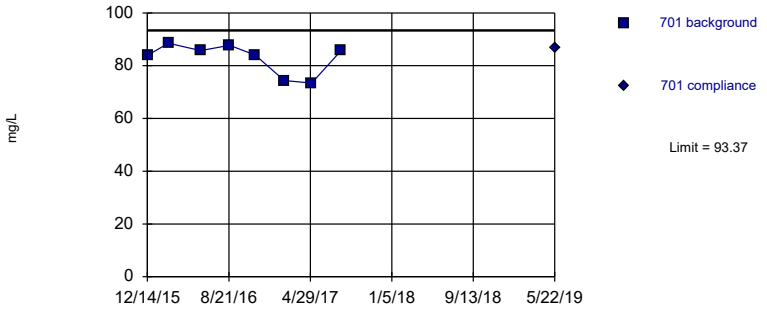
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	<0.2	
2/17/2016	<0.2	
5/26/2016	<0.2	
8/23/2016	<0.2	
11/10/2016	<0.2	
2/8/2017	<0.2	
5/3/2017	<0.2	
8/1/2017	<0.2	
5/22/2019		<0.2

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=82.9, Std. Dev.=5.785, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8071, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

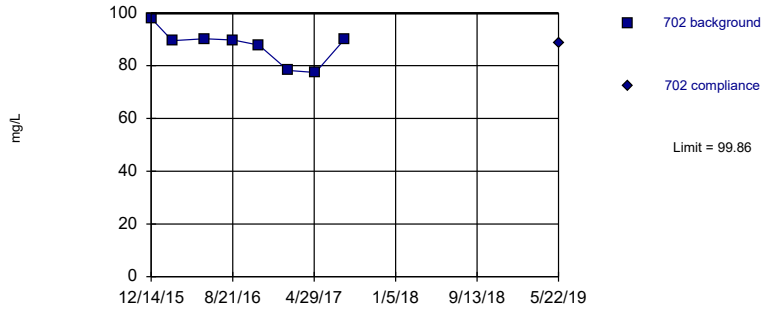
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=87.6, Std. Dev.=6.773, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8641, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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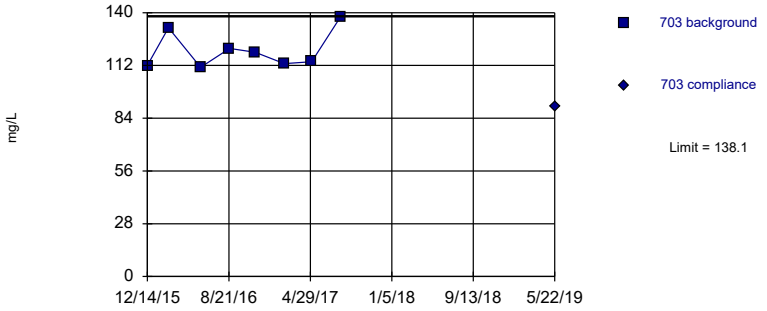
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=120, Std. Dev.=10, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8466, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

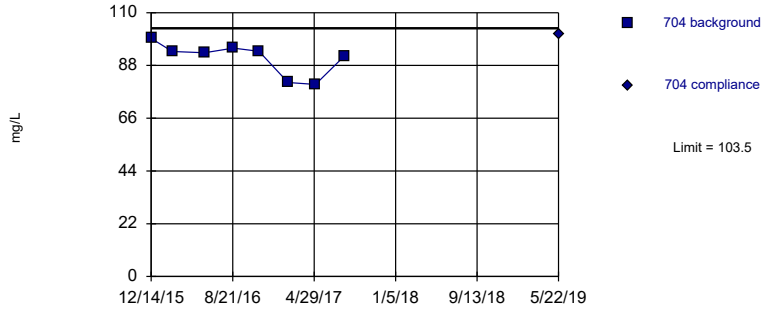
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=91.06, Std. Dev.=6.865, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8257, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Calcium Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	83.9	
2/17/2016	88.5	
5/26/2016	85.7	
8/23/2016	87.7	
11/10/2016	84	
2/8/2017	74.4	
5/3/2017	73.4	
8/1/2017	85.6	
5/22/2019		86.9

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	98	
2/17/2016	89.5	
5/26/2016	90.2	
8/23/2016	89.7	
11/10/2016	87.8	
2/8/2017	78.2	
5/3/2017	77.4	
8/1/2017	90	
5/22/2019		88.4

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	112	
2/17/2016	132	
5/26/2016	111	
8/23/2016	121	
11/10/2016	119	
2/8/2017	113	
5/3/2017	114	
8/1/2017	138	
5/22/2019		89.9

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

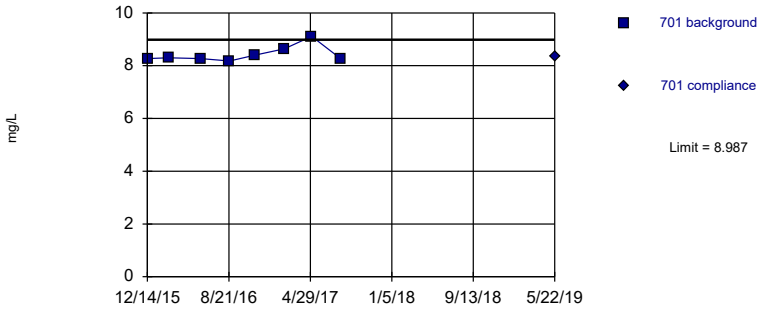
Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	99.3	
2/17/2016	93.8	
5/26/2016	93.3	
8/23/2016	95.2	
11/10/2016	93.9	
2/8/2017	80.9	
5/3/2017	80.1	
8/1/2017	92	
5/22/2019		101

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.429, Std. Dev.=0.3087, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7504, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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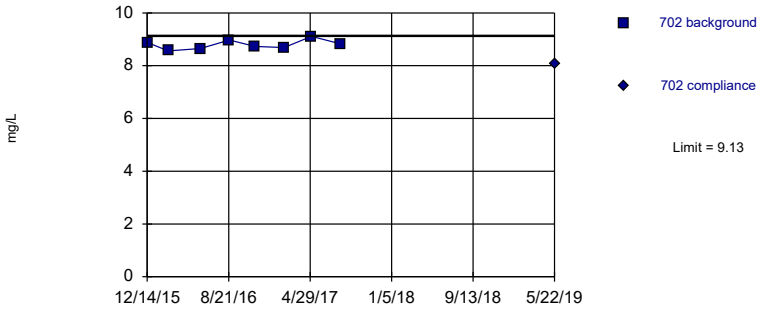
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.803, Std. Dev.=0.181, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9748, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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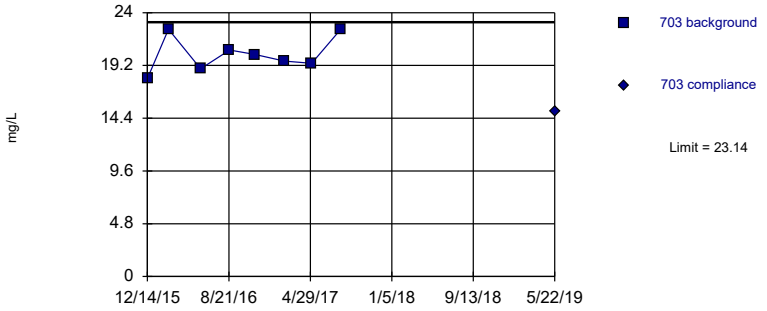
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=20.21, Std. Dev.=1.615, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9225, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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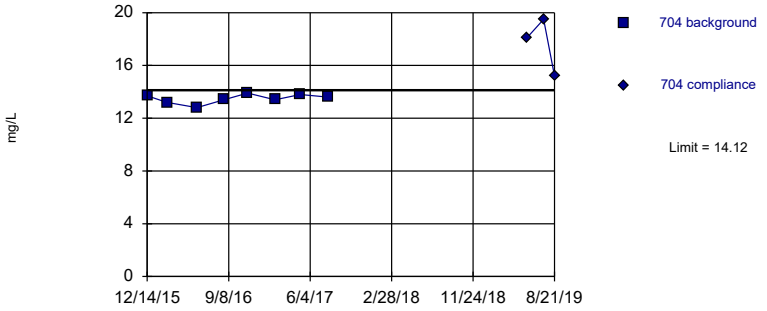
Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=13.48, Std. Dev.=0.3576, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9438, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Chloride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	8.27	
2/17/2016	8.3	
5/26/2016	8.27	
8/23/2016	8.18	
11/10/2016	8.4	
2/8/2017	8.64	
5/3/2017	9.11	
8/1/2017	8.26	
5/22/2019		8.36

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	8.88	
2/17/2016	8.56	
5/26/2016	8.65	
8/23/2016	8.97	
11/10/2016	8.73	
2/8/2017	8.69	
5/3/2017	9.11	
8/1/2017	8.83	
5/22/2019		8.09

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	18	
2/17/2016	22.5	
5/26/2016	18.9	
8/23/2016	20.6	
11/10/2016	20.2	
2/8/2017	19.6	
5/3/2017	19.4	
8/1/2017	22.5	
5/22/2019		15

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

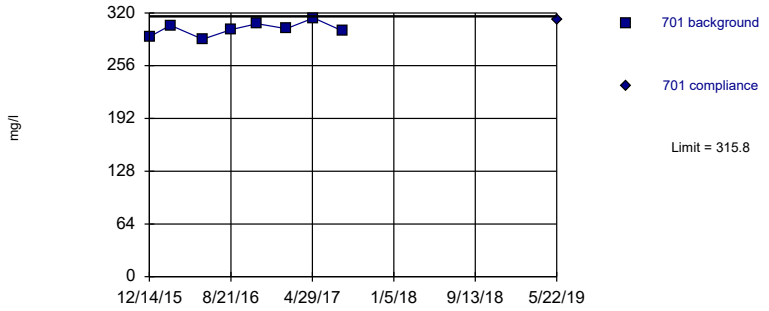
Sibley Client: SCS Engineers Data: Sibley

	704	704	
12/14/2015	13.7		
2/17/2016	13.2		
5/26/2016	12.8		
8/23/2016	13.4		
11/10/2016	13.9		
2/8/2017	13.4		
5/3/2017	13.8		
8/1/2017	13.6		
5/22/2019		18.1	
7/16/2019		19.5	1st verification sample
8/21/2019		15.2	2nd verification sample

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=300.5, Std. Dev.=8.435, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9784, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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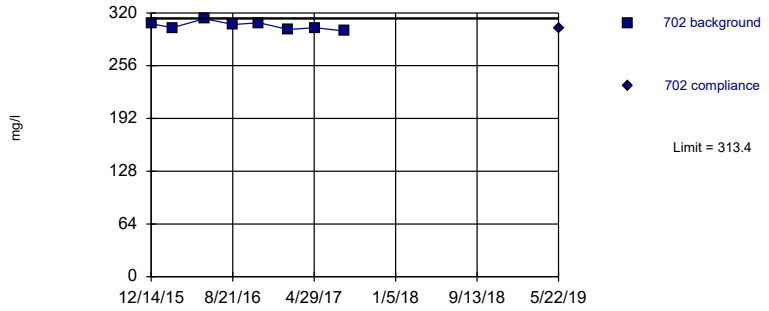
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=304.5, Std. Dev.=4.899, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9608, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

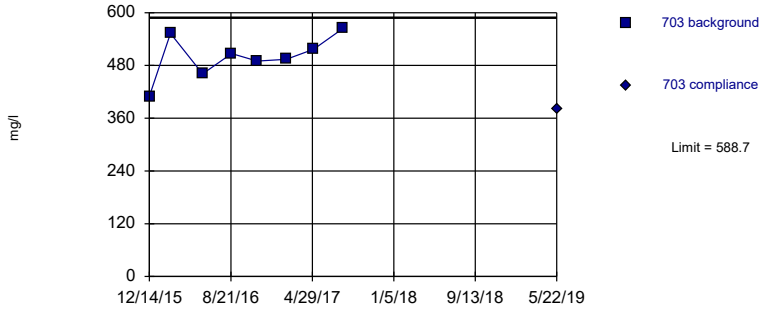
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=499.5, Std. Dev.=49.28, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.96, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

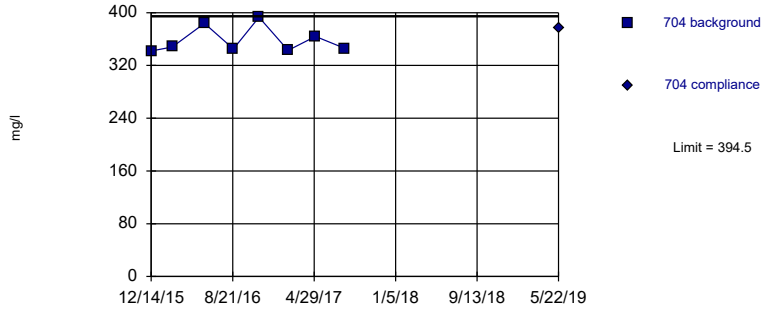
Sibley Client: SCS Engineers Data: Sibley

Sanitas™ v.9.6.23 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=358.1, Std. Dev.=20.11, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.789, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Dissolved Solids Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	291	
2/17/2016	305	
5/26/2016	288	
8/23/2016	300	
11/10/2016	307	
2/8/2017	301	
5/3/2017	314	
8/1/2017	298	
5/22/2019		312

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	307	
2/17/2016	302	
5/26/2016	313	
8/23/2016	306	
11/10/2016	308	
2/8/2017	300	
5/3/2017	302	
8/1/2017	298	
5/22/2019		301

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	410	
2/17/2016	553	
5/26/2016	461	
8/23/2016	507	
11/10/2016	490	
2/8/2017	494	
5/3/2017	517	
8/1/2017	564	
5/22/2019		381

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	342	
2/17/2016	348	
5/26/2016	384	
8/23/2016	345	
11/10/2016	393	
2/8/2017	343	
5/3/2017	364	
8/1/2017	346	
5/22/2019		376

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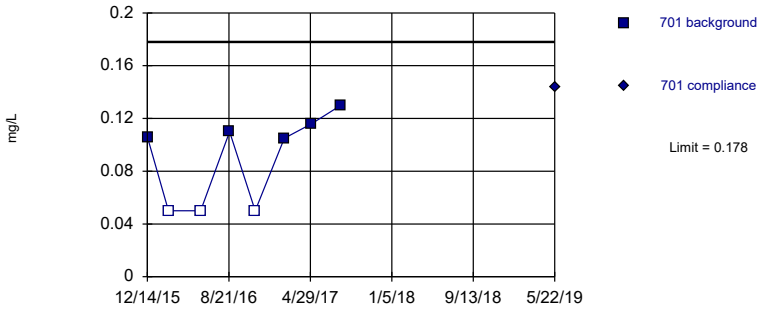
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Aitchison`s Adjustment): Mean=0.07088, Std. Dev.=0.0592, n=8, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8007, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

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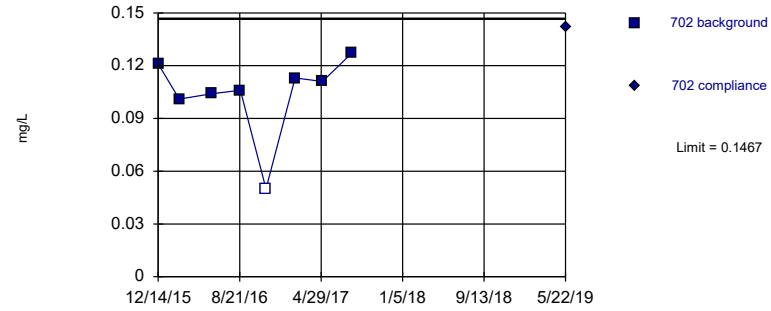
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.1041, Std. Dev.=0.02353, n=8, 12.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.774, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

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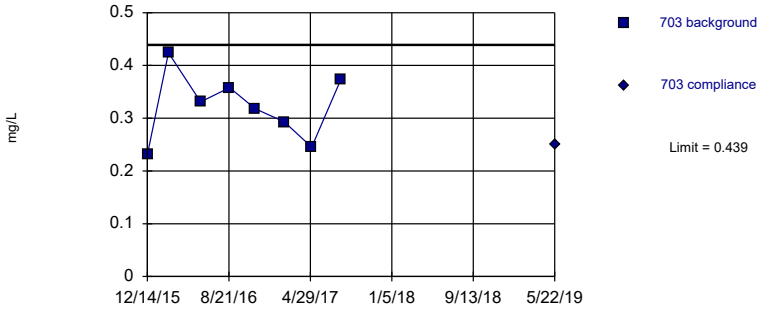
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.3216, Std. Dev.=0.06486, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.974, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

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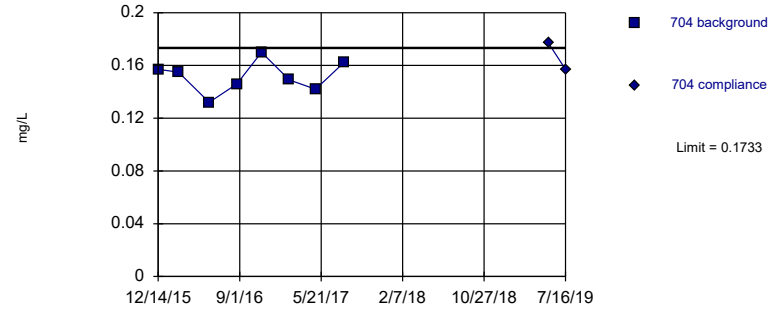
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.1516, Std. Dev.=0.01196, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9954, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Fluoride Analysis Run 9/23/2019 2:06 PM View: Slag Pond III
Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	0.106	
2/17/2016	<0.1	
5/26/2016	<0.1	
8/23/2016	0.11	
11/10/2016	<0.1	
2/8/2017	0.105	
5/3/2017	0.116	
8/1/2017	0.13	
5/22/2019		0.144

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	0.121	
2/17/2016	0.101	
5/26/2016	0.104	
8/23/2016	0.106	
11/10/2016	<0.1	
2/8/2017	0.113	
5/3/2017	0.111	
8/1/2017	0.127	
5/22/2019		0.142

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703
12/14/2015	0.231	
2/17/2016	0.424	
5/26/2016	0.331	
8/23/2016	0.358	
11/10/2016	0.318	
2/8/2017	0.293	
5/3/2017	0.245	
8/1/2017	0.373	
5/22/2019		0.251

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

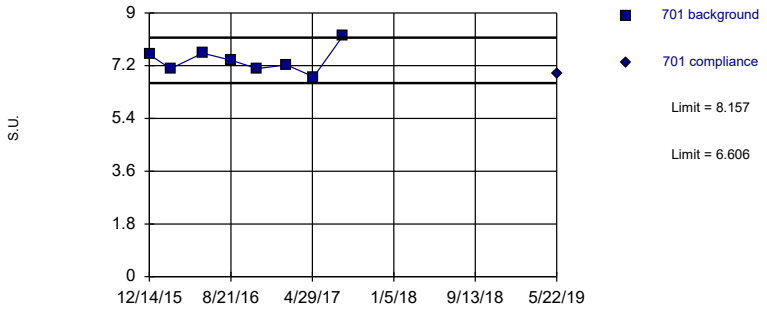
Sibley Client: SCS Engineers Data: Sibley

	704	704	
12/14/2015	0.157		
2/17/2016	0.155		
5/26/2016	0.132		
8/23/2016	0.146		
11/10/2016	0.17		
2/8/2017	0.149		
5/3/2017	0.142		
8/1/2017	0.162		
5/22/2019		0.177	
7/16/2019		0.157	1st verification sample

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.381, Std. Dev.=0.4283, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9439, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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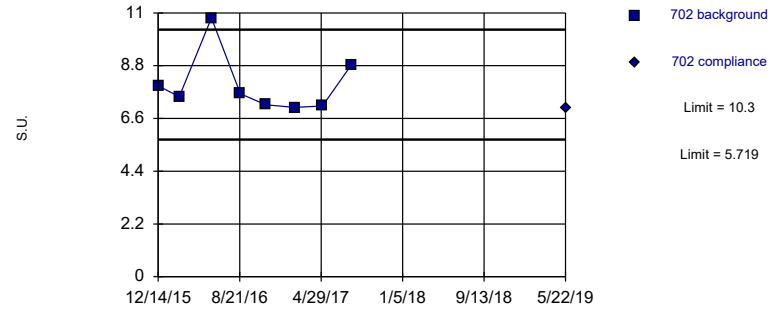
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.011, Std. Dev.=1.267, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7744, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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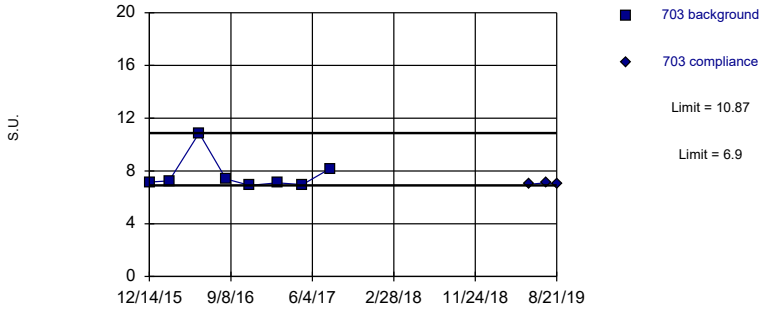
Within Limits

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 8 background values. Well-constituent pair annual alpha = 0.02358. Individual comparison alpha = 0.01182 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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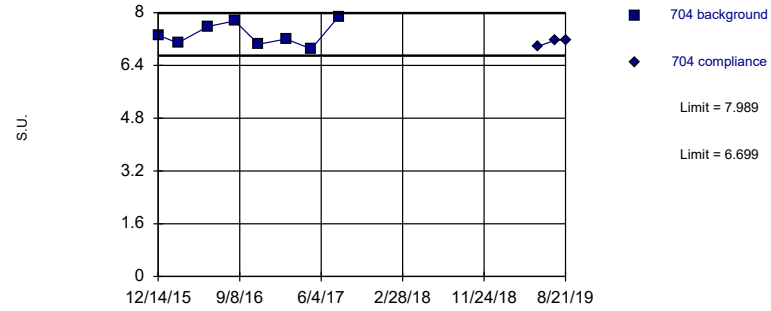
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.344, Std. Dev.=0.3562, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9355, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: pH Analysis Run 9/23/2019 2:06 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	7.58	
2/17/2016	7.1	
5/26/2016	7.63	
8/23/2016	7.38	
11/10/2016	7.1	
2/8/2017	7.23	
5/3/2017	6.82	
8/1/2017	8.21	
5/22/2019		6.94

Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	7.96	
2/17/2016	7.51	
5/26/2016	10.79	
8/23/2016	7.63	
11/10/2016	7.17	
2/8/2017	7.06	
5/3/2017	7.12	
8/1/2017	8.85	
5/22/2019		7.02

Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703	
12/14/2015	7.16		
2/17/2016	7.24		
5/26/2016	10.87		
8/23/2016	7.39		
11/10/2016	6.9		
2/8/2017	7.1		
5/3/2017	6.97		
8/1/2017	8.17		
5/22/2019		6.99	
7/16/2019		7.1	extra sample
8/21/2019		7.02	extra sample

Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	704	704	
12/14/2015	7.32		
2/17/2016	7.08		
5/26/2016	7.58		
8/23/2016	7.75		
11/10/2016	7.04		
2/8/2017	7.2		
5/3/2017	6.9		
8/1/2017	7.88		
5/22/2019		6.98	
7/16/2019		7.16	extra sample
8/21/2019		7.18	extra sample

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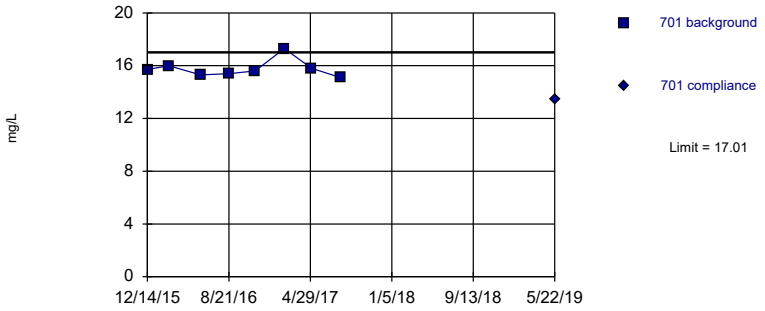
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=15.78, Std. Dev.=0.6798, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8195, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/23/2019 2:07 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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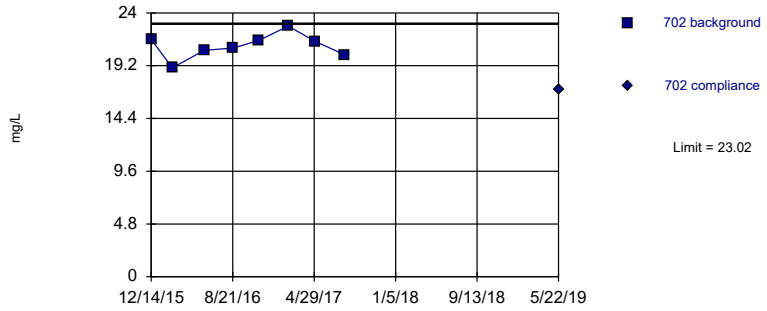
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=20.99, Std. Dev.=1.124, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9723, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/23/2019 2:07 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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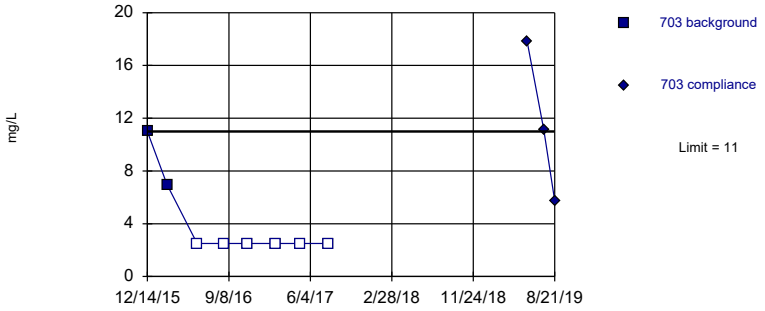
Hollow symbols indicate censored values.

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 8 background values. 75% NDs. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Sulfate Analysis Run 9/23/2019 2:07 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

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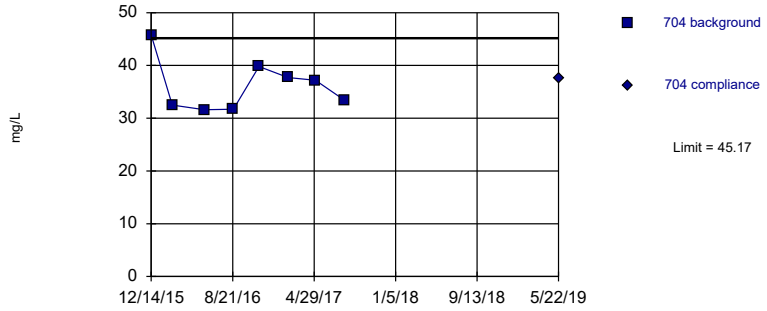
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=36.21, Std. Dev.=4.947, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8797, critical = 0.749. Kappa = 1.81 (c=7, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.00188.

Constituent: Sulfate Analysis Run 9/23/2019 2:07 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	701	701
12/14/2015	15.7	
2/17/2016	16	
5/26/2016	15.3	
8/23/2016	15.4	
11/10/2016	15.6	
2/8/2017	17.3	
5/3/2017	15.8	
8/1/2017	15.1	
5/22/2019		13.4

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	702	702
12/14/2015	21.6	
2/17/2016	19	
5/26/2016	20.6	
8/23/2016	20.8	
11/10/2016	21.5	
2/8/2017	22.8	
5/3/2017	21.4	
8/1/2017	20.2	
5/22/2019		17

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	703	703	
12/14/2015	11		
2/17/2016	6.97		
5/26/2016	<5		
8/23/2016	<5		
11/10/2016	<5		
2/8/2017	<5		
5/3/2017	<5		
8/1/2017	<5		
5/22/2019		17.8	
7/16/2019		11.1	1st verification sample
8/21/2019		5.73	2nd verification sample

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/23/2019 2:09 PM View: Slag Pond III

Sibley Client: SCS Engineers Data: Sibley

	704	704
12/14/2015	45.8	
2/17/2016	32.5	
5/26/2016	31.6	
8/23/2016	31.7	
11/10/2016	39.8	
2/8/2017	37.7	
5/3/2017	37.2	
8/1/2017	33.4	
5/22/2019		37.6

Prediction Limit

Sibley Client: SCS Engineers Data: Sibley Printed 9/23/2019, 2:09 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	701	0.2	n/a	5/22/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	702	0.2	n/a	5/22/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	703	0.9443	n/a	5/22/2019	0.535	No	8	0	No	0.00188	Param Intra 1 of 3
Boron (mg/L)	704	0.2	n/a	5/22/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Calcium (mg/L)	701	93.37	n/a	5/22/2019	86.9	No	8	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	702	99.86	n/a	5/22/2019	88.4	No	8	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	703	138.1	n/a	5/22/2019	89.9	No	8	0	No	0.00188	Param Intra 1 of 3
Calcium (mg/L)	704	103.5	n/a	5/22/2019	101	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	701	8.987	n/a	5/22/2019	8.36	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	702	9.13	n/a	5/22/2019	8.09	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	703	23.14	n/a	5/22/2019	15	No	8	0	No	0.00188	Param Intra 1 of 3
Chloride (mg/L)	**704**	**14.12**	**n/a**	**8/21/2019**	**15.2**	**Yes**	**8**	**0**	**No**	**0.00188**	**Param Intra 1 of 3**
Dissolved Solids (mg/l)	701	315.8	n/a	5/22/2019	312	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	702	313.4	n/a	5/22/2019	301	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	703	588.7	n/a	5/22/2019	381	No	8	0	No	0.00188	Param Intra 1 of 3
Dissolved Solids (mg/l)	704	394.5	n/a	5/22/2019	376	No	8	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	701	0.178	n/a	5/22/2019	0.144	No	8	37.5	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	702	0.1467	n/a	5/22/2019	0.142	No	8	12.5	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	703	0.439	n/a	5/22/2019	0.251	No	8	0	No	0.00188	Param Intra 1 of 3
Fluoride (mg/L)	704	0.1733	n/a	7/16/2019	0.157	No	8	0	No	0.00188	Param Intra 1 of 3
pH (S.U.)	701	8.157	6.606	5/22/2019	6.94	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	702	10.3	5.719	5/22/2019	7.02	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	703	10.87	6.9	8/21/2019	7.02	No	8	0	n/a	0.01182	NP Intra (normality) ...
pH (S.U.)	704	7.989	6.699	8/21/2019	7.18	No	8	0	No	0.000...	Param Intra 1 of 3
Sulfate (mg/L)	701	17.01	n/a	5/22/2019	13.4	No	8	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	702	23.02	n/a	5/22/2019	17	No	8	0	No	0.00188	Param Intra 1 of 3
Sulfate (mg/L)	703	11	n/a	8/21/2019	5.73	No	8	75	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	704	45.17	n/a	5/22/2019	37.6	No	8	0	No	0.00188	Param Intra 1 of 3

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
  - [ ] 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
- [x] 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)
- [x] 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

☑ 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...

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...

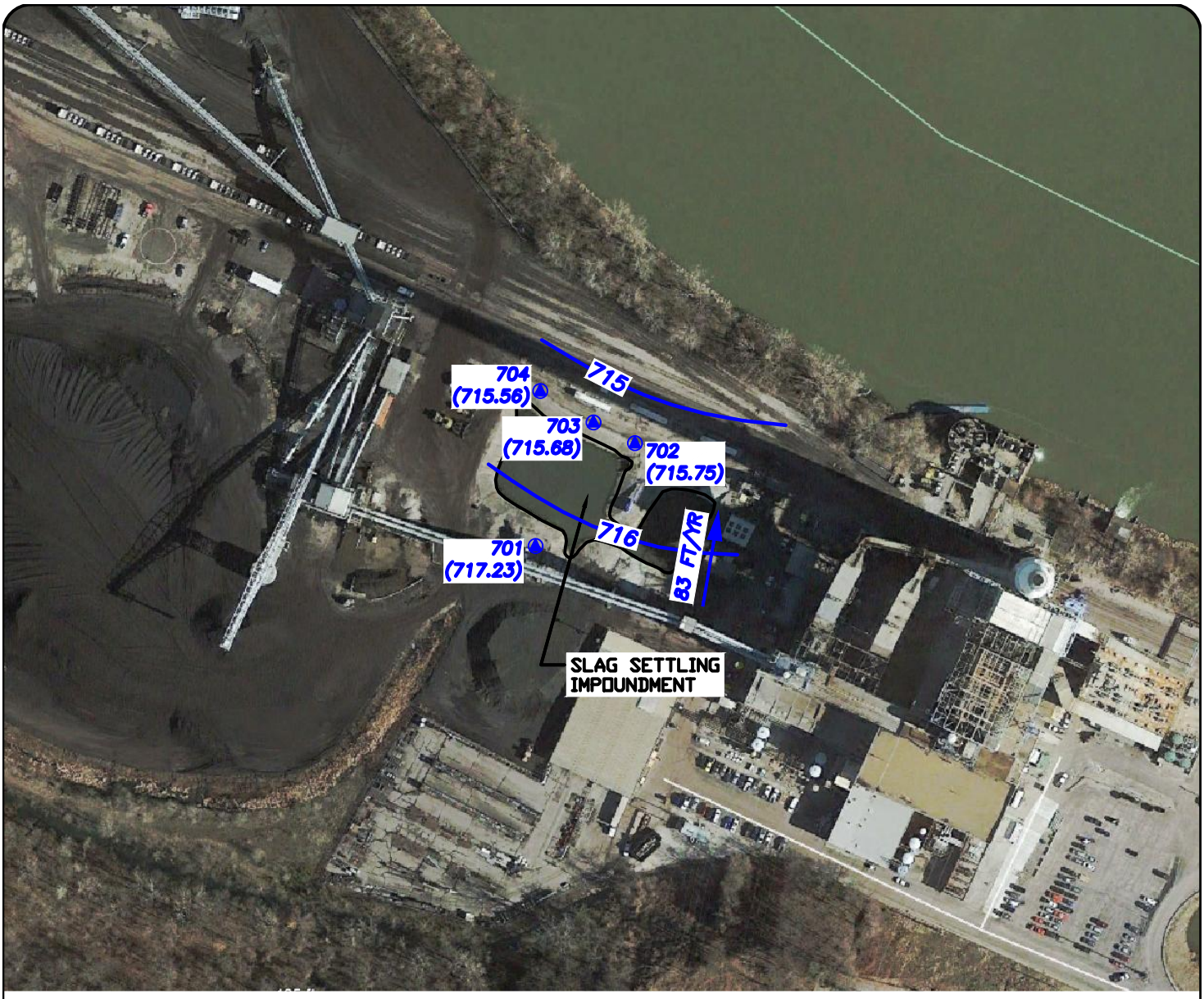
Piper, Stiff Diagram

- [ ] 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 20, 2022

ATTACHMENT 3

Groundwater Potentiometric Surface Maps



LEGEND:

- 760 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- 701 — GROUNDWATER MONITORING SYSTEM WELL (GROUNDWATER ELEVATION)
- CCR LANDFILL UNIT BOUNDARY
- 83 FT/YR — GROUNDWATER FLOW DIRECTION AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)

200 0 200 400

SCALE FEET

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 22, 2019.

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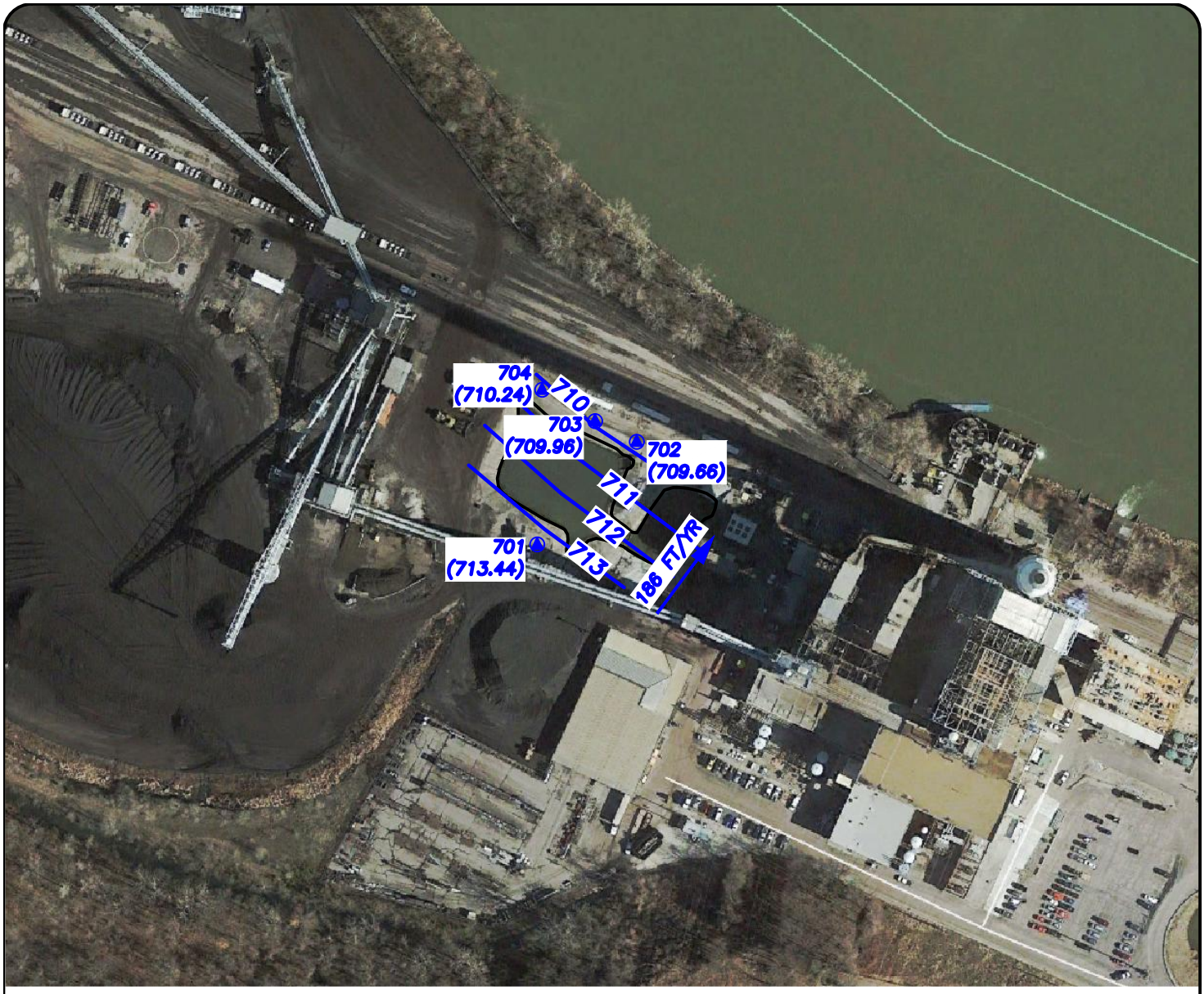
EVERGY MISSOURI WEST, INC.

POTENTIOMETRIC SURFACE MAP (MAY 2019)
SIBLEY SLAG SETTLING IMPOUNDMENT
SIBLEY GENERATING STATION
CCR GROUNDWATER MONITORING SYSTEM

CHK. BY: JRR	DWN. BY: MBJ	DSN. BY: TGW	PROJ. NO. 27213169.19
PROJ. MGR: JRR	DATE: 12/15/22	CADD FILE: ALTERNATIVE SOURCE DEMONSTRATION.DWG	FIG. NO. 1



LEGEND:

760	GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
701	GROUNDWATER MONITORING SYSTEM WELL (GROUNDWATER ELEVATION)
	CCR UNIT BOUNDARY
186 FT/YR	GROUNDWATER FLOW DIRECTION AND CALCULATED GROUNDWATER FLOW RATE (FT/YR)

200 0 200 400

SCALE FEET

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 LOCATIONS SHOWN ARE APPROXIMATE.
4. WATER LEVEL MEASUREMENTS COMPLETED ON NOVEMBER 6, 2019

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EVERGY MISSOURI WEST, INC.

POTENTIOMETRIC SURFACE MAP (NOVEMBER 2019)
SIBLEY SLAG SETTLING IMPOUNDMENT
SIBLEY GENERATING STATION
CCR GROUNDWATER MONITORING SYSTEM

CHK. BY: JRR	DWN. BY: DAW	DSN. BY: TGW	PROJ. NO. 27213169.19
PROJ. MGR: JRR	DATE: 12/15/22	CADD FILE: 19 – NOV_GW 2A–C V1.DWG	FIG. NO. 2