# 2019-2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

# ASH IMPOUNDMENT IATAN GENERATING STATION Platte County, MISSOURI

Presented To: Evergy Metro, Inc.

# SCS ENGINEERS

27213167.20 | July 2020, Revised December 16, 2022

8575 W 110<sup>th</sup> 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 2019-2020 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan 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 2019-2020 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the latan 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	Revision	Revision Section	Summary of Revisions
Number	Date		
0	July 29, 2020	NA	Original
1	December 16, 2022	Addendum 1	Added Addendum 1

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- C.2 CCR Groundwater Monitoring Alternative Source Demonstration Report November 2019 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (June 2020).

Addendum1 2019-2020 Annual Groundwater Monitoring and Corrective Action Report Addendum 1

# 1 INTRODUCTION

This 2019-2020 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the "Coal Combustion Residuals (CCR) Final Rule" (Rule) published by the United States Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015) update published August 5, 2016 ("Extension Rule) to provide an extension of compliance deadlines for certain inactive surface impoundments. The Ash Impoundment is classified as an "inactive" CCR unit and is therefore regulated by the August 5, 2016 update to the Rule subject to the new 40 CFR 257.100(e). Owners and operators of inactive CCR surface impoundments subject to the provisions of the new 40 CFR 257.100(e)(5)(ii) are required to prepare an annual groundwater monitoring and corrective action report no later than July 31, 2020 per 40 CFR 257.90(e).

Specifically, this report was prepared for Evergy Metro, Inc. (f/k/a Kansas City Power & Light Company) to fulfill the requirements of 40 CFR 257.90(e). Changes to the text of 40 CFR 257.90(e) to indicate the update subject to the new 40 CFR 257.100(e) are shown in [brackets] and specific references to active CCR unit or expansions have been deleted. The applicable sections of the Rule are provided below in italics, followed by applicable information relative to the 2019-2020 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the latan Generating Station.

# 2 § 257.90(E) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. For [inactive] CCR surface impoundments, no later than [July 31, 2019], and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For [inactive] CCR surface impoundments, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than [July 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 Ash Impoundment and all background (or upgradient) and downgradient monitoring wells with identification numbers for the Ash 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 Ash Impoundment within the 2019-2020 monitoring period.

# 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 (2019-2020). Samples collected in Fall 2019 and Spring of 2020 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 Spring 2019 second verification monitoring data, the Fall 2019 semiannual detection monitoring and verification monitoring data, which was not completed at the time of this report.

## 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 2019-2020. Only detection monitoring was conducted in the 2019-2020 annual reporting period.

# 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 Spring 2019 verification sampling and analyses per the certified statistical method,

- b. completion of the statistical evaluation of the Spring 2019 semiannual detection monitoring sampling and analysis event per the certified statistical method,
- c. completion of a successful alternative source demonstration for the Spring 2019 semiannual detection monitoring event,
- d. completion of the Fall 2019 semiannual detection monitoring sampling and analysis event, and subsequent verification sampling per the certified statistical method,
- e. completion of the statistical evaluation of the Fall 2019 semiannual detection monitoring event per the certified statistical method,
- f. completion of a successful alternative source demonstration for the Fall 2019 semiannual detection monitoring event,
- g. initiation of the Spring 2020 semiannual detection monitoring sampling and analysis event, and
- h. completion of the 2019-2020 Annual Groundwater Monitoring and Corrective Action Report.

#### 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 (2020-2021).

Completion of verification sampling and data analysis, and the statistical evaluation for the Spring 2020 detection monitoring event, and, if required, alternative source demonstration(s). Fall 2020 semiannual groundwater sampling, analysis, statistical evaluation, and, if required, alternative source demonstration(s). Initiation of the Spring 2021 semiannual detection monitoring sampling and analysis event. Completion of the 2020-2021 Groundwater Monitoring and Corrective Action Report.

## 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  $\S 257.90(e)$ .

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 reports are included as **Appendix C**:

- C.1 Groundwater Monitoring Alternative Source Demonstration Report April 2019 Groundwater Monitoring Event, Ash Impoundment, latan Generating Station (November 2019).
- C.2 CCR Groundwater Monitoring Alternative Source Demonstration Report November 2019 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (June 2020).

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

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

Not applicable because there was no assessment monitoring conducted.

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

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

Not applicable because there was no assessment monitoring conducted.

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

Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents in appendices III and IV to this part are at or below background as specified in paragraph (e) of this section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

Not applicable because there was no assessment monitoring conducted.

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

Within 90 days of finding that any constituent listed in appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures 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 latan 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 Metro, Inc. for specific application to the latan Generating Station Ash Impoundment. No warranties, express or implied, are intended or made.

# APPENDIX A

# FIGURES

Figure 1: Site Map



NOTES: 1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83) 2. VERTICAL DATUM: NAVD 88 3. GOOGLE EARTH IMAGE DATED JUNE 10, 2016. THE THE EVENUE COT ASH INDOUNDMENT NUSSOURI MEDICINE ACTIVE
NOTES: 1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83) 2. VERTICAL DATUM: NAVD 88 3. GOOGLE EARTH IMAGE DATED JUNE 10, 2016.

# APPENDIX B

# TABLES

Table 1: Appendix III Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

# APPENDIX C

# ALTERNATIVE SOURCE DEMONSTRATION

- C.1 Groundwater Monitoring Alternative Source Demonstration Report April 2019 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (November 2019)
- C.2. CCR Groundwater Monitoring Alternative Source Demonstration Report November 2019 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (June 2020)

C.1 Groundwater Monitoring Alternative Source Demonstration Report April 2019 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (November 2019)

# GROUNDWATER MONITORING ALTERNATIVE SOURCE DEMONSTRATION REPORT APRIL 2019 GROUNDWATER MONITORING EVENT

# ASH IMPOUNDMENT IATAN GENERATING STATION PLATTE COUNTY, MISSOURI

Presented To:

Evergy Metro, Inc.

Presented By:

#### SCS ENGINEERS

8575 West 110th Street, Suite 100

Overland Park, Kansas 66210

November 2019

File No. 27213167.19

# 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 Ash Impoundment at the latan 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 Ash Impoundment at the latan 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.



SCS Engineers

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#### SCS ENGINEERS

# 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 Ash Impoundment at the latan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated April 16, 2019. The initial detection monitoring sampling event was scheduled for March 2019; however, the historic flooding of the Missouri River in March prevented the sampling event until flood waters receded and the sampling event was performed April 29, 2019. Review and validation of the results from the April 2019 Detection Monitoring Event was completed on June 27, 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 May 20, 2019 and July 23, 2019. The second verification sample was not collected until July because of additional flooding in June 2019.

The completed statistical evaluation identified one Appendix III constituent above its respective prediction limit. The prediction limit for chloride in monitoring well MW-107 is 25.9 mg/L. The detection monitoring sample was reported at 33.3 mg/L. The first verification re-sample was collected on May 20, 2019 with a result of 34.2 mg/L. The second verification re-sample was collected on July 23, 2019 with a result of 34.3 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring sample for chloride from monitoring well MW-107 exceeds its prediction limit and is a confirmed statistically significant increase (SSI) over background.

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Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified an SSI above the background prediction limit for chloride in monitoring well MW-107.

# 3 ALTERNATIVE SOURCE DEMONSTRATION

An Alternative Source Demonstration (ASD) is a means to provide supporting lines of evidence that something other than a release from a regulated CCR unit caused an SSI. For the above-identified SSI for the Ash Impoundment at the latan Generating Station, there are multiple lines of supporting evidence to indicate the above SSI was not caused by a release from the Ash 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, 25<sup>th</sup> and 75<sup>th</sup> 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.

Although an SSI was only identified in monitoring well MW-107, box and whiskers plots for chloride were prepared for monitoring wells MW-107 and MW-109, the collector well, and a stormwater sample to allow comparison of the concentrations. The comparison between wells indicates the chloride concentrations are similar between the three wells and stormwater with greater variability in MW-107 than MW-109 and a concentration in the stormwater nearly as high as the highest level in MW-107. The samples collected that exceed the prediction limit for chloride were all collected shortly after significant flooding and inundation of the well. This demonstrates that a source other than the Ash 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. Box and whisker plots are provided in **Appendix A**.

## 3.2 REPRESENTATIVENESS OF BACKGROUND

Representativeness is defined as the level of how well or how accurately a sample set reflects actual or natural conditions. If the upper and lower prediction limits for the background concentration of chloride for MW-107 represents the entire population of historical concentrations of chloride for MW-107 under all natural conditions, including low river stages, high river stages, flooding, drought, etc., the background data set would have good representativeness. However, due to the inherent constraints of the CCR Final Rule, and the limited number of background data points over a limited period of time, the background data set for chloride for MW-107 does not exhibit good representativeness. 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 in which MW-107 was inundated three times during parts of March-April, May-June, and September-October. A hydrograph of the Missouri River stage at St. Joseph, Missouri, showing the river stage during the time period in which background data was collected and the time period when compliance data points were collected is provided in **Appendix B**. The upper and lower prediction limits for chloride in MW-107 were calculated from eight data points between February 28, 2018 and February 15, 2019 and is not believed to be representative of the entire population of chloride concentrations in MW-107 under naturally occurring conditions, such as flooding. This demonstrates that a source other than the Ash 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.

#### 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-107 and leachate from the nearby ash landfill is provided in **Appendix C** and indicates the groundwater from this well does not exhibit the same geochemical characteristics as the leachate. The groundwater plots in a different area than the leachate indicating the waters are different. This demonstrates that a source other than the Ash 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 Ash 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 Ash Impoundment may continue with the detection monitoring program under § 257.94.

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# 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 Metro, Inc. for specific application to the latan 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 signatures. 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

mg/L

#### **Box & Whiskers Plot**

Constituent: Chloride (mg/L) Analysis Run 11/12/2019 4:31 PM View: Ash Impound III

latan Utility Waste LF Client: SCS Engineers Data: latan jrr

	MW-107	MW-109	Collector_Wel	UPLANDSTORMWA
6/17/2016			23.7	
2/27/2018		25.2		
2/28/2018	18.5			
4/16/2018	19.7	23.1		
5/21/2018	20.6	25.7		
7/19/2018	20.1	27.7		
9/10/2018		27.2		
9/11/2018	19			
10/29/2018	20.2	27.1		
12/19/2018		26.5		
12/20/2018	20.2			
2/15/2019	25.9	21.2		
4/29/2019	33.3	22.5		
5/20/2019	34.2			
7/23/2019	34.3			
11/4/2019	31.3	20.4		31.5
Median	20.4	25.45	23.7	31.5
LowerQ.	19.9	21.85	23.7	31.5
UpperQ.	32.3	27.15	23.7	31.5
Min	18.5	20.4	23.7	31.5
Max	34.3	27.7	23.7	31.5
Mean	24.78	24.66	23.7	31.5

# Box & Whiskers Plot

	latan Utility Waste Ll	F Client: S	CS Engineers	Data: latan jrr P	rinted 11/12/2019,	4:31 PM			
Constituent	Well	<u>N</u>	<u>Mean</u>	Std. Dev.	Std. Err.	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Chloride (mg/L)	MW-107	12	24.78	6.576	1.898	20.4	18.5	34.3	0
Chloride (mg/L)	MW-109	10	24.66	2.659	0.8408	25.45	20.4	27.7	0
Chloride (mg/L)	Collector	1	23.7	0	0	23.7	23.7	23.7	0
Chloride (mg/L)	UPLANDSTO	1	31.5	0	0	31.5	31.5	31.5	0

Appendix B

Missouri River Stage Hydrograph



Appendix C

Piper Diagram



Analysis Run 11/12/2019 4:46 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Piper Diagram

Analysis Run 11/12/2019 4:47 PM View: Ash Impound III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3	CO3
LEACHATE 8/18/2016	9250	689	573	4240	6990	28000	644	20
LEACHATE 11/9/2016	1230	90.7	334	398	876	3460	480	20
LEACHATE 2/3/2017	1880	121	560	671	1760	6070	505	20
LEACHATE 11/4/2019	1110	51.7	460	163	2340	5230	206	20
MW-107 7/23/2019	139	7.31	54.8	12	34.3	220	227	20
MW-107 11/4/2019	131	7.13	57.5	10.9	31.3	221	223	20

C.2. CCR Groundwater Monitoring Alternative Source Demonstration Report November 2019 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (June 2020)

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

# ASH IMPOUNDMENT IATAN GENERATING STATION PLATTE COUNTY, MISSOURI

Presented To:

Evergy Metro, Inc.

Presented By:

#### SCS ENGINEERS

8575 West 110th Street, Suite 100

Overland Park, Kansas 66210

June 2020

File No. 27213167.20

# **CERTIFICATIONS**

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the Ash Impoundment at the latan 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 Ash Impoundment at the latan 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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# 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 Ash Impoundment at the latan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated April 16, 2019. Groundwater samples were collected on November 4, 2019. Review and validation of the results from the November 2019 Detection Monitoring Event was completed on December 12, 2019, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on January 16, 2020 and February 4, 2020.

The completed statistical evaluation identified one Appendix III constituent above the prediction limit established for monitoring wells MW-105 and MW-107.

Constituent/Monitoring Well	*UPL	Observation November 4, 2019	1st Verification January 16, 2020	2nd Verification February 4, 2020	
Chloride					
MW-105	19.3	20.2	20.4	20.9	
MW-107	25.9	31.3	34.3	27.5	

\*UPL – Upper Prediction Limit

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified an SSI above the background prediction limit for chloride in monitoring wells MW-105 and MW-107.

# 3 ALTERNATIVE SOURCE DEMONSTRATION

An Alternative Source Demonstration (ASD) is a means to provide supporting lines of evidence that something other than a release from a regulated CCR unit caused an SSI. For the above-identified SSI for the Ash Impoundment at the latan Generating Station, there are multiple lines of supporting evidence to indicate the above SSI was not caused by a release from the Ash 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, 25<sup>th</sup> and 75<sup>th</sup> 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.

Chloride SSIs were identified in monitoring wells MW-105 and MW-107. Box and whiskers plots for chloride were prepared for monitoring wells MW-105 and MW-107, collector well, and a stormwater sample to allow comparison of the concentrations. The comparison between wells indicates the chloride concentrations are a little higher with more variability in MW-107. The chloride concentration in the scollector well is higher than MW-105 and about equal to the average concentration in MW-107. The chloride concentration in the stormwater sample is higher than any of the concentrations in MW-105 and similar to the post-flooding concentrations in MW-107. The samples collected that exceed the prediction limit for chloride were collected shortly after significant flooding and inundation of the wells. The flooding and well inundation likely affected the groundwater in the some of the wells. This demonstrates that a source other than the Ash Impoundment could have caused the SSIs over background levels, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots are provided in **Appendix A**.

## 3.2 REPRESENTATIVENESS OF BACKGROUND

Representativeness is defined as the level of how well or how accurately a sample set reflects actual or natural conditions. If the upper and lower prediction limits for the background concentration of chloride for MW-105 and MW-107 represents the entire population of historical concentrations of chloride for MW-105 and MW-107 under all natural conditions, including low river stages, high river stages, flooding, drought, etc., the background data set would have good representativeness. However, due to the inherent constraints of the CCR Final Rule, and the limited number of background data points over a limited period of time, the background data set for chloride for MW-105 and MW-107 does not exhibit good representativeness. 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 in which MW-105 and MW-107 were inundated three times during parts of March-April, May-June, and September-October. A hydrograph of the Missouri River stage at St.
Joseph, Missouri, showing the river stage during the time period in which background data was collected and the time period when compliance data points were collected is provided in **Appendix B**. The upper and lower prediction limits for chloride in MW-105 and MW-107 were calculated from eight data points between February 28, 2018 and February 15, 2019 and are not believed to be representative of the entire population of chloride concentrations in MW-105 and MW-107 under naturally occurring conditions, such as during and following flooding. This demonstrates that a source other than the Ash Impoundment could have caused the SSIs over background levels, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

## 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-105, MW-107 and leachate from the nearby ash landfill is provided along with analytical results in **Appendix C** and indicates the groundwater from this well does not exhibit the same geochemical characteristics as the leachate. The groundwater plots in a different area than the leachate indicating the waters are different. This demonstrates that a source other than the Ash Impoundment could have caused the SSIs over background levels for chloride or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

## 3.4 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 were prepared for monitoring wells MW-105 and MW-107 and a stormwater sample to allow comparison of the concentrations. The comparison between wells indicates MW-107 responded to the flooding with an increase of chloride concentrations and the MW-105 response was delayed and subdued relative to MW-107. Additionally, the chloride concentration in the stormwater

sample is higher than any of the concentrations in MW-105 and similar to the post-flooding concentrations in MW-107. The samples collected that exceed the prediction limit for chloride were collected shortly after significant flooding and inundation of the wells. This demonstrates that a source other than the Ash Impoundment could have caused the SSIs over background levels, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Time series plots are provided in **Appendix D**.

## 4 CONCLUSION

Our opinion is that a sufficient body of evidence is available and presented above to demonstrate that a source other than the Ash Impoundment caused the SSI over background levels, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Based on the successful ASD, the owner or operator of the Ash 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 Metro, Inc. for specific application to the latan 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 signatures. 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

mg/L

## Box & Whiskers Plot

	latan Utility Waste L	F Client: S	SCS Engineers	Data: latan jrr F	Printed 3/17/2020, 4	1:28 PM			
<u>Constituent</u>	Well	<u>N</u>	<u>Mean</u>	Std. Dev.	Std. Err.	<u>Median</u>	Min.	<u>Max.</u>	<u>%NDs</u>
Chloride (mg/L)	MW-105	11	18.9	1.107	0.3338	18.5	17.5	20.9	0
Chloride (mg/L)	MW-107	11	23.39	5.482	1.653	20.2	18.5	34.3	0
Chloride (mg/L)	Collector	1	23.7	0	0	23.7	23.7	23.7	0
Chloride (mg/L)	UPLANDSTO	1	31.5	0	0	31.5	31.5	31.5	0

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Appendix B

Missouri River Stage Hydrograph





Appendix C

Piper Diagram Plots and Analytical Results



Analysis Run 3/17/2020 4:34 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

## Piper Diagram

Analysis Run 3/17/2020 4:36 PM View: Ash Impound III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3	C03
LEACHATE 11/9/2016	1230	90.7	334	398	876	3460	480	10
LEACHATE 2/3/2017	1880	121	560	671	1760	6070	505	10
LEACHATE 11/4/2019	1110	51.7	460	163	2340	5230	206	10
MW-105 11/4/2019	134	4.71	76.4	16.9	20.2	299	218	10
MW-105 1/16/2020	130	4.53	77.9	18.1	20.4	308	226	10
MW-107 7/23/2019	139	7.31	54.8	12	34.3	220	227	10
MW-107 11/4/2019	131	7.13	57.5	10.9	31.3	221	223	10
MW-107 1/16/2020	122	5.81	38.3	7.69	34.3	206	154	10

Appendix D

**Time Series Plots** 

mg/L

**Time Series** 



latan Utility Waste LF Client: SCS Engineers Data: latan jrr

### **Time Series**

Constituent: Chloride (mg/L) Analysis Run 3/18/2020 3:06 PM View: Ash Impound III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

	MW-105	MW-107	UPLANDSTORMWA
2/28/2018	18.5	18.5	
4/16/2018	19	19.7	
5/21/2018	18.6	20.6	
7/19/2018	18.4	20.1	
9/11/2018	18.3	19	
10/29/2018		20.2	
10/30/2018	17.9		
12/19/2018	18.2		
12/20/2018		20.2	
2/14/2019	17.5		
2/15/2019		25.9	
4/29/2019	17.8	33.3	
5/20/2019		34.2	
7/23/2019		34.3	
11/4/2019	20.2	31.3	31.5
1/16/2020	20.4	34.3	
2/4/2020	20.9	27.5	

## ADDENDUM 1

## 2019-2020 Annual Groundwater Monitoring and Corrective Action Addendum 1

## SCS ENGINEERS

December 16, 2022 File No. 27213167.20

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

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



Subject: 2019-2020 Annual Groundwater Monitoring and Corrective Action Report Addendum 1 Evergy Metro, Inc. Ash Impoundment Iatan Generating Station – Platte County, Missouri

The Ash Impoundment at the latan 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 40 257.100. An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting activities completed from July 2019 through June 2020 for the Ash Impoundment was completed and placed in the facility's operating record on July 29, 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:

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- July 2019 Second verification sampling for Spring 2019 detection monitoring sampling event.
- November 2019 Fall 2019 semiannual detection monitoring sampling event.
- January 2020 First verification sampling for the Fall 2019 detection monitoring sampling event.
- February 2020 Second verification sampling for the Fall 2019 detection monitoring sampling event.
- May 2020 Spring 2020 semiannual detection monitoring sampling event and Appendix IV.
- 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 July 2019 through June 2020 included the following:

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

- November 2019 Fall 2019 semiannual detection monitoring sampling event.
- May 2020 Spring 2020 semiannual detection monitoring sampling event.

Jared Morrison December 16, 2022

## ATTACHMENT 1

Laboratory Analytical Reports

## ATTACHMENT 1-1 July 2019 Sampling Event Laboratory Report



# ANALYTICAL REPORT

### SCS Engineers - KS

Sample Delivery Group: Samples Received: Project Number: Description: L1121785 07/24/2019 27213167.18 KCP&L latan Generating Station

Report To:

Jason Franks 8575 W. 110th Street Overland Park, KS 66210 <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al <sup>9</sup>Sc

### Entire Report Reviewed By:

Jubb land

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.18

SDG: L1121785 DATE/TIME: 07/31/19 15:17

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7	SI

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Sc

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SDG: L1121785 DATE/TIME: 07/31/19 15:17

### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

			Collected by	Collected date/time	Received date/time	
MW-107 L1121785-01 GW			Whit Martin	07/23/19 14:20	07/24/19 08:	45
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1317997	1	07/26/19 16:43	07/26/19 16:43	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1319579	1	07/30/19 17:26	07/31/19 07:05	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DUPLICATE L1121785-03 GW			Whit Martin	07/23/19 14:20	07/24/19 08:	45
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1317997	1	07/26/19 17:38	07/26/19 17:38	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1319579	1	07/30/19 17:26	07/31/19 07:40	TRB	Mt. Juliet, TN

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Tc

SDG: L1121785

### CASE NARRATIVE

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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.

Jubb land

Jeff Carr Project Manager

Τс Ss Cn Sr Qc GI AI Sc

SDG: L1121785 DATE/TIME: 07/31/19 15:17 PAGE: 4 of 12

## SAMPLE RESULTS - 01

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Qc

GI

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### Wet Chemistry by Method 9056A

							1°Cm
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Chloride	34300		1000	1	07/26/2019 16:43	WG1317997	Tc
Metals (ICP) by I	Method 6010B						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
Calcium	54800	V	1000	1	07/31/2019 07:05	WG1319579	

## SAMPLE RESULTS - 03

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Qc

GI

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### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Chloride	34600		1000	1	07/26/2019 17:38	<u>WG1317997</u>	Tc
Metals (ICP) by Meth	hod 6010B						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cp
Calcium	54400		1000	1	07/31/2019 07:40	WG1319579	

### WG1317997

Wet Chemistry by Method 9056A

### QUALITY CONTROL SUMMARY L1121785-01,03

Τс

Ss

Cn

Sr

Qc

### Method Blank (MB)

(MB) R3434901-1 07/26/19 10:55				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Chloride	273	J	51.9	1000

### L1121816-25 Original Sample (OS) • Duplicate (DUP)

(OS) L1121816-25 07/26/19 18:32 • (DUP) R3434901-5 07/26/19 18:43									
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits			
Analyte	ug/l	ug/l		%		%			
Chloride	31400	31800	1	1.45		15			

### L1121816-34 Original Sample (OS) • Duplicate (DUP)

L1121816-34 Original Sample (OS) • Duplicate (DUP)								
(OS) L1121816-34 07/27/19	11:02 • (DUP) R	3434901-8 07	7/27/19 11:1	3				
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits		<sup>8</sup> Al
Analyte	ug/l	ug/l		%		%		
Chloride	125000	125000	5	0.215		15		°Sc

### L1121816-34 Original Sample (OS) • Duplicate (DUP)

OS) L1121816-34 07/26/19 20:42 • (DUP) R3434901-6 07/26/19 20:53								
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits		
Analyte	ug/l	ug/l		%		%		
Chloride	128000	127000	1	0.599	E	15		

### Laboratory Control Sample (LCS)

(LCS) R3434901-2 07/26/19 11:06						
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	ug/l	ug/l	%	%		
Chloride	40000	39500	98.7	80.0-120		

ACCOUNT:
SCS Engineers - KS

PROJECT: 27213167.18

SDG: L1121785 DATE/TIME: 07/31/19 15:17

PAGE: 7 of 12 Wet Chemistry by Method 9056A

## QUALITY CONTROL SUMMARY

## DE. 🔰

### L1121785-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1121785-01 07/26/19 16:43 • (MS) R3434901-3 07/26/19 16:54 • (MSD) R3434901-4 07/26/19 17:05												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	34300	83000	83000	97.5	97.5	1	80.0-120			0.0253	15

### L1121816-34 Original Sample (OS) • Matrix Spike (MS)

(OS) L1121816-34 07/26/19 20:42 • (MS) R3434901-7 07/26/19 21:04									
	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier		
Analyte	ug/l	ug/l	ug/l	%		%			
Chloride	50000	128000	173000	91.2	1	80.0-120	E		

<sup>2</sup> Cp <sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Sr <sup>6</sup> Qc <sup>7</sup> Gl <sup>8</sup> Al

Sc

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.18

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### WG1319579

Metals (ICP) by Method 6010B

## QUALITY CONTROL SUMMARY

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### Method Blank (MB)

(MB) R3435978-1 07/31/19 06:58							
	MB Result	MB Qualifier	MB MDL	MB RDL			
Analyte	ug/l		ug/l	ug/l			
Calcium	U		46.3	1000			

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

(LCS) R3435978-2 07/31/19 07:00 • (LCSD) R3435978-3 07/31/19 07:02										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Calcium	10000	9840	9720	98.4	97.2	80.0-120			1.20	20

### L1121785-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1121785-01 07/31/19 07:05 • (MS) R3435978-5 07/31/19 07:10 • (MSD) R3435978-6 07/31/19 07:12												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	10000	54800	69400	69100	146	143	1	75.0-125	$\underline{\vee}$	$\underline{\vee}$	0.402	20

ACCOUNT:
SCS Engineers - KS

PROJECT: 27213167.18

SDG: L1121785 DATE/TIME: 07/31/19 15:17 PAGE: 9 of 12

### GLOSSARY OF TERMS

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### Guide to Reading and Understanding Your Laboratory Report

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

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

#### Abbreviations and Definitions

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

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

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SDG: L1121785 DATE/TIME: 07/31/19 15:17 PAGE: 10 of 12

## **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebraska
Alaska	17-026	Nevada
Arizona	AZ0612	New Hampsh
Arkansas	88-0469	New Jersey–I
California	2932	New Mexico <sup>1</sup>
Colorado	TN00003	New York
Connecticut	PH-0197	North Carolina
Florida	E87487	North Carolina
Georgia	NELAP	North Carolina
Georgia <sup>1</sup>	923	North Dakota
Idaho	TN00003	Ohio–VAP
Illinois	200008	Oklahoma
Indiana	C-TN-01	Oregon
lowa	364	Pennsylvania
Kansas	E-10277	Rhode Island
Kentucky <sup>16</sup>	90010	South Carolin
Kentucky <sup>2</sup>	16	South Dakota
Louisiana	Al30792	Tennessee <sup>14</sup>
Louisiana 1	LA180010	Texas
Maine	TN0002	Texas⁵
Maryland	324	Utah
Massachusetts	M-TN003	Vermont
Michigan	9958	Virginia
Minnesota	047-999-395	Washington
Mississippi	TN00003	West Virginia
Missouri	340	Wisconsin
Montana	CERT0086	Wyoming

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee 1 4	2006
Texas	T104704245-18-15
Texas <sup>5</sup>	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

### **Our Locations**

SCS Engineers - KS

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.



27213167.18

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			Billing Info	ormatio	n:		1			Ana	lysis / Cont	tainer / Pr	eservative		Chain of Custo	dy Page of
SCS Engineers - KS			Account	s Pava	able		Pres	N								
			8575 W.	. 110tl	h Street		Chk	V							//	
8575 W. 110th Street			Overlan	d Park	, KS 662	10			-						Nation	el Center for Testing & Innovation
Overland Park, KS 66210																
Report to: Email To					jfranks@scsengineers.com;										12065 Lebanon	
Jason Franks	jay.mar				tin@kcpl.com;										Mount Juliet, Th	37122
Project				City/	State			1	es						Phone: 800-767	5859
Description: KCP&L latan Gener	rating Station			Colle	cted:				oPr						Fax. 015-758-56	
Phone: 913-681-0030	Client Project	#		Lab P	Project #			m	N-						L# //2	1785
Fax: 913-681-0012	2/21316/.	18		AQU	JAOPKS-	IATAN		NO	DPI						A	26
Collected by (print):	Site/Facility I	) #		P.O. 1	#				H						Cole M	
Whit Martin								DPI	5m						Acctnum: A	QUAOPKS
Collected by (signature):	Rush? (	ab MUST Be	Notified)	Quo	te #			H	12						Template:T	129786
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Immediately	Next Da	y 5 Da	y (Rad Only)		Date Res	ults Needed		) 25	- 9(						TSR: 206 - Je	ff Carr
Packed on Ice N Y X	Three D	ay 100	ay (Rau Only)			Sta	No.	010	de						PB:	
Sample ID	Comp/Grah	Matrix *	Denth	T	Date	Timo	Cntrs	- 6	lori						Shipped Via	
					Date			Ca	4						Remarks	Sample # (lab only)
MW-107	Grab	GW	1	71	23/19	1420	2	X	X							
MW-107 MS/MSD	Grah	GW		71	23/19	1420	2	X	X							-2
DUPLICATE	Grah	GW		51	22/19	1420	2	x	x							
	CIAN			11.	EHI	110										
				+		+										
														a series		
		1.1.1.1														
			+									_				
			1													
* Matrix: SS - Soil AIR - Air F - Filter	Remarks:											_		COC Se	Sample Receipt	Checklist
GW - Groundwater B - Bioassay											рн	Tem	p	COC Si	igned/Accurate:	
WW - WasteWater	Samplac ratur	noduio	en de la compañía								Flow	Othe	er	Correc	es arrive intact ct bottles used:	: <u></u> N
OT - Other	UPSFe	dEx Cou	irier		Tr	acking #	791	40	2.9:	29	7-	761.		Suffic	cient volume sen If Applic	able
Relinguished by : (Signature).		Date:	Г	fime:	Re	reven by: (Sign:	ature)	10	<u>y</u> <u>O</u> .		n Blank Re	SJO	Ins No	VOA Ze	ero Headspace: cvation Correct/	Checked: V N
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Relinguished by : (Signature)		Date:	·/-/	lime:	Re	eceived by: (Sign:	ature)				$ \cup$	RC Bot	TBR	lif proco	notion required by	CU.S MR/hr
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incliniquistica by . (Signature)		Date.	1	inne.	Re	11 - Cline by	. (Signat	ure	-	Date: Time:			Hold:		NCF / OR	
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## ATTACHMENT 1-2 November 2019 Sampling Event Laboratory Report



## ANALYTICAL REPORT

November 12, 2019

### **SCS Engineers - KS**

Sample Delivery Group: Samples Received: Project Number: Description: L1157680 11/06/2019 27213167.15 KCPL - latan Gen. Station

Report To:

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

Тс Ss Cn Sr ʹQc Gl ΆI Sc

### Entire Report Reviewed By:

Jubb land

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.15

SDG: L1157680 DATE/TIME: 11/12/19 09:09 PAGE: 1 of 27

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	<sup>3</sup> Ss
	<sup>4</sup> Cn
	⁵Sr
	<sup>6</sup> Qc
[	<sup>7</sup> Gl
	<sup>8</sup> Al

Sc

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SDG: L1157680 DATE/TIME: 11/12/19 09:09

### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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MW-101 L1157680-01 GW			Collected by	Collected date/time 11/04/19 16:15	Received da 11/06/19 08:0	te/time )0
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 06:05	11/07/19 06:05	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:07	EL	Mt. Juliet, TN
MW-102 L1157680-02 GW			Collected by	Collected date/time 11/04/19 16:05	Received da 11/06/19 08:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 10:22	11/09/19 10:22	ST	Mt. Juliet. TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:10	EL	Mt. Juliet, TN
MW-103 L1157680-03 GW			Collected by	Collected date/time 11/04/19 15:25	Received da 11/06/19 08:0	te/time 00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 10:54	11/09/19 10:54	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:13	EL	Mt. Juliet, TN
MW-104 L1157680-04 GW			Collected by	Collected date/time 11/04/19 15:30	Received da 11/06/19 08:0	te/time )0
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 11:12	11/09/19 11:12	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	5	11/09/19 11:27	11/09/19 11:27	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:15	EL	Mt. Juliet, TN
MW-105 L1157680-05 GW			Collected by	Collected date/time 11/04/19 14:40	Received da 11/06/19 08:0	te/time )0
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
Cravimatric Applycic by Mathed 2E40 C 2011	W/C107C100	1	uale/time	uale/time	TU	Mt Indian Th
Gravimente Analysis by Method 2540 C-2011	WG1376129	1	11/10/19/07:05	11/10/19/09:09	IH ct	Mt Juliet, IN
Wet Chemistry by Method 9056A	WG1370013	I F	11/09/19 11:43	11/09/19 11.45	ST	Mt Juliet TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/09/19 11:59	EL	Mt. Juliet, TN
MW-107 L1157680-06 GW			Collected by	Collected date/time 11/04/19 16:20	Received da 11/06/19 08:0	te/time )0
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 12:15	11/09/19 12:15	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	5	11/09/19 20:44	11/09/19 20:44	ST	Mt. Juliet, TN

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.15

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### SAMPLE SUMMARY

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MW-108 L1157680-07 GW			Collected by	Collected date/time 11/04/19 17:15	Received da 11/06/19 08:0	te/time )0
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 13:18	11/09/19 13:18	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1376613	5	11/09/19 21:16	11/09/19 21:16	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:29	EL	Mt. Juliet, TN
MW-109 L1157680-08 GW			Collected by	Collected date/time 11/04/19 17:15	Received da 11/06/19 08:0	te/time 00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time	<b>T</b> 11	
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	IH	Mt. Juliet, T
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 13:34	11/09/19 13:34	51	Mt. Juliet, IN
Wet Chemistry by Method 9056A	WG1376613	5	11/09/19 21:32	11/09/19 21:32	SI	Mt. Juliet, If
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:31	EL	Mt. Juliet, IN
			Collected by	Collected date/time	Received da	te/time
MW-110 L1157680-09 GW				11/04/19 14:50	11/06/19 08:0	00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, Tl
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 13:50	11/09/19 13:50	ST	Mt. Juliet, TI
Wet Chemistry by Method 9056A	WG1376613	5	11/09/19 14:38	11/09/19 14:38	ST	Mt. Juliet, TI
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 17:31	EL	Mt. Juliet, TI
MW-111 L1157680-10 GW			Collected by	Collected date/time 11/04/19 15:40	Received date/time 11/06/19 08:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376129	1	11/10/19 07:05	11/10/19 09:09	TH	Mt. Juliet, T
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 14:54	11/09/19 14:54	ST	Mt. Juliet, Ti
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:34	EL	Mt. Juliet, TI
DUPLICATE L1157680-11 GW			Collected by	Collected date/time 11/04/19 14:55	Received date/time 11/06/19 08:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1376130	1	11/07/19 12:23	11/07/19 13:46	MMF	Mt. Juliet, Tl
Wet Chemistry by Method 9056A	WG1376613	1	11/09/19 15:26	11/09/19 15:26	ST	Mt. Juliet, TI
Wet Chemistry by Method 9056A	WG1376613	5	11/09/19 21:48	11/09/19 21:48	ST	Mt. Juliet, TI
Matals (ICD) by Mathad 6010P	WIC1376677	1	11/10/10 12.56	11/11/10 18.37	EI	Mt Juliot T

PROJECT: 27213167.15

SDG: L1157680 DATE/TIME: 11/12/19 09:09

### CASE NARRATIVE

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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.

Jubb land

Jeff Carr Project Manager

Τс Ss Cn Sr Qc GI AI Sc

SDG: L1157680 DATE/TIME: 11/12/19 09:09 PAGE: 5 of 27
#### SAMPLE RESULTS - 01 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	504000		10000	1	11/10/2019 09:09	WG1376129	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A       Result     Qualifier     RDL     Dilution     Analysis     Batch       Analyte     ug/l     ug/l     date / time	<sup>3</sup> Ss
Result         Qualifier         RDL         Dilution         Analysis         Batch           Analyte         ug/l         ug/l         date / time         date / time	
Analyte   ug/l   ug/l   date / time	
	<sup>4</sup> Cn
Chloride         7630         1000         1         11/07/2019 06:05         WG1375990	
Fluoride 551 100 1 11/07/2019 06:05 WG1375990	5
Sulfate ND 5000 1 11/07/2019 06:05 WG1375990	Šr

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	ND		200	1	11/11/2019 18:07	WG1376677
Calcium	130000		1000	1	11/11/2019 18:07	WG1376677

#### SAMPLE RESULTS - 02 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch		Ρ
Analyte	ug/l		ug/l		date / time		2	_
Dissolved Solids	446000		10000	1	11/10/2019 09:09	WG1376129	ŤŢ	2

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A										
	Result	Qualifier	RDL	Dilution	Analysis	Batch				
Analyte	ug/l		ug/l		date / time		4			
Chloride	5060		1000	1	11/09/2019 10:22	WG1376613				
Fluoride	254		100	1	11/09/2019 10:22	WG1376613	5			
Sulfate	ND		5000	1	11/09/2019 10:22	WG1376613	Š			

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	ND		200	1	11/11/2019 18:10	WG1376677
Calcium	126000		1000	1	11/11/2019 18:10	WG1376677

#### SAMPLE RESULTS - 03 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	455000		10000	1	11/10/2019 09:09	<u>WG1376129</u>	Tc

#### Wet Chemistry by Method 9056A

	Result	Quanner	RDE	Dilution	Andrysis	Baten			
Analyte	ug/l		ug/l		date / time		2		
Dissolved Solids	455000		10000	1	11/10/2019 09:09	<u>WG1376129</u>	Tc		
Wet Chemistry by Method 9056A									
	Result	Qualifier	RDL	Dilution	Analysis	Batch			
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn		
Chloride	4550		1000	1	11/09/2019 10:54	WG1376613	CII		
Fluoride	238		100	1	11/09/2019 10:54	WG1376613	5		
Sulfate	ND		5000	1	11/09/2019 10:54	WG1376613	Sr		

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	ND		200	1	11/11/2019 18:13	WG1376677
Calcium	130000		1000	1	11/11/2019 18:13	WG1376677

#### SAMPLE RESULTS - 04 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	418000		10000	1	11/10/2019 09:09	WG1376129	Tc

#### Wet Chemistry by Method 9056A

Collected date/time: 11/04/19 15:30

Wet Chemistry by Metho	d 9056A						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
Chloride	24200		1000	1	11/09/2019 11:12	WG1376613	CII
Fluoride	518		100	1	11/09/2019 11:12	WG1376613	5
Sulfate	130000		25000	5	11/09/2019 11:27	WG1376613	Sr

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1190		200	1	11/11/2019 18:15	WG1376677
Calcium	56500		1000	1	11/11/2019 18:15	WG1376677

#### SAMPLE RESULTS - 05 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	688000		10000	1	11/10/2019 09:09	WG1376129	T

#### Wet Chemistry by Method 9056A

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	Result	Qualifier	RDL	Dilution	Analysis	Batch	(
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	688000		10000	1	11/10/2019 09:09	WG1376129	
Wet Chemistry by	/ Method 9056A						3
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		4
Chloride	20200		1000	1	11/09/2019 11:43	WG1376613	
Fluoride	799		100	1	11/09/2019 11:43	WG1376613	5
Sulfate	299000		25000	5	11/09/2019 11:59	WG1376613	Ĩ

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1770		200	1	11/11/2019 18:18	WG1376677
Calcium	76400		1000	1	11/11/2019 18:18	WG1376677

#### SAMPLE RESULTS - 06 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

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	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	577000		10000	1	11/10/2019 09:09	WG1376129	Tc

#### Wet Chemistry by Method 9056A

	Result	Quanner	NDL	Dilution	Analysis	Bateri	
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	577000		10000	1	11/10/2019 09:09	<u>WG1376129</u>	Tc
Wet Chemistry by Metho	d 9056A						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
Chloride	31300		1000	1	11/09/2019 12:15	WG1376613	CII
Fluoride	683		100	1	11/09/2019 12:15	<u>WG1376613</u>	5

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	2100		200	1	11/11/2019 18:26	WG1376677
Calcium	57500		1000	1	11/11/2019 18:26	WG1376677

#### SAMPLE RESULTS - 07 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	760000	<u>13</u>	13300	1	11/10/2019 09:09	WG1376129	

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time		2	
Dissolved Solids	760000	<u>J3</u>	13300	1	11/10/2019 09:09	WG1376129	۲c	
Wet Chemistry by M	lethod 90564	7					<sup>3</sup> Ss	
	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cp	
Chloride	18400		1000	1	11/09/2019 13:18	WG1376613		
	10100							
Fluoride	492		100	1	11/09/2019 13:18	WG1376613	5	

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1350		200	1	11/11/2019 18:29	WG1376677
Calcium	129000		1000	1	11/11/2019 18:29	WG1376677

#### SAMPLE RESULTS - 08 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	C
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	712000		13300	1	11/10/2019 09:09	WG1376129	T

#### Wet Chemistry by Method 9056A

Result <u>Qualifier</u> RDL Dilution Analysis <u>Batch</u>	
Analyte ug/l ug/l date / time	2
Dissolved Solids         712000         13300         1         11/10/2019 09:09         WG1376129	Tc
Wet Chemistry by Method 9056A	<sup>3</sup> Ss
Result <u>Qualifier</u> RDL Dilution Analysis <u>Batch</u>	
Analyte         ug/l         ug/l         date / time	$^{4}$ Cn
Chloride 20400 1000 1 11/09/2019 13:34 WG1376613	
Fluoride 477 100 1 11/09/2019 13:34 WG1376613	5
Sulfate         253000         25000         5         11/09/2019 21:32         WG1376613	ँSr

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	709		200	1	11/11/2019 18:31	WG1376677
Calcium	123000		1000	1	11/11/2019 18:31	WG1376677

#### SAMPLE RESULTS - 09 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

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	Result	Qualifier RDL	Dilution	Analysis	Batch	
Analyte	ug/l	ug/l		date / time		2
Dissolved Solids	717000	13300	1	11/10/2019 09:09	WG1376129	

#### Wet Chemistry by Method 9056A

,							
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		ſ
Dissolved Solids	717000		13300	1	11/10/2019 09:09	WG1376129	
Wet Chemistry by	/ Method 9056A	A.					
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		
Chloride	20200		1000	1	11/09/2019 13:50	<u>WG1376613</u>	
Fluoride	471		100	1	11/09/2019 13:50	WG1376613	
Sulfate	347000		25000	5	11/09/2019 14:38	WG1376613	

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	2540		200	1	11/11/2019 17:31	WG1376677
Calcium	61400		1000	1	11/11/2019 17:31	WG1376677

#### SAMPLE RESULTS - 10 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	526000		10000	1	11/10/2019 09:09	WG1376129	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Met	hod 90564	4					<sup>3</sup> S:	s
	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time		<sup>4</sup>	'n
Chloride	7850		1000	1	11/09/2019 14:54	WG1376613		11
Fluoride	492		100	1	11/09/2019 14:54	WG1376613	5	
Sulfate	22800		5000	1	11/09/2019 14:54	WG1376613	Š۶	r

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	786		200	1	11/11/2019 18:34	WG1376677
Calcium	98800		1000	1	11/11/2019 18:34	WG1376677

#### SAMPLE RESULTS - 11 L1157680

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#### Gravimetric Analysis by Method 2540 C-2011

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	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	763000		13300	1	11/07/2019 13:46	WG1376130	Tc
Wet Chemistry by	Method 9056A						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
011 11	20100		1000	4	11/00/0010 1E 00	100000000	

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Chloride	20100		1000	1	11/09/2019 15:26	WG1376613
Fluoride	469		100	1	11/09/2019 15:26	WG1376613
Sulfate	347000		25000	5	11/09/2019 21:48	WG1376613

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	2550		200	1	11/11/2019 18:37	WG1376677
Calcium	61400		1000	1	11/11/2019 18:37	WG1376677

### WG1376129

Gravimetric Analysis by Method 2540 C-2011

#### QUALITY CONTROL SUMMARY L1157680-01,02,03,04,05,06,07,08,09,10

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#### Method Blank (MB)

(MB) R3470499-1 11/10/19	09:09			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Dissolved Solids	U		2820	10000

#### L1157680-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1157680-07 11/10/19	09:09 • (DUP) I	R3470499-3	11/10/19 09	:09		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Dissolved Solids	760000	816000	1	7.11	J3	5

#### Laboratory Control Sample (LCS)

(LCS) R3470499-2 11/10/19 09:09						
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	ug/l	ug/l	%	%		
Dissolved Solids	8800000	8310000	94.4	85.0-115		

SDG: L1157680 DATE/TIME: 11/12/19 09:09

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### WG1376130

Gravimetric Analysis by Method 2540 C-2011

## QUALITY CONTROL SUMMARY

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#### Method Blank (MB)

(MB) R3469996-1 11/07/19	9 13:46			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Dissolved Solids	U		2820	10000

#### L1157688-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1157688-03 11/07/19	9 13:46 • (DUP) F	3469996-3	11/07/19 13:	:46		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Dissolved Solids	1030000	1120000	1	8.36	J3	5

#### Laboratory Control Sample (LCS)

(LCS) R3469996-2 11/	/07/19 13:46				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8500000	96.6	85.0-115	

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## QUALITY CONTROL SUMMARY

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#### Method Blank (MB)

(MB) R3469401-1	11/06/19 21:05

( )				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Chloride	125	J	51.9	1000
Fluoride	U		9.90	100
Sulfate	209	J	77.4	5000

#### L1157549-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1157549-02 11/06/19	23:46 • (DUP)	R3469401-3 11	/06/19 23	:59		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	19700	19800	1	0.394		15
Fluoride	77.2	81.6	1	5.54	J	15
Sulfate	18400	18400	1	0 110		15

#### L1157657-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1157657-05 11/07/19 (	05:00 • (DUP) F	23469401-8 11/	/07/19 05:	13		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	3990	4000	1	0.310		15
Fluoride	431	436	1	1.20		15
Sulfate	37600	38200	1	1.67		15

#### Laboratory Control Sample (LCS)

(LCS) R3469401-2 11/06/19	21:18				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Chloride	40000	39200	98.0	80.0-120	
Fluoride	8000	7920	99.0	80.0-120	
Sulfate	40000	39400	98.4	80.0-120	

ACCOUNT:	
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PROJECT: 27213167.15

DATE/TIME: 11/12/19 09:09

## QUALITY CONTROL SUMMARY

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#### L1157549-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157549-02 11/06/19	23:46 • (MS) R	3469401-4 11/0	07/19 00:12 • (N	1SD) R3469401	-5 11/07/19 00:	:51						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	19700	69600	71600	99.7	104	1	80.0-120			2.79	15
Fluoride	5000	77.2	5150	5330	102	105	1	80.0-120			3.40	15
Sulfate	50000	18400	67800	70500	98.6	104	1	80.0-120			3.96	15

#### L1157657-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157657-04 11/07/19	04:20 • (MS) R	3469401-6 11/0	)7/19 04:33 • (N	/ISD) R346940 <sup>-</sup>	1-7 11/07/19 04:	46						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	29100	74900	77100	91.4	95.9	1	80.0-120			2.96	15
Fluoride	5000	381	5040	5320	93.1	98.9	1	80.0-120			5.59	15
Sulfate	50000	166000	184000	204000	36.6	77.2	1	80.0-120	E J6	E J6	10.5	15

DATE/TIME: 11/12/19 09:09

#### QUALITY CONTROL SUMMARY L1157680-02.03,04,05,06,07,08,09,10,11

(MB) R3470353-1 11/09	9/19 09:20			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Chloride	402	J	51.9	1000
Fluoride	U		9.90	100
Sulfate	423	J	77.4	5000

#### L1157680-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1157680-06 11/09/19 12:15 • (DUP) R3470353-3 11/09/19 13:02										
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits				
Analyte	ug/l	ug/l		%		%				
Chloride	31300	31100	1	0.597		15				
Fluoride	683	684	1	0.219		15				

#### L1157740-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157740-01 11/09/19 17:33 • (DUP) R3470353-6 11/09/19 17:49

( )	· · ·					
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	59300	59000	1	0.400		15
Fluoride	513	515	1	0.350		15
Sulfate	3750	3740	1	0.433	J	15

#### L1157680-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1157680-06 11/09/19 20:44 • (DUP) R3470353-8 11/09/19 21:00									
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits			
Analyte	ug/l	ug/l		%		%			
Sulfate	221000	219000	5	0.517		15			

## Laboratory Control Sample (LCS)

(LCS) R3470353-2 11/09/1	25) R3470353-2 11/09/19 09:36									
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier					
Analyte	ug/l	ug/l	%	%						
Chloride	40000	38400	96.0	80.0-120						
Fluoride	8000	7970	99.6	80.0-120						
Sulfate	40000	38700	96.7	80.0-120						

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
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#### QUALITY CONTROL SUMMARY L1157680-02.03,04,05,06,07,08,09,10,11

### L1157680-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157680-09 11/09/19 13:50 • (MS) R3470353-4 11/09/19 14:06 • (MSD) R3470353-5 11/09/19 14:22												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	20200	69300	69500	98.2	98.6	1	80.0-120			0.243	15
Fluoride	5000	471	5400	5520	98.7	101	1	80.0-120			2.04	15
Sulfate	50000	357000	388000	390000	63.3	65.4	1	80.0-120	EV	EV	0.272	15

#### L1157838-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1157838-02 11/09/19 19:24 • (MS) R3470353-7 11/09/19 19:40											
	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier				
Analyte	ug/l	ug/l	ug/l	%		%					
Chloride	50000	77000	124000	94.2	1	80.0-120	E				
Fluoride	5000	321	5190	97.3	1	80.0-120					
Sulfate	50000	210000	253000	84.7	1	80.0-120	E				

DATE/TIME: 11/12/19 09:09 Sc

### WG1376677

Metals (ICP) by Method 6010B

#### QUALITY CONTROL SUMMARY L1157680-01,02,03,04,05,06,07,08,09,10,11

Method Blank (MB)

(MB) R3470812-1 11/11/19 17:23								
Analyte	ug/l		ug/l	ug/l		Tc		
Boron	U		12.6	200				
Calcium	U		46.3	1000		<sup>3</sup> Ss		
						00		

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

(LCS) R3470812-2 11/11/19 17:25 • (LCSD) R3470812-3 11/11/19 17:28										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	907	906	90.7	90.6	80.0-120			0.0138	20
Calcium	10000	9520	9480	95.2	94.8	80.0-120			0.373	20

#### L1157680-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

,OS) L1157680-09 11/11/19 17:31 • (MS) R3470812-5 11/11/19 17:36 • (MSD) R3470812-6 11/11/19 17:38												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	2540	3410	3430	87.1	89.2	1	75.0-125			0.627	20
Calcium	10000	61400	70700	70600	93.5	92.1	1	75.0-125			0.195	20

<sup>1</sup>Cn

Sr

Qc

GI

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Sc

### GLOSSARY OF TERMS

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#### 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.
V	The sample concentration is too high to evaluate accurate spike recoveries.

PROJECT: 27213167.15

SDG: L1157680

## **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alahama	40660	Nobra
AldDdllld	40660	Nebids
Alaska	17-026	Nevad
Arizona	AZ0612	New H
Arkansas	88-0469	New J
California	2932	New N
Colorado	TN00003	New Y
Connecticut	PH-0197	North
Florida	E87487	North
Georgia	NELAP	North
Georgia <sup>1</sup>	923	North
ldaho	TN00003	Ohio-Y
Illinois	200008	Oklaho
Indiana	C-TN-01	Orego
lowa	364	Pennsy
Kansas	E-10277	Rhode
Kentucky <sup>16</sup>	90010	South
Kentucky <sup>2</sup>	16	South
Louisiana	AI30792	Tenne
Louisiana <sup>1</sup>	LA180010	Texas
Maine	TN0002	Texas
Maryland	324	Utah
Massachusetts	M-TN003	Vermo
Michigan	9958	Virgini
Minnesota	047-999-395	Washir
Mississippi	TN00003	West V
Missouri	340	Wiscor
Montana	CERT0086	Wvomi

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>1 4</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

#### **Our Locations**

SCS Engineers - KS

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.



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L1157680

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11/12/19 09:09

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<sup>2</sup> Tc
<sup>3</sup> Ss
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CS Engineers - KS			Accounts Payable 8575 W. 110th Street Overland Park, KS 66210													National Center for T	seting & Innovation
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MW-109		GW	1.5		1715	0 3	X		X						13		-04
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port to: son Franks		City/State			Please Circl	e: 0					Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859						
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## ATTACHMENT 1-3 January 2020 Sampling Event Laboratory Report



# ANALYTICAL REPORT

January 24, 2020

### **SCS Engineers - KS**

Sample Delivery Group: Samples Received: Project Number: Description: L1180951 01/18/2020 27213167.19 Evergy latan Generating Station

Report To:

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

Тс Ss Cn Sr ʹQc Gl AI Sc

Entire Report Reviewed By:

Jubb land

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.19

SDG: L1180951 DATE/TIME: 01/24/20 09:12 PAGE: 1 of 20

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<sup>3</sup> Ss	
<sup>4</sup> Cn	
⁵Sr	
<sup>6</sup> Qc	
<sup>7</sup> Gl	
<sup>8</sup> AI	
<sup>9</sup> Sc	

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SDG: L1180951 DATE/TIME: 01/24/20 09:12

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

\*

Ср

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Sc

MW-1 L1180951-01 GW			Collected by Jason R Franks	Collected date/time 01/15/20 14:05	Received dat 01/18/20 08:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 14:49	01/21/20 14:49	DGR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1415117	1	01/22/20 22:33	01/22/20 22:33	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:28	EL	Mt. Juliet, TN
MW-2 L1180951-02 GW			Collected by Jason R Franks	Collected date/time 01/15/20 13:30	Received dat 01/18/20 08:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 14:58	01/21/20 14:58	DGR	Mt. Juliet, TN
Net Chemistry by Method 9056A	WG1415117	1	01/22/20 23:26	01/22/20 23:26	ELN	Mt. Juliet, TN
Net Chemistry by Method 9056A	WG1415117	5	01/23/20 05:41	01/23/20 05:41	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:31	EL	Mt. Juliet, TN
MW-9 L1180951-03 GW			Collected by Jason R Franks	Collected date/time 01/15/20 14:50	Received dat 01/18/20 08:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Net Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 15:16	01/21/20 15:16	DGR	Mt. Juliet, TN
Vet Chemistry by Method 9056A	WG1415117	1	01/22/20 23:39	01/22/20 23:39	ELN	Mt. Juliet, TN
letals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:34	EL	Mt. Juliet, TN
MW-10 L1180951-04 GW			Collected by Jason R Franks	Collected date/time 01/15/20 12:50	Received dat 01/18/20 08:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Net Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 15:24	01/21/20 15:24	DGR	Mt. Juliet, TN
Vet Chemistry by Method 9056A	WG1415117	1	01/22/20 23:52	01/22/20 23:52	ELN	Mt. Juliet, TN
letals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:36	EL	Mt. Juliet, TN
MW-101 L1180951-05 GW			Collected by Jason R Franks	Collected date/time 01/16/20 11:00	Received dat 01/18/20 08:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Net Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 15:32	01/21/20 15:32	DGR	Mt. Juliet, TN
Vet Chemistry by Method 9056A	WG1415117	1	01/23/20 00:05	01/23/20 00:05	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:44	EL	Mt. Juliet, TN
MW-104 L1180951-06 GW			Collected by Jason R Franks	Collected date/time 01/16/20 11:50	Received dat 01/18/20 08:0	te/time 00
Nethod	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Net Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 15:49	01/21/20 15:49	DGR	Mt. Juliet. TN
	WC1/15117	5	01/23/20 05:54	01/23/20 05:54	ELN	Mt. Juliet. TN
Wet Chemistry by Method 9056A	WUHIJII/	Ŷ				

PROJECT: 27213167.19

SDG: L1180951 DATE/TIME: 01/24/20 09:12

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

			Collected by	Collected date/time	Received da	te/time	
MW-105 L1180951-07 GW			Jason R Franks	01/16/20 12:50	01/18/20 08:00		
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location	
			date/time	date/time			
Wet Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 15:57	01/21/20 15:57	DGR	Mt. Juliet, TN	
Wet Chemistry by Method 9056A	WG1415117	5	01/23/20 06:08	01/23/20 06:08	ELN	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:50	EL	Mt. Juliet, TN	
			Collected by	Collected date/time	Received da	te/time	
MW-107 L1180951-08 GW			Jason R Franks	01/16/20 13:45	01/18/20 08:	00	
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location	
			date/time	date/time			
Wet Chemistry by Method 2320 B-2011	WG1414276	1	01/21/20 16:05	01/21/20 16:05	DGR	Mt. Juliet, TN	
Wet Chemistry by Method 9056A	WG1415117	5	01/23/20 06:21	01/23/20 06:21	ELN	Mt. Juliet, TN	
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:52	EL	Mt. Juliet, TN	

<sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al <sup>9</sup>Sc

\*

Ср

Tc

SDG: L1180951 DATE/TIME: 01/24/20 09:12

### CASE NARRATIVE

\*

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

Jubb land

Jeff Carr Project Manager

Τс Ss Cn Sr Qc GI AI Sc

PROJECT: 27213167.19

SDG: L1180951 DATE/TIME: 01/24/20 09:12

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#### SAMPLE RESULTS - 01 L1180951

Cn

<sup>7</sup>Gl

#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	406000		20000	1	01/21/2020 14:49	WG1414276	Tc
Alkalinity,Carbonate	ND		20000	1	01/21/2020 14:49	WG1414276	
Sample Narrative:							<sup>3</sup> Ss

#### Sample Narrative:

L1180951-01 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

							E
	Result	Qualifier	RDL	Dilution	Analysis	Batch	ੌSr
Analyte	ug/l		ug/l		date / time		
Chloride	5320		1000	1	01/22/2020 22:33	WG1415117	<sup>6</sup> Oc
Sulfate	27300		5000	1	01/22/2020 22:33	WG1415117	QC

#### Metals (ICP) by Method 6010B

Result	Qualifier	RDL	Dilution	Analysis	Batch	8
ug/l		ug/l		date / time		ĬAĬ
129000		1000	1	01/23/2020 15:28	WG1414408	
26700		1000	1	01/23/2020 15:28	WG1414408	9 SC
6170		1000	1	01/23/2020 15:28	WG1414408	50
11600		1000	1	01/23/2020 15:28	WG1414408	
	Result ug/l 129000 26700 6170 11600	Result         Qualifier           ug/l         26700           26700         -           6170         -           11600         -	Qualifier         RDL           ug/l         ug/l           129000         1000           26700         1000           6170         1000           11600         1000	Qualifier         RDL         Dilution           ug/l         ug/l         1000         1           129000         1000         1         1           26700         1000         1         1           6170         1000         1         1           11600         1000         1         1	Qualifier         RDL         Dilution         Analysis           ug/l         ug/l         date / time           129000         1000         1         01/23/2020 15:28           26700         1000         1         01/23/2020 15:28           6170         1000         1         01/23/2020 15:28           11600         1000         1         01/23/2020 15:28	Qualifier         RDL         Dilution         Analysis         Batch           ug/l         ug/l         date / time         date / time           129000         1000         11         01/23/2020 15:28         WG141408           26700         1000         1         01/23/2020 15:28         WG141408           6170         1000         1         01/23/2020 15:28         WG141408           11600         1000         1         01/23/2020 15:28         WG141408

SDG: L1180951 Collected date/time: 01/15/20 13:30

## SAMPLE RESULTS - 02

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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	427000		20000	1	01/21/2020 14:58	WG1414276	Tc
Alkalinity,Carbonate	ND		20000	1	01/21/2020 14:58	WG1414276	
							<sup>3</sup> Ss

#### Sample Narrative:

L1180951-02 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

							5
	Result	Qualifier	RDL	Dilution	Analysis	Batch	ੈSr
Analyte	ug/l		ug/l		date / time		
Chloride	6840		1000	1	01/22/2020 23:26	WG1415117	<sup>6</sup> Oc
Sulfate	125000		25000	5	01/23/2020 05:41	WG1415117	GC

	Result	Qualifier	RDL	Dilution	Analysis	Batch	8
Analyte	ug/l		ug/l		date / time		٦A
Calcium	165000		1000	1	01/23/2020 15:31	WG1414408	
Magnesium	33800		1000	1	01/23/2020 15:31	WG1414408	9 SC
Potassium	5710		1000	1	01/23/2020 15:31	WG1414408	50
Sodium	12400		1000	1	01/23/2020 15:31	WG1414408	

Collected date/time: 01/15/20 14:50

## SAMPLE RESULTS - 03

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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Cp
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	350000		20000	1	01/21/2020 15:16	WG1414276	Tc
Alkalinity,Carbonate	ND		20000	1	01/21/2020 15:16	WG1414276	
							<sup>3</sup> Ss

#### Sample Narrative:

L1180951-03 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Sulfate	23400		5000	1	01/22/2020 23:39	WG1415117

	Result	Qualifier	RDL	Dilution	Analysis	Batch	G
Analyte	ug/l		ug/l		date / time		8
Calcium	104000		1000	1	01/23/2020 15:34	WG1414408	ĬAĬ
Magnesium	28400		1000	1	01/23/2020 15:34	<u>WG1414408</u>	
Potassium	4940		1000	1	01/23/2020 15:34	WG1414408	9 50
Sodium	6440		1000	1	01/23/2020 15:34	<u>WG1414408</u>	50

### Collected date/time: 01/15/20 12:50

## SAMPLE RESULTS - 04



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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	496000		20000	1	01/21/2020 15:24	WG1414276	T
Alkalinity,Carbonate	ND		20000	1	01/21/2020 15:24	WG1414276	

#### Sample Narrative:

L1180951-04 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

							5
	Result	Qualifier	RDL	Dilution	Analysis	Batch	ੈSr
Analyte	ug/l		ug/l		date / time		
Chloride	18100		1000	1	01/22/2020 23:52	WG1415117	<sup>6</sup> Oc
Sulfate	28500		5000	1	01/22/2020 23:52	WG1415117	GC

Result	Qualifier	RDL	Dilution	Analysis	Batch	
ug/l		ug/l		date / time		ĬAĬ
134000		1000	1	01/23/2020 15:36	WG1414408	
52800		1000	1	01/23/2020 15:36	<u>WG1414408</u>	9 S C
4390		1000	1	01/23/2020 15:36	<u>WG1414408</u>	50
7650		1000	1	01/23/2020 15:36	WG1414408	
	Result           ug/l           134000           52800           4390           7650	Result         Qualifier           ug/l         134000           52800         -           4390         -           7650         -	Result         Qualifier         RDL           ug/l         ug/l           134000         1000           52800         1000           4390         1000           7650         1000	Result         Qualifier         RDL         Dilution           ug/l         ug/l         134000         1000         1           52800         1000         1         1         1           4390         1000         1         1         1           7650         1000         1         1         1	Result         Qualifier         RDL         Dilution         Analysis           ug/l         ug/l         date / time           134000         1000         10/23/202015:36           52800         1000         1         01/23/202015:36           4390         1000         1         01/23/202015:36           7650         1000         1         01/23/202015:36	Result         Qualifier         RDL         Dilution         Analysis         Batch           ug/l         ug/l         date / time         date / time

Collected date/time: 01/16/20 11:00

## SAMPLE RESULTS - 05

ONE LAB. NATIONWIDE.



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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	513000		20000	1	01/21/2020 15:32	WG1414276	T
Alkalinity,Carbonate	ND		20000	1	01/21/2020 15:32	WG1414276	
							<sup>3</sup> Ss

#### Sample Narrative:

L1180951-05 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Sulfate	ND		5000	1	01/23/2020 00:05	WG1415117

	Result	Qualifier	RDL	Dilution	Analysis	Batch	G
Analyte	ug/l		ug/l		date / time		8
Calcium	131000		1000	1	01/23/2020 15:44	WG1414408	٦A
Magnesium	33900		1000	1	01/23/2020 15:44	WG1414408	
Potassium	5540		1000	1	01/23/2020 15:44	WG1414408	9 50
Sodium	36600		1000	1	01/23/2020 15:44	WG1414408	50

### Collected date/time: 01/16/20 11:50

#### SAMPLE RESULTS - 06 L1180951



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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	178000		20000	1	01/21/2020 15:49	WG1414276	Tc
Alkalinity,Carbonate	ND		20000	1	01/21/2020 15:49	WG1414276	
							<sup>3</sup> Ss

#### Sample Narrative:

L1180951-06 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 <sup>°</sup> Sr
Analyte	ug/l		ug/l		date / time		
Chloride	23500		5000	5	01/23/2020 05:54	WG1415117	<sup>6</sup> Oc
Sulfate	145000		25000	5	01/23/2020 05:54	WG1415117	QC
							7
Metals (ICP) by Method	d 6010B						GI

	Result	Qualifier	RDL	Dilution	Analysis	Batch	8
Analyte	ug/l		ug/l		date / time		٦A
Magnesium	11600		1000	1	01/23/2020 15:47	WG1414408	
Potassium	3680		1000	1	01/23/2020 15:47	WG1414408	9 50
Sodium	78000		1000	1	01/23/2020 15:47	WG1414408	

Collected date/time: 01/16/20 12:50

## SAMPLE RESULTS - 07



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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	226000		20000	1	01/21/2020 15:57	WG1414276	Tc
Alkalinity,Carbonate	ND		20000	1	01/21/2020 15:57	WG1414276	
							<sup>3</sup> Ss

#### Sample Narrative:

L1180951-07 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Sulfate	308000		25000	5	01/23/2020 06:08	WG1415117

	Result	Qualifier	RDL	Dilution	Analysis	Batch	G
Analyte	ug/l		ug/l		date / time		8
Calcium	77900		1000	1	01/23/2020 15:50	WG1414408	ĬAĬ
Magnesium	18100		1000	1	01/23/2020 15:50	WG1414408	
Potassium	4530		1000	1	01/23/2020 15:50	WG1414408	9 50
Sodium	130000		1000	1	01/23/2020 15:50	WG1414408	

Collected date/time: 01/16/20 13:45

## SAMPLE RESULTS - 08



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#### Wet Chemistry by Method 2320 B-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Alkalinity,Bicarbonate	154000		20000	1	01/21/2020 16:05	WG1414276	T
Alkalinity,Carbonate	ND		20000	1	01/21/2020 16:05	WG1414276	
							<sup>3</sup> C

#### Sample Narrative:

L1180951-08 WG1414276: Endpoint pH 4.5

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Sulfate	206000		25000	5	01/23/2020 06:21	WG1415117

	Result	Qualifier	RDL	Dilution	Analysis	Batch	G
Analyte	ug/l		ug/l		date / time		8
Calcium	38300		1000	1	01/23/2020 15:52	WG1414408	ĬAĬ
Magnesium	7690		1000	1	01/23/2020 15:52	WG1414408	
Potassium	5810		1000	1	01/23/2020 15:52	WG1414408	9
Sodium	122000		1000	1	01/23/2020 15:52	WG1414408	
### WG1414276

Wet Chemistry by Method 2320 B-2011

# QUALITY CONTROL SUMMARY

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#### Method Blank (MB)

(MB) R3492737-1 01/21/20	13:30				CP
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	ug/l		ug/l	ug/l	⁻Tc
Alkalinity,Bicarbonate	3930	J	2710	20000	
Alkalinity,Carbonate	U		2710	20000	3 25
					00

#### Sample Narrative:

BLANK: Endpoint pH 4.5

#### L1180372-01 Original Sample (OS) • Duplicate (DUP)

JS) L180372-01 01/21/20 13:52 • (DUP) R3492737-2 01/21/20 14:00												
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits						
Analyte	ug/l	ug/l		%		%						
Alkalinity,Bicarbonate	108000	108000	1	0.0384		20						
Alkalinity,Carbonate	ND	0.000	1	0.000		20						

#### Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

#### L1180951-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1180951-05 01/21/20	S) L1180951-05 01/21/20 15:32 • (DUP) R3492/3/-4 01/21/20 15:40												
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits							
Analyte	ug/l	ug/l		%		%							
Alkalinity,Bicarbonate	513000	514000	1	0.209		20							
Alkalinity,Carbonate	ND	0.000	1	0.000		20							

#### Sample Narrative:

OS: Endpoint pH 4.5 DUP: Endpoint pH 4.5

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SDG: L1180951 DATE/TIME: 01/24/20 09:12

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### WG1415117

Wet Chemistry by Method 9056A

# QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3493466-1 01/22/20	0 19:54				CP
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	ug/l		ug/l	ug/l	⁻Tc
Chloride	418	J	51.9	1000	
Sulfate	564	J	77.4	5000	<sup>3</sup> Ss
					00

#### L1180951-01 Original Sample (OS) • Duplicate (DUP)

# (OS) L1180951-01 01/22/20 22:33 • (DUP) R3493466-3 01/22/20 22:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	Limits
Analyte	ug/l	ug/l		%		%
Chloride	5320	5210	1	2.19		15
Sulfate	27300	27000	1	1.21		15

# L1181246-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1181246-01 01/23/20	JS) L1181246-01 01/23/20 04:36 • (DUP) R3493466-6 01/23/20 04:49											
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	IP RPD nits						
Analyte	ug/l	ug/l		%								
Chloride	68300	69900	1	2.38								
Sulfate	23200	23900	1	3.34								

#### Laboratory Control Sample (LCS)

(LCS) R3493466-2 01/22/	CS) R3493466-2 01/22/20 20:07											
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier							
Analyte	ug/l	ug/l	%	%								
Chloride	40000	39700	99.3	80.0-120								
Sulfate	40000	40100	100	80.0-120								

#### L1180951-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1180951-01 01/22/20 22:33 • (MS) R3493466-4 01/22/20 23:00 • (MSD) R3493466-5 01/22/20 23:13												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	5320	58300	58100	106	105	1	80.0-120			0.346	15
Sulfate	50000	27300	80300	80100	106	106	1	80.0-120			0.244	15

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
SCS Engineers - KS	27213167.19	L1180951	01/24/20 09:12	15 of 20



# <sup>°</sup>Sr <sup>°</sup>Qc <sup>7</sup>Gl

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#### QUALITY CONTROL SUMMARY <u>L1180951-01,02,03,04,05,06,07,08</u>

#### L1181246-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1181246-01 01/23/20	OS) L1181246-01 01/23/20 04:36 • (MS) R3493466-7 01/23/20 05:02												
	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier						
Analyte	ug/l	ug/l	ug/l	%		%							
Chloride	50000	68300	116000	96.3	1	80.0-120	E						
Sulfate	50000	23200	75400	105	1	80.0-120							

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### WG1414408

Metals (ICP) by Method 6010B

# QUALITY CONTROL SUMMARY

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#### Method Blank (MB)

(MB) R3493571-1 01/23/20 14:39

(1112) 100 10007111 01/20												
	MB Result	MB Qualifier	MB MDL	MB RDL	2	-						
Analyte	ug/l		ug/l	ug/l	Tc	2						
Calcium	U		46.3	1000		_						
Magnesium	45.8	J	11.1	1000	<sup>3</sup> SS	5						
Potassium	U		102	1000		<u></u>						
Sodium	U		98.5	1000	4	-						
						n						

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

(LCS) R3493571-2 01/23/20 14:41 • (LCSD) R3493571-3 01/23/20 14:44										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Calcium	10000	9550	9860	95.5	98.6	80.0-120			3.16	20
Magnesium	10000	9390	9690	93.9	96.9	80.0-120			3.12	20
Potassium	10000	9100	9340	91.0	93.4	80.0-120			2.67	20
Sodium	10000	9610	9930	96.1	99.3	80.0-120			3.24	20

#### L1180954-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

OS) L1180954-07 01/23/20 14:47 • (MS) R3493571-5 01/23/20 14:52 • (MSD) R3493571-6 01/23/20 14:54												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	10000	55400	64000	64000	85.4	86.3	1	75.0-125			0.145	20
Magnesium	10000	11500	20800	20800	92.4	92.7	1	75.0-125			0.141	20
Potassium	10000	3680	13100	13000	94.0	93.0	1	75.0-125			0.821	20
Sodium	10000	78000	85800	85800	77.9	78.3	1	75.0-125			0.0424	20

SDG: L1180951

### GLOSSARY OF TERMS

# \*

Ср

Тс

Ss

Cn

Sr

Qc

GI

AI

Sc

#### 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).

The identification of the analyte is acceptable; the reported value is an estimate.

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PROJECT: 27213167.19

SDG: L1180951 DATE/TIME: 01/24/20 09:12

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# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebr
Alaska	17-026	Neva
Arizona	AZ0612	New
Arkansas	88-0469	New
California	2932	New
Colorado	TN00003	New
Connecticut	PH-0197	North
Florida	E87487	North
Georgia	NELAP	North
Georgia <sup>1</sup>	923	North
ldaho	TN00003	Ohio
Illinois	200008	Okla
Indiana	C-TN-01	Oreg
lowa	364	Penn
Kansas	E-10277	Rhod
Kentucky <sup>16</sup>	90010	Sout
Kentucky <sup>2</sup>	16	Sout
Louisiana	AI30792	Tenn
Louisiana <sup>1</sup>	LA180010	Texa
Maine	TN0002	Теха
Maryland	324	Utah
Massachusetts	M-TN003	Verm
Michigan	9958	Virgi
Minnesota	047-999-395	Wash
Mississippi	TN00003	West
Missouri	340	Wisc
Montana	CERT0086	Wvor

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas <sup>5</sup>	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

#### **Our Locations**

SCS Engineers - KS

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.



27213167.19

L1180951

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01/24/20 09:12



	$\sigma = \delta \sigma = - \sigma \sigma \sigma = - \frac{1}{2} \sigma^2$		Billing Info	Billing Information:					A	Analysis / Container / Preservative				T	Chain of Custody	Page _/ of /	
CS Engineers - KS 575 W. 110th Street overland Park, KS 66210		Account 8575 W. Overland	Accounts Payable 8575 W. 110th Street Overland Park, KS 66210				22								Analytical <sup>®</sup> Inter for Tealing & Innovali		
eport to: ason Franks		1	Email To: j	franks@scsenginee @kcpl.com;	ers.com;			NO3			oPres				12065 Lebanon Rd Mount Juliet, TN 37 Phone: 615-758-585	122 8 <b>1</b>	
roject	erating Statio	City/State Collected:	616	STAIM	Please Circl	e: ET	es	H	NO		E-N				Fax: 615-758-5859		
hone: 913-681-0030 ax: 913-681-0012	Client Project 27213167.1	# 19	<u> </u>	Lab Project # AQUAOPKS-I	ATAN		PE-NoP1	DHIMD	HDPE-H	NoPres	SmiHDF				sdg # L1	180951	
ollected by (print):	Site/Facility ID # P.O			P.O. #	A Mercia A A Mercia		IdHlm	10 25(	50ml	HDPE-	56 12				Acc	MUFINS	
ollected by (signature):	Same Day Five Day			Quote #	in the second		A 125	a - 60	5010 2	125ml	le - 90				Template: <b>T15</b> Prelogin: <b>P75</b>	2879 0293	
nmediately acked on Ice N Y	Y Next Day 5 Day (Rad Only Two Day 10 Day (Rad On Three Day		y (Rad Only) ay (Rad Only)	ad Only) Date Results Needed (Rad Only)			, ALKC	Mg, N	Na -	9056	chloric				PM: 206 - Jeff ( PB:	PM: 206 - Jeff Carr PB:	
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	VLKBI	Ca, K,	(, Mg	- 40	504, (				Shipped Via: Remarks	Sample # (lab only)	
//W-1	GRACS	GW	-	1/15/202	6 1405	3	X	X		WI.	X					-01	
/₩-2		GW	-	111	1330	3	X	X			X					02	
лW-9		GW	-		1450	3	X	X		X						03	
/W-10		GW	-		1250	3	X	X			X					04	
NW-101		GW	-	1/16/2020	1100	3	X	X		x						05	
NW-104		GW	-		1150	3	X		X		X					06	
VIW-105		GW	-		1250	3	X	x		х						07	
MW-107		GW	1		1345	3	X	X		X						08	
					-778 - 1864												
Matrix: S - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water GT Other	Samples retur	ned via:	<		acking #					pH Flov	v	Temp Other _		COC Sea COC Sig Bottles Correct Suffici	Sample Receipt C 1 Present/Intact ned/Accurate; arrive intact; bottles used; ent volume sent; If Applicat		
Relinquished by (Signature)	_UPS _Fe	Date:		Time: Re 1521	ceived by: (Signa	ture	en	E.		Trip Bla	nk Rece	ived: Yes HC	NO / MeoH	VOA Zer Preserv RAD Scr	o Headspace: ation Correct/Ch een <0.5 mR/hr:	ecked: $X$	
Relinquished by : (Signature)		Date:	ING	Time: Re	ceived by: (Signa	ture)	-14			Temp:	2:2	C Bottles	Received:	If preserv	ration required by Lo	gin: Date/Time	
Relinquished by : (Signature)		Date:		Time: Re	reived for lab by:	(Signa	ture)			Date:	8-	Time:	84	Hold:		Condition: NCF / OK	



# ANALYTICAL REPORT

January 24, 2020

### **SCS Engineers - KS**

Sample Delivery Group: Samples Received: Project Number: Description: L1180954 01/18/2020 27213167.19 Evergy latan Generating Station

Report To:

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

Entire Report Reviewed By:

Vubb law

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.19

SDG: L1180954

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<sup>2</sup> Tc	
<sup>3</sup> Ss	
<sup>4</sup> Cn	
<sup>5</sup> Sr	
<sup>6</sup> Qc	
<sup>7</sup> Gl	
<sup>8</sup> AI	
<sup>9</sup> Sc	

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Tc: Table of Contents	2
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SDG: L1180954

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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			Collected by Jason R Franks	Collected date/time 01/15/20 14:05	Received date/time 01/18/20 08:00		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Wet Chemistry by Method 9056A	WG1414370	1	01/22/20 21:27	01/22/20 21:27	ELN	Mt. Juliet, TN	
MW-2 L1180954-02 GW			Collected by Jason R Franks	Collected date/time 01/15/20 13:30	Received da 01/18/20 08:	te/time 00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Wet Chemistry by Method 9056A	WG1414370	1	01/22/20 21:43	01/22/20 21:43	ELN	Mt. Juliet, TN	
MW-9 L1180954-03 GW			Collected by Jason R Franks	Collected date/time 01/15/20 14:50	Received da 01/18/20 08:	te/time 00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Wet Chemistry by Method 9056A	WG1414370	1	01/22/20 21:59	01/22/20 21:59	ELN	Mt. Juliet, TN	
DUPLICATE 1 L1180954-04 GW			Collected by Jason R Franks	Collected date/time 01/15/20 14:50	Received da 01/18/20 08:	te/time 00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Wet Chemistry by Method 9056A	WG1414370	1	01/22/20 23:38	01/22/20 23:38	ELN	Mt. Juliet, TN	
MW-10 L1180954-05 GW			Collected by Jason R Franks	Collected date/time 01/15/20 12:50	Received date/time 01/18/20 08:00		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Wet Chemistry by Method 9056A	WG1414370	1	01/22/20 23:54	01/22/20 23:54	ELN	Mt. Juliet, TN	
MW-101 L1180954-06 GW			Collected by Jason R Franks	Collected date/time 01/16/20 11:00	Received da 01/18/20 08:	te/time 00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Wet Chemistry by Method 9056A	WG1414370	1	01/23/20 00:11	01/23/20 00:11	ELN	Mt. Juliet, TN	
MW-104 L1180954-07 GW			Collected by Jason R Franks	Collected date/time 01/15/20 11:50	Received da 01/18/20 08:	te/time 00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 14:47	EL	Mt. Juliet, TN	
DUPLICATE 2 L1180954-08 GW			Collected by Jason R Franks	Collected date/time 01/15/20 11:50	Received da 01/18/20 08:	te/time 00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Metals (ICP) by Method 6010B	WG1414408	1	01/22/20 09:57	01/23/20 15:55	EL	Mt. Juliet, TN	

PROJECT: 27213167.19

SDG: L1180954

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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			Collected by	Collected date/time	Received date/time	
MW-105 L1180954-09 GW			Jason R Franks	01/16/20 12:50	01/18/20 08:0	C
Method	Batch	Dilution	Preparation Analysis		Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1414370	1	01/23/20 00:27	01/23/20 00:27	ELN	Mt. Juliet, TN
			Collected by	Collected date/time	Received date	/time
MW-107 L1180954-10 GW			Jason R Franks	01/16/20 13:45	01/18/20 08:0	0
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1414370	1	01/23/20 00:44	01/23/20 00:44	ELN	Mt. Juliet, TN

SDG: L1180954

### CASE NARRATIVE

\*

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

Jubb land

Jeff Carr Project Manager

Τс Ss Cn Sr Qc GI AI Sc

SDG: L1180954

#### SAMPLE RESULTS - 01 L1180954

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	, ,						 1 Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		 2
Fluoride	326		100	1	01/22/2020 21:27	WG1414370	Tc



#### SAMPLE RESULTS - 02 L1180954

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	, ,							1 Cn
		Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte		ug/l		ug/l		date / time		2
Fluoride		374		100	1	01/22/2020 21:43	WG1414370	⁻Tc

# Collected date/time: 01/15/20 14:50

#### SAMPLE RESULTS - 03 L1180954



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	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Chloride	ND		1000	1	01/22/2020 21:59	WG1414370
Fluoride	445		100	1	01/22/2020 21:59	WG1414370

<sup>3</sup> Ss
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<sup>7</sup> Gl
<sup>®</sup> Al
<sup>9</sup> Sc

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#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		
Chloride	ND		1000	1	01/22/2020 23:38	WG1414370	
Fluoride	438		100	1	01/22/2020 23:38	WG1414370	

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
°Sc

SDG: L1180954

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Ср

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	Result	Qualifier RDL	Dilution	Analysis	Batch	
Analyte	ug/l	ug/l		date / time		2
Fluoride	637	100	1	01/22/2020 23:54	<u>WG1414370</u>	

<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

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Ср

<sup>2</sup>Tc

#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Chloride	6380		1000	1	01/23/2020 00:11	WG1414370
Fluoride	380		100	1	01/23/2020 00:11	WG1414370

<sup>3</sup> Ss
⁴Cn
⁵Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
⁰Sc

SDG: L1180954

# Collected date/time: 01/15/20 11:50

#### SAMPLE RESULTS - 07 L1180954



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#### Metals (ICP) by Method 6010B

							1 Cm
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Calcium	55400		1000	1	01/23/2020 14:47	WG1414408	Tc





Τс

#### Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Calcium	55900		1000	1	01/23/2020 15:55	WG1414408	-

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
_
<sup>8</sup> Al
°Sc

#### SAMPLE RESULTS - 09 L1180954

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							1 Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Chloride	20400		1000	1	01/23/2020 00:27	WG1414370	Tc

ACCOUNT:
SCS Engineers - KS

\*

#### Wet Chemistry by Method 9056A

Wet chemistry by Method 5050A							
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Chloride	34300		1000	1	01/23/2020 00:44	WG1414370	⁻Tc

<sup>3</sup> Ss	
<sup>4</sup> Cn	
⁵Sr	
<sup>6</sup> Qc	
<sup>7</sup> Gl	
<sup>8</sup> Al	
<sup>9</sup> Sc	

SDG: L1180954 DATE/TIME: 01/24/20 09:20

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### WG1414370

Wet Chemistry by Method 9056A

#### QUALITY CONTROL SUMMARY <u>L1180954-01,02,03,04,05,06,09,10</u>

(MB) R3493292-1 01/22/20	3) R3493292-1 01/22/20 10:15							
	MB Result	MB Qualifier	MB MDL	MB RDL	2			
Analyte	ug/l		ug/l	ug/l	Tc			
Chloride	U		51.9	1000				
Fluoride	U		9.90	100	<sup>3</sup> Ss			
					00			

#### L1180954-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1180954-03 01/22/2	20 21:59 • (DUP	) R3493292-5	01/22/20	) 22:16		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	ND	821	1	2.33	J	15
Fluoride	445	437	1	1.79		15

### Laboratory Control Sample (LCS)

(LCS) R3493292-2 01/22/20 10:31										
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier					
Analyte	ug/l	ug/l	%	%						
Chloride	40000	39100	97.7	80.0-120						
Fluoride	8000	7950	99.4	80.0-120						

#### L1180954-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

OS) L1180954-03 01/22/20 21:59 • (MS) R3493292-6 01/22/20 22:32 • (MSD) R3493292-7 01/22/20 22:49												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	ND	46900	47200	92.2	92.7	1	80.0-120			0.588	15
Fluoride	5000	445	5030	5080	91.7	92.7	1	80.0-120			0.989	15

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### WG1414408

Metals (ICP) by Method 6010B

# QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3493571-1 01/23/20 14:39						
	MB Result	MB Qualifier	MB MDL	MB RDL		
Analyte	ug/l		ug/l	ug/l		
Calcium	U		46.3	1000		

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

(LCS) R3493571-2 01/23/20 14:41 • (LCSD) R3493571-3 01/23/20 14:44										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Calcium	10000	9550	9860	95.5	98.6	80.0-120			3.16	20

#### L1180954-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1180954-07 01/23/20 14:47 • (MS) R3493571-5 01/23/20 14:52 • (MSD) R3493571-6 01/23/20 14:54												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	10000	55400	64000	64000	85.4	86.3	1	75.0-125			0.145	20

SDG: L1180954 DATE/TIME: 01/24/20 09:20

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### GLOSSARY OF TERMS

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#### 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
J	The identification of the analyte is acceptable; the reported value is an estimate.

PROJECT: 27213167.19

SDG: L1180954 DATE/TIME: 01/24/20 09:20

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# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebra
Alaska	17-026	Nevad
Arizona	AZ0612	New H
Arkansas	88-0469	New J
California	2932	New
Colorado	TN00003	New
Connecticut	PH-0197	North
Florida	E87487	North
Georgia	NELAP	North
Georgia <sup>1</sup>	923	North
ldaho	TN00003	Ohio-
Illinois	200008	Oklah
Indiana	C-TN-01	Orego
lowa	364	Penns
Kansas	E-10277	Rhode
Kentucky <sup>16</sup>	90010	South
Kentucky <sup>2</sup>	16	South
Louisiana	AI30792	Tenne
Louisiana <sup>1</sup>	LA180010	Texas
Maine	TN0002	Texas
Maryland	324	Utah
Massachusetts	M-TN003	Vermo
Michigan	9958	Virgin
Minnesota	047-999-395	Washi
Mississippi	TN00003	West
Missouri	340	Wisco
Montana	CERT0086	Wyom

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>1 4</sup>	2006
Texas	T104704245-18-15
Texas⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

#### **Our Locations**

SCS Engineers - KS

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.



27213167.19

L1180954

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01/24/20 09:20

			Billing Information:							Analysis	Container	Preservative		Chain of Custody Page of		
SCS Engineers - KS 8575 W. 110th Street Overland Park, KS 66210		Accounts Payable 8575 W. 110th Street Overland Park, KS 66210			Pres Chk	22							- Pace, Nettone Co	Analytical <sup>®</sup> Inter for Teeting & Innovelio		
Report to:			Email To: j	jfranks@scsengine	ers.com;									12065 Lebanon Rd		
Project		Citu/State	Law alfara	i@kcpi.com;	I Durat	dialar.			res					Mount Juliet, TN 37 Phone: 615-758-585	122 8	
Description: Evergy latan Gene	rating Stati	Collected:	MES	TON, MC	Please Circ PT MT CT	ET			NoF					Phone: 800-767-585 Fax: 615-758-5859		
Phone: <b>913-681-0030</b> Fax: <b>913-681-0012</b>	Client Proje 2721316	ect # 7.19	Lab Project # AQUĂOPKS-IATAN P.O. #				33	Pres	HDPE-I	res				SDG # LI	80954	
Collected by (print):	Site/Facility	y ID #					E-HNC	E-NoP		E-Nop				M16	<b>5</b>	
Collected by (signature):	Rush? (Lab MUST Be Notified) Same Day Five Day Next Day5 Day (Rad Only)			Quote #	lts Needed		OHIHDE	25mlHD	luoride	SmiHDP				Template: <b>T130</b> Prelogin: <b>P750</b>	5056 )295	
Immediately Packed on Ice N Y	Two Three	Day 10 Da e Day	y (Rad Only)			No.	n 25	le 1.	le, F	le 12				PB:	arr	
Sample ID	Comp/Gra	b Matrix *	Depth	Date	Time	Cntrs	alciur	hlorit	hloric	uorid				Shipped Via:	Sample # (lab only)	
MW-1	GRA	GW	-7	1/15/2020	1405	1	0	0	0	X						
MW-2	T	GW	-	1111	1320	1				x			4		101	
MŴ-9		GW	-		1450	1			x						00	
DUPLICATE 1		GW	-		1450	1			x						01	
MW-9 MS/MSD		GW	-		14.50	1			x						-09	
WW-10	1 /	GW	-	1	1250	1				x				-DE	-01	
MW-101		GW	-	1/10/202	1100	1			x					-07	67	
WW-104	1	GW	-	1.1.2.2	1150	1	x							-07	-00	
DUPLICATE 2		GW	(		1150	1	x							-08	-09-	
MW-104 MS/MSD	V	GW	/		IISD	1	x								-17	
Matrix: S - Soil AIR - Air F - Filter W - Groundwater B - Bioassay WW - Waste Water W - Drinking Water	Remarks:									pH Flow	Ti	emp	COC Seal COC Seal COC Sign Bottles Correct Sufficie	ample Receipt Ch Present/Intact; ed/Accurate; arrive intact; bottles used; nt volume sent;	edklist NP Y N Y N Y N	
Relinquished by : (Signature)		FedExCour Date:/ 4/16		ime: Rec	cking # reived by: (Signat	H.	M	1		Trip Blan	k Received:	Yes / No HCL / MeoH	VOA Zero Preserva RAD Scre	If Applicabl Headspace: tion Correct/Che en <0.5 mR/hr:	$\frac{e}{cked} : \frac{Y}{Z} \frac{N}{N}$	
elinguished by : (Signature)		Date:	TI	ime: Ree	eived by: (Signat	ure)	-1/		1	remp:	°C =	tottles Received:	If preserva	tion required by Logi	n: Date/Time	
elinquished by : (Signature)		Date:	Ti	ime: Rec	eived for lab by:	(Signatu	ire) )		I	Date:	- 70	ime:	Hold:		Condition:	

SCS Engineers - KS 8575 W. 110th Street Overland Park, KS 66210 Billing in Accour 8575 V Overla			Billing Info	rmation:	ation:				A	nalvsis / (	Containe	r / Preservative	e		Chain of Custody	Page of		
			Account 8575 W. Overland	ccounts Payable 575 W. 110th Street verland Park, KS 66210 nail To: jfranks@scsengineers.com; y.martin@kcpl.com;											Netional Center for Facting & Innovation			
leport to: Email To: ason Franks Jay.martin		Email To: j jay.martin						res						12065 Lebanon Rd Mount Juliet, TN 3712 Phone: 615-758-5858				
Project Description: Evergy latan Gener	ating Statio	City/State Collected:	MAS	TON M	Please Cir PT MT C	cle: ET		2	NoPr						Phone: 800-767-5859 Fax: 615-758-5859			
hone: 913-681-0030 ax: 913-681-0012	Client Project 27213167.1	# 19		Lab Project # AQUAOPKS-I/	ATAN		03	Pres	HDPE-	Pres					SDG # L	180954		
ollected by (print): ASONI K.FRAM	rint): % FRANK			P.O. #	1997 P	art.	DPE-HN	OPE-No	e 125m	DPE-No					Acctnum: AQU	r# hum: AQUAOPKS		
Collected by (signature): Same Day Five D Next Day 5 Day		Notified) Quote #				SOMIHE	25mlHl	Fluoride	25mIHI					Prelogin: <b>P750295</b> PM: 206 - Jeff Carr				
mmediately Packed on Ice N Y	Two Day	10 D	ay (Rad Only)			No. of	um 2	ide 1	ide, I	ide 1					PB:			
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	Calcin	Chlor	Chlor	Fluor					Remarks	Sample # (lab only)		
WW-105	GRAB	GW	-	1/16/2020	1250	1		X							-09			
ИW-107		GW	-	1 ×	1345	1		X							-10	-12		
									-		-			_	_			
			+			2		-							, Hel			
						1		-										
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de la talencia de la compañía de la						1												
	14			and the second				-										
	1.00							-										
* Matrix: Remarks: SS-Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater								а 		рН Тетр Flow Other				Sample Receipt Checklist COC Seal Present/Intact: MP Y N COC Signed/Accurate: M N Bottles arrive intact: M N Correct bottles used: A N				
DW - Drinking Water DT - Other A	Samples retur UPSFe	ned via: dEx Cou	urier <u>5</u>	WA Tra	acking.#								Si V(	ufficien DA Zero	t volume sent: <u>If Applicabl</u> Headspace; tion Correct/Che			
Relinguished by : (Signature)	h	Date:	20	1521 Re	ceived by: (Sign	A	ul	l		Trip Blan	k Receive	ed: Yes/No HCL/Me TBR	R/R/	AD Scree	en <0.5 mR/hr:	2		
telinquisted by ; (6ignature)		Date:	1	Time: Ref	ceived by: (Sign	láturě)				Temp: 1. 7+0.	2 = 2/	Bottles Repei	d: If	preserval	tion required by log	in: Date/Time		
Relinquished by : (Signature)		Date:		Tíme: Re	ceived for lab b	y: (Signa	ture	~		Date:	7-0	Time:	b H	old:		Condition: NCF / OK		

# ATTACHMENT 1-4 February 2020 Sampling Event Laboratory Report



# ANALYTICAL REPORT

### **SCS Engineers - KS**

Sample Delivery Group: Samples Received: Project Number: Description: L1186248 02/05/2020 27213167.19 Evergy latan Generating Station

Report To:

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

Тс Ss Cn Sr ʹQc Gl AI Sc

#### Entire Report Reviewed By:

Jubb land

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.19

SDG: L1186248 DATE/TIME: 02/10/20 08:38

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	<sup>2</sup> Tc	
	<sup>3</sup> Ss	
	<sup>4</sup> Cn	
	<sup>5</sup> Sr	
	<sup>6</sup> Qc	
	<sup>7</sup> Gl	
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SDG: L1186248

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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			Collected by	Collected date/time	Received da	te/time
MW-1 L1186248-01 GW			Jason R. Franks	02/04/20 10:00	02/05/20 08	8:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 05:48	02/06/20 05:48	ELN	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DUPLICATE1 L1186248-02 GW			Jason R. Franks	02/04/20 10:00	02/05/20 08	8:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 06:31	02/06/20 06:31	FLN	Mt. Juliet. TN
		·	02/00/20 00.51	02/00/20 00:51	2211	int. Suilet, In
			Collected by	Collected date/time	Received da	te/time
MW-104 L1186248-03 GW			Jason R. Franks	02/04/20 10:05	02/05/20 08	8:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Metals (ICP) by Method 6010B	WG1423537	1	02/06/20 17:16	02/07/20 11:39	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DUPLICATE 2 L1186248-04 GW			Jason R. Franks	02/04/20 10:05	02/05/20 08	8:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Metals (ICP) by Method 6010B	WG1423537	1	02/06/20 17:16	02/07/20 11:54	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-105 L1186248-05 GW			Jason R. Franks	02/04/20 10:40	02/05/20 08	3:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 06:46	02/06/20 06:46	ELN	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-107 L1186248-06 GW			Jason R. Franks	02/04/20 11:05	02/05/20 08	3:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 07:00	02/06/20 07:00	ELN	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DUPLICATE 3 L1186248-07 GW			Jason R. Franks	02/04/20 11:05	02/05/20 08	8:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 9056A	WG1423103	1	02/06/20 08:12	02/06/20 08:12	ELN	Mt. Juliet, TN

PROJECT: 27213167.19

SDG: L1186248 DATE/TIME: 02/10/20 08:38

### CASE NARRATIVE

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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.

Jubb land

Jeff Carr Project Manager

Τс Ss Cn Sr Qc GI AI Sc

PROJECT: 27213167.19

SDG: L1186248 DATE/TIME: 02/10/20 08:38

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#### Wet Chemistry by Method 9056A

	,					Ľ
	Result Q	ualifier RDL	Dilution	Analysis	Batch	l
Analyte	ug/l	ug/l		date / time		6
Fluoride	329	100	1	02/06/2020 05:48	WG1423103	



SDG: L1186248

#### SAMPLE RESULTS - 02 L1186248

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#### Wet Chemistry by Method 9056A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Fluoride	331		100	1	02/06/2020 06:31	WG1423103	Tc



SDG: L1186248

# Collected date/time: 02/04/20 10:05

# SAMPLE RESULTS - 03



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#### Metals (ICP) by Method 6010B

							Ľ
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		5
Calcium	51300	$\underline{\vee}$	1000	1	02/07/2020 11:39	WG1423537	


## SAMPLE RESULTS - 04



· · · · ·							1°Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Calcium	50800		1000	1	02/07/2020 11:54	WG1423537	Tc

<sup>³</sup> Ss
<sup>4</sup> Cn
⁵Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
°Sc

#### SAMPLE RESULTS - 05 L1186248

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#### Wet Chemistry by Method 9056A

	, ,						1 Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Chloride	20900		1000	1	02/06/2020 06:46	WG1423103	Tc

ACCOUNT:
SCS Engineers - KS

#### SAMPLE RESULTS - 06 L1186248

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#### Wet Chemistry by Method 9056A

	, ,							 1'Cn
		Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte		ug/l		ug/l		date / time		2
Chloride		27500		1000	1	02/06/2020 07:00	WG1423103	⁻Tc

<sup>3</sup> Ss
<sup>4</sup> Cn
-
⁵Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
°Sc

SDG: L1186248

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## SAMPLE RESULTS - 07

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#### Wet Chemistry by Method 9056A

							'Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Chloride	27400		1000	1	02/06/2020 08:12	WG1423103	Tc

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Sr
-
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.19

SDG: L1186248

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DATE/TIME: 02/10/20 08:38 PAGE: 11 of 18

#### WG1423103

Wet Chemistry by Method 9056A

#### QUALITY CONTROL SUMMARY L1186248-01,02,05,06,07

Method Blank					$^{1}$ Cn
(MB) R3497541-1 (	02/05/20 22:50				Ср
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	ug/l		ug/l	ug/l	Tc
Chloride	U		51.9	1000	
Fluoride	U		9.90	100	<sup>3</sup> SS

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

(OS) L1186180-01 02/05/20	0 23:34 • (DUP)	) R3497541-3 (	02/05/20	23:48		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Chloride	11400	11300	1	0.369		15
Fluoride	744	745	1	0.188		15

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

(OS) L1186330-01 02/06/20	0 09:24 • (DUP	P) R349/541-18	02/06/20	0 09:39					
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits			
Analyte	ug/l	ug/l		%		%			
Chloride	11400	11400	1	0.176		15			
Fluoride	845	852	1	0.837		15			

#### Laboratory Control Sample (LCS)

(LCS) R3497541-2 02/05/	20 23:05				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Chloride	40000	39700	99.3	80.0-120	
Fluoride	8000	8070	101	80.0-120	

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

(OS) L1186188-01 02/06/20	0 00:02 • (MS) F	R3497541-4 02	2/06/20 00:17 •	(MSD) R34975	541-5 02/06/20	0 00:31						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	6360	51200	51300	89.6	89.9	1	80.0-120			0.334	15
Fluoride	5000	323	4730	4780	88.1	89.1	1	80.0-120			0.981	15

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
SCS Engineers - KS	27213167.19	L1186248	02/10/20 08:38	12 of 18



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Wet Chemistry by Method 9056A

#### QUALITY CONTROL SUMMARY L1186248-01,02,05,06,07

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1 1106100 02 Original	Sample (OS).	Matrix Spike (	MCL Matrix Spika	Duplicato (MSD
LING 100-05 Original	Sample (US) •	IVIALITY SPIKE (I	vis) • Iviatilik spike	Duplicate (IVISD

(OS) L1186188-03 02/06/2	0 01:00 • (MS)	R3497541-6 0	2/06/20 01:14 •	(MSD) R34975	541-7 02/06/20	0 01:58						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	20300	65700	66100	90.7	91.5	1	80.0-120			0.595	15
Fluoride	5000	337	4800	4890	89.2	91.0	1	80.0-120			1.82	15

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

(OS) L1186193-01 02/06/20	0 02:26 • (MS) F	R3497541-8 02	2/06/20 02:41 •	(MSD) R34975	541-9 02/06/20	0 02:55						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	59800	103000	104000	86.4	88.5	1	80.0-120	E	E	1.02	15
Fluoride	5000	209	4350	4470	82.8	85.3	1	80.0-120			2.83	15

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

(OS) L1186202-01 02/06/2	20 03:24 • (MS)	R3497541-10 (	02/06/20 03:3	8 • (MSD) R349	7541-11 02/06	/20 03:53						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	227000	261000	261000	68.4	68.6	1	80.0-120	EV	EV	0.0293	15
Fluoride	5000	1050	5500	5530	89.0	89.6	1	80.0-120			0.493	15

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

(OS) L1186202-03 02/06/2	20 04:51 • (MS)	R3497541-12 (	02/06/20 05:05	5 • (MSD) R349	7541-13 02/06	/20 05:19						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	25300	71900	72400	93.3	94.2	1	80.0-120			0.642	15
Fluoride	5000	130	4630	4690	90.1	91.2	1	80.0-120			1.17	15

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

(OS) L1186248-01 02/06/20	0 05:48 • (MS) I	R3497541-14 C	2/06/20 06:03	8 • (MSD) R349	7541-15 02/06	/20 06:17						
	Spike Amount	<b>Original Result</b>	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	5610	51800	52200	92.4	93.3	1	80.0-120			0.805	15
Fluoride	5000	329	4880	4940	90.9	92.1	1	80.0-120			1.24	15

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
SCS Engineers - KS	27213167.19	L1186248	02/10/20 08:38

Wet Chemistry by Method 9056A

#### QUALITY CONTROL SUMMARY L1186248-01,02,05,06,07

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

(OS) L1186248-06 02/06/2	20 07:00 • (MS)	R3497541-16	02/06/20 07:4	3 • (MSD) R349	97541-17 02/06	6/20 07:58						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	27500	72500	72700	89.9	90.5	1	80.0-120			0.373	15
Fluoride	5000	792	5410	5420	92.3	92.6	1	80.0-120			0.272	15

SDG: L1186248

DATE/TIME: 02/10/20 08:38

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#### WG1423537

Metals (ICP) by Method 6010B

## QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3497928-1 02/07	/20 11:34			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Calcium	U		46.3	1000

#### Laboratory Control Sample (LCS)

(LCS) R3497928-2 02/07	/20 11:36				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Colcium	10000	0.010	001	00 0 120	

#### L1186248-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1186248-03 02/07/2	20 11:39 • (MS) F	R3497928-4 0	2/07/20 11:44 •	(MSD) R34979	28-5 02/07/20	0 11:46						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	10000	51300	57900	57800	65.5	64.5	1	75.0-125	V	V	0.171	20

ACCOUNT:
SCS Engineers - KS

SDG: L1186248 DATE/TIME: 02/10/20 08:38 Sc

Тс

#### GLOSSARY OF TERMS

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#### 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

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

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

PROJECT: 27213167.19

SDG: L1186248 DATE/TIME: 02/10/20 08:38 PAGE: 16 of 18

## **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebras
Alaska	17-026	Nevad
Arizona	AZ0612	New H
Arkansas	88-0469	New J
California	2932	New M
Colorado	TN00003	New Y
Connecticut	PH-0197	North
Florida	E87487	North
Georgia	NELAP	North
Georgia <sup>1</sup>	923	North
ldaho	TN00003	Ohio-Y
Illinois	200008	Oklaho
Indiana	C-TN-01	Orego
lowa	364	Penns
Kansas	E-10277	Rhode
Kentucky <sup>16</sup>	90010	South
Kentucky <sup>2</sup>	16	South
Louisiana	AI30792	Tenne
Louisiana <sup>1</sup>	LA180010	Texas
Maine	TN0002	Texas
Maryland	324	Utah
Massachusetts	M-TN003	Vermo
Michigan	9958	Virgini
Minnesota	047-999-395	Washir
Mississippi	TN00003	West V
Missouri	340	Wiscor
Montana	CERT0086	Wyomi

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico 1	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

#### **Our Locations**

SCS Engineers - KS

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.



27213167.19

L1186248

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				Billing Inf	ormatio	on:		3			A	nalysis / Co	ntainer	/ Preserva	tive		Chain of Ci	ustody	Page of
SCS Engineers - KS 3575 W. 110th Street Overland Park, KS 66210				Accoun 8575 W Overlai	ts Pay 7. 110 nd Par	able - th Street k, KS 6621	0	Pres Chk	22								- /	ace /	Analytical <sup>®</sup> Iter for Testing & Innovetion
Report to: I <b>ason Franks</b>				Email To: jay.mart	jfranks n@kcp	@scsenginee l.com;	ers.com;										12065 Lebar Mount Julie Phone: 615-	non Rd t, TN 371 -758-585	
Project	ting Sta	tio C	ty/State ollected:	WEC	1NA	IMD	Please Circ PT MT CT	e: ET									Fax: 615-75	8-5859	
Phone: 913-681-0030 Fax: 913-681-0012	Client Pr 27213	oject # 167.19		y.e.	Lab AC	Project # UAOPKS-I	ATAN		103	Pres	oPres						SDG # Table #	11	186248
JASON K. FRANKS	Site/Fac	ility ID #			P.0	.#			DPE-HI	DPE-N	DPE-N						Acctnum	Acctnum: AQUAOPKS	
collected by (signature):	Rus	<b>h?</b> (Lab ame Day ext Day wo Day hree Day	MUST Be Five I 5 Day 10 Da	Notified) Day (Rad Only) y (Rad Only	Qu )	ote # Date Resu	lts Needed	No.	m 250mlHI	de 125mlH	de 125mlH						Prelogin: PM: 206 PB:	P753 - Jeff C	3038 arr
Sample ID	Comp/	Grab	Matrix *	Depth		Date	Time	Cntrs	Calciu	Chlori	Fluori					-	Rema	VIa: arks	Sample # (lab only)
MW-1	GA	B	GW		0:	2/4/20	1000	1			X				-				-01
MW-1 MS/MSD	I		GW				1000	1			X								01
DUPLICATE 1			GW				10005	1			X							2	62
MW-104	Π		GW				1005	1	X										03
WW-104 MS/MSD			GW			Card In	1005	1	X								1000		07
DUPLICATE 2		1-1	GW				1005	1	X			10							04
MW-105	*		GW				1040	1		X							2 - 62 	- 978 	05
MW-107			GW				1105	1		X							all in the		06
MW-107 MS/MSD		Contract of the	GW			1	1105	1		X									06
DUPLICATE 3			GW			V	1105	1		X									01
<sup>r</sup> Matrix: SS – Soil AIR – Air F – Filter GW – Groundwater B – Bioassay WW – WasteWater DW – Drinking Water	Remar	(S:			~ ^							pH _ Flow _		Temp Other		COC Sea COC Sig Bottles Correct Suffici	<pre>Sample Rece l Present/I ned/Accurat arrive int bottles us ent volume</pre>	ntact act: act: sent:	
OT - Other Relinquished by : (Signature)	Sample UPS	Fed	ExCou Date: $d2/_2$	1/20	Time:	TI 35	acking# eceived by:{Signa	ature)				Trip Blank	Receive	d: Yes/ HCL	No) / MeoH	VQA Zer Preserv RAD Scr	<u>II App</u> o Headspace ation Corre een <0.5 mR	olicab ect/Ch l/hr:	$\frac{12}{2}$ ecked: $\begin{array}{c} Y \\ Y \\ Y \\ Y \\ Y \\ Y \\ N \end{array}$
Relinguished by : (Signature)	~		Date: 2/4/	20	Time	Ri 15D	eceived by: (Signa	ature)				Temp: N	AS°C	Bottles R	eceived:	If preserv	ation required	d by Lo	gin: Date/Time
Relinquished by : (Signature)			Date:	Cr	Time	R	ceived for lab by	r: (Signa	iture)			Date:	-2	Time:	100	Hold:			Condition: NCF / OK

## ATTACHMENT 1-5 May 2020 Sampling Event Laboratory Report



## ANALYTICAL REPORT

#### SCS Engineers - KS

Sample Delivery Group: Samples Received: Project Number: Description: L1221445 05/22/2020 27213167.15 Evergy - latan Gen. Station

Report To:

Jason Franks 8575 W. 110th Street Overland Park, KS 66210 <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al <sup>9</sup>Sc

Entire Report Reviewed By:

Jubb law

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.15

SDG: L1221445 DATE/TIME: 05/31/20 19:17 PAGE: 1 of 25

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*	
<sup>1</sup> Cp	
<sup>2</sup> Tc	
<sup>3</sup> Ss	
<sup>4</sup> Cn	
⁵Sr	
<sup>6</sup> Qc	
<sup>7</sup> Gl	
<sup>8</sup> Al	

Sc

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#### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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MW-101 L1221445-01 GW			Collected by Jason R. Franks	Collected date/time 05/20/20 13:50	Received da 05/22/20 09	te/time 0:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 06:05	05/27/20 06:05	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:39	TRB	Mt. Juliet, TN
MW-102   1221445-02 GW			Collected by Jason R. Franks	Collected date/time 05/20/20 14:25	Received da 05/22/20 09	te/time ):00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AFC	Mt Juliet TN
Wet Chemistry by Method 90564	WG1482430	1	05/27/20 06:20	05/27/20 06:20	FLN	Mt Juliet TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:42	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-103 L1221445-03 GW			Jason R. Franks	05/20/20 15:15	05/22/20 09	0:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 06:35	05/27/20 06:35	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:44	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	e Received date/time	
MW-104 L1221445-04 GW			Jason R. Franks	05/20/20 16:30	05/22/20 09	0:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Net Chemistry by Method 9056A	WG1482430	1	05/27/20 06:50	05/27/20 06:50	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	5	05/27/20 11:33	05/27/20 11:33	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:47	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-105 L1221445-05 GW			Jason R. Franks	05/20/20 15:15	05/22/20 09	:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Net Chemistry by Method 9056A	WG1482430	1	05/27/20 07:19	05/27/20 07:19	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	5	05/27/20 07:34	05/27/20 07:34	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:50	TRB	Mt. Juliet, TN
MW-107 L1221445-06 GW			Collected by Jason R. Franks	Collected date/time 05/20/20 16:25	Received da 05/22/20 09	te/time ):00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 08:19	05/27/20 08:19	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	5	05/27/20 12:03	05/27/20 12:03	ELN	Mt. Juliet, TN
				05/00/00 44 50		

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#### SAMPLE SUMMARY

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MW-108   1221445-07 GW			Collected by Jason R. Franks	Collected date/time 05/20/20 12:15	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 08:34	05/27/20 08:34	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	10	05/27/20 12:18	05/27/20 12:18	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:55	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-109 L1221445-08 GW			Jason R. Franks	05/20/20 13:00	05/22/20 09	:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 08:49	05/27/20 08:49	ELN	Mt. Juliet. TN
Wet Chemistry by Method 9056A	WG1482430	5	05/27/20 09:04	05/27/20 09:04	ELN	Mt. Juliet. TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:58	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-110 L1221445-09 GW			Jason R. Franks	05/20/20 14:20	05/22/20 09	:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 09:19	05/27/20 09:19	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	5	05/27/20 12:33	05/27/20 12:33	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 11:11	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-111 L1221445-10 GW			Jason R. Franks	05/20/20 15:35	05/22/20 09	:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482633	1	05/27/20 18:45	05/27/20 22:58	AEC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 10:04	05/27/20 10:04	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 12:00	TRB	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DUPLICATE L1221445-11 GW			Jason R. Franks	05/20/20 14:20	05/22/20 09	:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1482636	1	05/27/20 18:24	05/27/20 23:25	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	1	05/27/20 10:34	05/27/20 10:34	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1482430	5	05/27/20 11:18	05/27/20 11:18	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481517	1	05/27/20 23:36	05/29/20 12:08	TRB	Mt. Juliet, TN

PROJECT: 27213167.15

SDG: L1221445 DATE/TIME: 05/31/20 19:17

#### CASE NARRATIVE

\*

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

Jubb land

Jeff Carr Project Manager

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SDG: L1221445 DATE/TIME: 05/31/20 19:17 PAGE:

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#### SAMPLE RESULTS - 01 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

-							
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	546000		10000	1	05/27/2020 22:58	WG1482633	ŤΤ

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A									
Result Qualifier RDL Dilution Analysis Batch									
Analyte	ug/l		ug/l		date / time		]	<sup>4</sup> Cn	
Chloride	5890		1000	1	05/27/2020 06:05	WG1482430		CII	
Fluoride	350		150	1	05/27/2020 06:05	WG1482430		5	
Sulfate	ND		5000	1	05/27/2020 06:05	WG1482430		ँSr	

#### Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	ND		200	1	05/29/2020 11:39	WG1481517
Calcium	130000		1000	1	05/29/2020 11:39	WG1481517

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#### SAMPLE RESULTS - 02 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

							I'Cr
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	487000		10000	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A									
Result <u>Qualifier</u> RDL Dilution Analysis <u>Batch</u>									
Analyte	ug/l		ug/l		date / time			<sup>4</sup> Cn	
Chloride	5370		1000	1	05/27/2020 06:20	WG1482430			
Fluoride	267		150	1	05/27/2020 06:20	WG1482430		5	
Sulfate	ND		5000	1	05/27/2020 06:20	WG1482430		Sr	

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	ND		200	1	05/29/2020 11:42	WG1481517
Calcium	125000		1000	1	05/29/2020 11:42	WG1481517

#### SAMPLE RESULTS - 03 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	482000		10000	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A								
	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time			$^{4}$ Cn
Chloride	4640		1000	1	05/27/2020 06:35	WG1482430		CII
Fluoride	243		150	1	05/27/2020 06:35	WG1482430	I	5
Sulfate	ND		5000	1	05/27/2020 06:35	WG1482430		ဳSr

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	ND		200	1	05/29/2020 11:44	WG1481517
Calcium	128000		1000	1	05/29/2020 11:44	WG1481517

#### SAMPLE RESULTS - 04 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	460000		10000	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A									
	Result	Qualifier	RDL	Dilution	Analysis	Batch			
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn		
Chloride	24100		1000	1	05/27/2020 06:50	WG1482430	CII		
Fluoride	539		150	1	05/27/2020 06:50	WG1482430	5		
Sulfate	139000		25000	5	05/27/2020 11:33	WG1482430	Sr		

#### Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1190		200	1	05/29/2020 11:47	WG1481517
Calcium	55500		1000	1	05/29/2020 11:47	WG1481517

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#### SAMPLE RESULTS - 05 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	795000		13300	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A									
	Result	Qualifier	RDL	Dilution	Analysis	Batch			
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cp		
Chloride	16400		1000	1	05/27/2020 07:19	<u>WG1482430</u>	CIT		
Fluoride	707		150	1	05/27/2020 07:19	<u>WG1482430</u>	5		
Sulfate	302000		25000	5	05/27/2020 07:34	WG1482430	۲ Sr		

#### Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1660		200	1	05/29/2020 11:50	WG1481517
Calcium	74100		1000	1	05/29/2020 11:50	WG1481517

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#### SAMPLE RESULTS - 06 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	475000		10000	1	05/27/2020 22:58	WG1482633	⁻Tc

#### Wet Chemistry by Method 9056A

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Wet Chemistry by Method 9056A								
	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cr	$\neg$
Chloride	17000		1000	1	05/27/2020 08:19	WG1482430		'
Fluoride	533		150	1	05/27/2020 08:19	WG1482430	5	
Sulfate	174000		25000	5	05/27/2020 12:03	WG1482430	Sr	

#### Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	876		200	1	05/29/2020 11:52	WG1481517
Calcium	40300		1000	1	05/29/2020 11:52	WG1481517

SDG: L1221445

#### SAMPLE RESULTS - 07 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

	Posult	Qualifior	וחס	Dilution	Analysis	Batch	 Ср
Analyte	uq/l	Quaimer	ug/l	Dilution	date / time	Batch	
Dissolved Solids	813000		13300	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A								
	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn	
Chloride	20800		1000	1	05/27/2020 08:34	WG1482430	CII	
Fluoride	509		150	1	05/27/2020 08:34	WG1482430	5	
Sulfate	359000		50000	10	05/27/2020 12:18	WG1482430	Sr	

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1600		200	1	05/29/2020 11:55	WG1481517
Calcium	117000		1000	1	05/29/2020 11:55	WG1481517

#### SAMPLE RESULTS - 08 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

	· · · ·						1 Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	691000		13300	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Method 9056A								
	Result	Qualifier	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn	
Chloride	25600		1000	1	05/27/2020 08:49	WG1482430	CII	
Fluoride	525		150	1	05/27/2020 08:49	WG1482430	5	
Sulfate	296000		25000	5	05/27/2020 09:04	WG1482430	Sr	

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	1350		200	1	05/29/2020 11:58	WG1481517
Calcium	92200		1000	1	05/29/2020 11:58	WG1481517

#### SAMPLE RESULTS - 09 L1221445

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#### Gravimetric Analysis by Method 2540 C-2011

							l'Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	684000		13300	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Metho	od 9056A						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn
Chloride	29400		1000	1	05/27/2020 09:19	WG1482430	CII
Fluoride	583		150	1	05/27/2020 09:19	WG1482430	5
Sulfate	207000		25000	5	05/27/2020 12:33	WG1482430	Sr

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	3960		200	1	05/29/2020 11:11	WG1481517
Calcium	43300		1000	1	05/29/2020 11:11	WG1481517

#### SAMPLE RESULTS - 10 L1221445



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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	564000		10000	1	05/27/2020 22:58	WG1482633	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry b	y Method 90564	4					<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn
Chloride	9260		1000	1	05/27/2020 10:04	WG1482430	
Fluoride	517		150	1	05/27/2020 10:04	WG1482430	5
Sulfate	29000		5000	1	05/27/2020 10:04	WG1482430	<sup>°</sup> Sr

#### Metals (ICP) by Method 6010B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	827		200	1	05/29/2020 12:00	WG1481517
Calcium	93300		1000	1	05/29/2020 12:00	WG1481517



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#### SAMPLE RESULTS - 11 L1221445



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#### Gravimetric Analysis by Method 2540 C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Dissolved Solids	685000		13300	1	05/27/2020 23:25	WG1482636	Tc

#### Wet Chemistry by Method 9056A

Wet Chemistry by Metho	od 9056A						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn
Chloride	29300		1000	1	05/27/2020 10:34	WG1482430	
Fluoride	579		150	1	05/27/2020 10:34	WG1482430	5
Sulfate	201000		25000	5	05/27/2020 11:18	WG1482430	Sr

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l		date / time	
Boron	3980		200	1	05/29/2020 12:08	WG1481517
Calcium	42700		1000	1	05/29/2020 12:08	WG1481517

#### WG1482633

Gravimetric Analysis by Method 2540 C-2011

#### QUALITY CONTROL SUMMARY L1221445-01,02,03,04,05,06,07,08,09,10

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#### Method Blank (MB)

(MB) R3533239-1	05/27/20 22:58			
	00,2,,20 22.00			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Dissolved Solids	3000	J	2820	10000

#### L1221445-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1221445-10 05/27/2	20 22:58 • (DUP	) R3533239-3	3 05/27/20	22:58		
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Dissolved Solids	564000	568000	1	0.707		5

#### Laboratory Control Sample (LCS)

(LCS) R3533239-2 05/27/20 22:58					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8800000	100	85.0-115	

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#### WG1482636

Gravimetric Analysis by Method 2540 C-2011

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#### Method Blank (MB)

(MB) R3533284-1 05/27/20 23:25							
	MB Result	MB Qualifier	MB MDL	MB RDL			
Analyte	ug/l		ug/l	ug/l			
Dissolved Solids	U		2820	10000			

#### Laboratory Control Sample (LCS)

(LCS) R3533284-2 05/27	CS) R3533284-2 05/27/20 23:25									
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier					
Analyte	ug/l	ug/l	%	%						
Dissolved Solids	8800000	8620000	98.0	85.0-115						

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Wet Chemistry by Method 9056A

#### QUALITY CONTROL SUMMARY L1221445-01,02,03,04,05,06,07,08,09,10,11

(MB) R3532165-1 (	05/26/20 22:11			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

#### L1221322-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1221322-01 05/27/2	0 02:51 • (DUP)	R3532165-3	05/27/20	03:06				
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits		
Analyte	ug/l	ug/l		%		%		
Chloride	19800	19700	1	0.150		15		
Fluoride	506	508	1	0.335		15		
Sulfate	10300	10300	1	0.116		15		

#### L1221445-04 Original Sample (OS) • Duplicate (DUP)

SS) L1221445-04 05/27/20 06:50 • (DUP) R3532165-5 05/27/20 07:05											
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits					
Analyte	ug/l	ug/l		%		%					
Chloride	24100	24100	1	0.0328		15					
Fluoride	539	548	1	1.53		15					

#### L1221445-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1221445-04 05/27/2	DS) L1221445-04 05/27/20 11:33 • (DUP) R3532165-8 05/27/20 11:48										
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits					
Analyte	ug/l	ug/l		%		%					
Sulfate	139000	139000	5	0.299		15					

## Laboratory Control Sample (LCS)

(LCS) R3532165-2 05/26/	20 22:26				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Chloride	40000	39600	98.9	80.0-120	
Fluoride	8000	8260	103	80.0-120	
Sulfate	40000	38700	96.7	80.0-120	

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#### QUALITY CONTROL SUMMARY L1221445-01,02,03,04,05,06,07,08,09,10,11

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#### L1221322-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1221322-01 05/27/20 02:51 • (MS) R3532165-4 05/27/20 03:20											
	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier				
Analyte	ug/l	ug/l	ug/l	%		%					
Chloride	50000	19800	72600	106	1	80.0-120					
Fluoride	5000	506	5580	102	1	80.0-120					
Sulfate	50000	10300	62000	103	1	80.0-120					

#### L1221445-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221445-09 05/27/20 09:19 • (MS) R3532165-6 05/27/20 09:34 • (MSD) R3532165-7 05/27/20 09:49												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	29400	76900	77400	94.9	96.0	1	80.0-120			0.676	15
Fluoride	5000	583	5250	5320	93.4	94.8	1	80.0-120			1.33	15

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Metals (ICP) by Method 6010B

#### QUALITY CONTROL SUMMARY L1221445-01,02,03,04,05,06,07,08,09,10,11

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#### Method Blank (MB)

(MB) R3533271-1 05/29/2	D 11:06				CP
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	ug/l		ug/l	ug/l	Tc
Boron	U		25.4	200	
Calcium	U		389	1000	<sup>3</sup> Ss
					00

#### Laboratory Control Sample (LCS)

(LCS) R3533271-2 05/29/	/20 11:09				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Boron	1000	956	95.6	80.0-120	
Calcium	10000	9590	95.9	80.0-120	

#### L1221445-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221445-09 05/29/2	0 11:11 • (MS) R3	3533271-4 05/2	29/20 11:16 • (M	ISD) R3533271-	-5 05/29/20 11	:19						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	3960	4820	4860	86.4	90.4	1	75.0-125			0.829	20
Calcium	10000	43300	51300	51600	79.8	83.4	1	75.0-125			0.688	20

#### L1221447-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221447-04 05/29/20	0 11:21 • (MS) R	3533271-6 05/	′29/20 11:24 • (ľ	MSD) R353327	1-7 05/29/201	1:26						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	ND	1050	1070	95.2	97.0	1	75.0-125			1.71	20
Calcium	10000	140000	148000	149000	83.1	89.5	1	75.0-125			0.430	20

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#### GLOSSARY OF TERMS

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#### 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
J	The identification of the analyte is acceptable; the reported value is an estimate.

PROJECT: 27213167.15

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## **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebraska
Alaska	17-026	Nevada
Arizona	AZ0612	New Hampshire
Arkansas	88-0469	New Jersey–NELA
California	2932	New Mexico <sup>1</sup>
Colorado	TN00003	New York
Connecticut	PH-0197	North Carolina
Florida	E87487	North Carolina <sup>1</sup>
Georgia	NELAP	North Carolina <sup>3</sup>
Georgia <sup>1</sup>	923	North Dakota
Idaho	TN00003	Ohio-VAP
Illinois	200008	Oklahoma
Indiana	C-TN-01	Oregon
lowa	364	Pennsylvania
Kansas	E-10277	Rhode Island
Kentucky <sup>16</sup>	90010	South Carolina
Kentucky <sup>2</sup>	16	South Dakota
Louisiana	Al30792	Tennessee <sup>14</sup>
Louisiana 1	LA180010	Texas
Maine	TN0002	Texas ⁵
Maryland	324	Utah
Massachusetts	M-TN003	Vermont
Michigan	9958	Virginia
Minnesota	047-999-395	Washington
Mississippi	TN00003	West Virginia
Missouri	340	Wisconsin
Montana	CERT0086	Wyoming

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
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		

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

#### **Our Locations**

SCS Engineers - KS

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.



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L1221445

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	Marine Laborator		Billing Inform	mation:	1		-		A	nalvsis / Co	ntainer /	Preservative		Chain d	of Custody	Page of	
CS Engineers - KS 575 W. 110th Street Overland Park, KS 66210			Accounts Payable 8575 W. 110th Street Overland Park, KS 66210					LL							Pace Al Netional Cante	nalytical <sup>®</sup> r for Testing 8 linnoved	
sport to: Ison Franks			Email To: jfranks@scs	sengineers.com;j	vergy.c	Pres							12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5856				
roject Description:	1235-A	City/State Collected:	MESSON	MO	Please C	ircle: CT)ET	No-	Y.47						Phone: Fax: 61	800-767-5859 5-758-5859	自然新	
hone: 913-681-0030	Client Proj 2721316	ect # 57.15	Lab Project # AQUAOPKS-IATAN				MIHDPE	E-HNO3						sDG # 1221445 G009			
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IW-102	1	GW	-	1	1425	3	X	X	X							02	
W-103		GW	-		1515	3	X	x	x							03	
IW-104		GW	-		1630	3	X	X	X	19-19-14						dy	
IW-105		GW	17		1515	3	X	X	X							05	
IW-107	And the	GW	-	tent -	1625	3	X	x	X						an ann an the	06	
NW-108		GW	-		1215	з	X	X	X							07	
AW-109	1 Jaca	GW	-	1	1300	3	X	X	X					and a star	A Land	08	
viw-110	1 de	GW	-	1.	1420	3	X	X	X					Carl Carl	247.7	al	
MW-111	¥	GW	- Train	V	1535	3	X	X	X					2.4		10	
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - OtherSamples returned via: UPSFedExCourie								pH Temp Flow Other			COC Se COC Si Bottle Correc	Sample Receipt Checklist COC Seal Present/Intact:YY COC Signed/Accurate:YY Bottles arrive intact:YY Correct bottles used:YY					
			Track								VOA Ze	VOA Zero Headspace:					
Relinguished by : (Signature)		Date: 5/21/2	p la	800 Rece	len he	eson	15-	21-2	0	Trip Blank I	Received:	HCL / MeoH TBR	RAD Sc	reen <0.5 r	R/hr:	Zr_1	
Refinquished by : (Signature)		Date:	Time	e: Rece	ived by: (Signa	ature)				Temp:	ozu.	Bottles Received	lf prese	rvation requir	ed by Login	: Date/Time	
Relinquished by : (Signature)		Date:	Time	e: Rece	ived for lab by	1: (Signa	ture)			Date:	11-	Time: Q-(1)	Hold:			Condition: NCF / ØK	
	and the state of the		Billing Infor	mation:					A	Analysis / Container / Preservative						Chain of Custody	Page of
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SCS Engineers - KS 3575 W. 110th Street Overland Park, KS 66210	CS Engineers - KS 75 W. 110th Street rerland Park, KS 66210			Accounts Payable 8575 W. 110th Street Overland Park, KS 66210				n								Pace/ Nettonal Ca	Analytical * nter for Testing & Innovatio
Report to: Jason Franks			Email To: jfranks@scsengineers.com;jay.martin@ev			vergy.c	oPres									12065 Lebanon Rd Mount Juliet, TN 37 Phone: 615-758-585 Phone: 800-767-585	
Project Description: KCPL - latan Gen. Station	I Client Design	Collected:	VESTON	V. M	PT MT	CT) ET	PE-N	)3								Fax: 615-758-5859	
Phone: 913-681-0030	27213167.	213167.15 AQUAOPKS-IATAN				OHIU	NH		1						12	21993	
Collected by (print):	Site/Facility I	) #		P.O. #			4 125r	HDPE	oPres							Acctnum: AQL	JAOPKS
Collected by (signature): Caron R. James Law Imme diately Packed on Ice N Y	Rush? (I Same D Next Da Two Da Three D	ab MUST Be ay Five I y 5 Day y 10 Da ay	Notified) Day r (Rad Only) ay (Rad Only)	Quote #	sults Needed	No,	s - Cld, F, SO	- 6010 250ml	SOMIHDPE-N							Template: <b>T12</b> Prelogin: <b>P76</b> PM: 206 - Jeff C PB:	3513 9 <b>366</b> Sarr
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	Inion	S, Ca	DS 2	na <sub>d</sub> a ang		and and a				Shipped Via: Remarks	Sample # (lab only)
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* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater	Remarks:						en de la			pH Flow	<u>118</u> 1972 - 1	_ Temp _ Other		COC Se COC Si Bottle Correc	Sample al Pre igned/A es arri ct bott	e Receipt Ch sent/Intact: ccurate: ve intact: les used:	ecklist Y _N Y _N Y _N Y _N
DW - Drinking Water Samples returned via: UPSFedExCour		l via: Courier		Tr	acking.#									Suffic VOA Ze	ero Hea rvation	olume sent: <u>If Applicabl</u> dspace: Correct/Che	
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Relinquished by : (Signature)	D	ate:	Time	E Re	eceived by: (Signa	ature)	F Nakisi			Temp!	bay.	Detties	6	Inprese	i vation i	required by log	in, Date/Time
Relinquished by : (Signature)	D	ate:	Time	e: Ri	eceived for lab by	r: (Signa	ture)			Date:	2H	Time:	εW	Hold:			Condition: NCF / OK

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# ANALYTICAL REPORT

## SCS Engineers - KS

Sample Delivery Group: Samples Received: Project Number: Description: L1221405 05/22/2020 27213167.20 Evergy - latan Gen. Stat - Ash Wells

Report To:

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

Entire Report Reviewed By:

Jubb land

Jeff Carr Project Manager

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

ACCOUNT: SCS Engineers - KS PROJECT: 27213167.20

SDG: L1221405

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SDG: L1221405

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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MW-101 L1221405-01 GW			Collected by	Collected date/time 05/20/20 13:50	Received dat 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:34	ТСТ	Mt. Juliet, Ti
Metals (ICP) by Method 6010B	WG1481515	1	05/28/20 12:50	05/28/20 19:22	EL	Mt. Juliet, T
Aetals (ICPMS) by Method 6020	WG1481527	1	05/27/20 23:04	05/29/20 17:25	JPD	Mt. Juliet, TI
MW-102 L1221405-02 GW			Collected by	Collected date/time 05/20/20 14:25	Received dat 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:40	TCT	Mt. Juliet, TI
Metals (ICP) by Method 6010B	WG1481515	1	05/28/20 12:50	05/28/20 19:49	EL	Mt. Juliet, TI
Metals (ICPMS) by Method 6020	WG1481527	1	05/27/20 23:04	05/29/20 17:28	JPD	Mt. Juliet, Tl
MW-103 L1221405-03 GW			Collected by	Collected date/time 05/20/20 15:15	Received dat 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:42	ТСТ	Mt. Juliet, T
Metals (ICP) by Method 6010B	WG1481515	1	05/28/20 12:50	05/28/20 19:52	EL	Mt. Juliet, T
Aetals (ICPMS) by Method 6020	WG1481527	1	05/27/20 23:04	05/29/20 17:31	JPD	Mt. Juliet, TI
MW-104 L1221405-04 GW			Collected by	Collected date/time 05/20/20 16:30	Received dat 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:44	ТСТ	Mt. Juliet, TI
Metals (ICP) by Method 6010B	WG1481515	1	05/28/20 12:50	05/28/20 19:54	EL	Mt. Juliet, TI
Metals (ICPMS) by Method 6020	WG1481527	1	05/27/20 23:04	05/29/20 17:34	JPD	Mt. Juliet, T
MW-105 L1221405-05 GW			Collected by	Collected date/time 05/20/20 15:15	Received dat 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:46	TCT	Mt. Juliet, T
Metals (ICP) by Method 6010B	WG1481515	1	05/28/20 12:50	05/28/20 19:57	EL	Mt. Juliet, T
Metals (ICPMS) by Method 6020	WG1481527	1	05/27/20 23:04	05/29/20 17:38	JPD	Mt. Juliet, T
MW-107 11221405-06 GW			Collected by	Collected date/time 05/20/20 16:25	Received dat 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation	Analysis	Analyst	location
	Baten	Shation	date/time	date/time	, and you	Location
Vercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:48	TCT	Mt. Juliet, T
Metals (ICP) by Method 6010B	WG1481515	1	05/28/20 12:50	05/28/20 20:00	EL	Mt. Juliet, T
		4	05/07/00 00 01	05/00/00 47 44	100	MA Julian T

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SDG: L1221405

## SAMPLE SUMMARY

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MW-108 L1221405-07 GW			Collected by	Collected date/time 05/20/20 13:15	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time	2	
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:50	ТСТ	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1481516	1	05/27/20 23:07	05/28/20 20:05	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/28/20 19:59	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/29/20 09:15	JPD	Mt. Juliet, TN
MW-109 L1221405-08 GW			Collected by	Collected date/time 05/20/20 13:00	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Aercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:52	TCT	Mt. Juliet, TN
Netals (ICP) by Method 6010B	WG1481516	1	05/27/20 23:07	05/28/20 20:13	EL	Mt. Juliet, TN
Aetals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/28/20 20:02	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/29/20 09:19	JPD	Mt. Juliet, TN
WW-110 L1221405-09 GW			Collected by	Collected date/time 05/20/20 14:20	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Vercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 20:59	TCT	Mt. Juliet, TN
Netals (ICP) by Method 6010B	WG1481516	1	05/27/20 23:07	05/28/20 19:47	EL	Mt. Juliet, TN
letals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/28/20 16:19	LD	Mt. Juliet, TN
WW-111 L1221405-10 GW			Collected by	Collected date/time 05/20/20 15:35	Received da 05/22/20 09	te/time :00
Nethod	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
lercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:54	TCT	Mt. Juliet, TN
letals (ICP) by Method 6010B	WG1481516	1	05/27/20 23:07	05/28/20 20:15	EL	Mt. Juliet, TN
Netals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/28/20 20:05	JPD	Mt. Juliet, TN
Ietals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/29/20 09:22	JPD	Mt. Juliet, TN
DUPLICATE L1221405-11 GW			Collected by	Collected date/time 05/20/20 14:20	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
fercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:56	TCT	Mt. Juliet, TN
Aretals (ICP) by Method 6010B	WG1481516	1	05/27/20 23:07	05/28/20 20:18	EL	Mt. Juliet, TN
Ietals (ICPMS) by Method 6020	WG1481528	1	05/28/20 07:49	05/28/20 20:09	JPD	Mt. Juliet. TN
Actala (ICDMS) by Mathad 6020	WC1491529	1	05/29/20 07:40	05/20/20 00:26	IPD	Mt Juliot TN

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### CASE NARRATIVE

\*

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

Jubb land

Jeff Carr Project Manager

Τс Ss Cn Sr Qc GI AI Sc

PROJECT: 27213167.20

SDG: L1221405 DATE/TIME: 05/31/20 15:04

ME: 5:04 PAGE: 5 of 26

#### SAMPLE RESULTS - 01 L1221405

#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	C
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:34	WG1481091	Tc

#### Metals (ICP) by Method 6010B

Metals (ICP) by N	lethod 6010B						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn
Barium	639		5.00	1	05/28/2020 19:22	WG1481515	
Chromium	ND		10.0	1	05/28/2020 19:22	WG1481515	5
Cobalt	ND		10.0	1	05/28/2020 19:22	WG1481515	<sup>°</sup> Sr
Lithium	36.2	B	15.0	1	05/28/2020 19:22	WG1481515	
Molybdenum	ND		5.00	1	05/28/2020 19:22	<u>WG1481515</u>	<sup>6</sup> Qc

	JU 0020						
	Result	Qualifier	RDL	Dilution	Analysis	Batch	- G
Analyte	ug/l		ug/l		date / time		8
Antimony	ND		4.00	1	05/29/2020 17:25	WG1481527	- IA
Arsenic	ND		2.00	1	05/29/2020 17:25	WG1481527	
Beryllium	ND		2.00	1	05/29/2020 17:25	WG1481527	<sup>9</sup> Sc
Cadmium	ND		1.00	1	05/29/2020 17:25	WG1481527	50
Lead	ND		5.00	1	05/29/2020 17:25	WG1481527	
Selenium	ND		2.00	1	05/29/2020 17:25	WG1481527	
Thallium	ND		2.00	1	05/29/2020 17:25	WG1481527	

# Collected date/time: 05/20/20 14:25

#### SAMPLE RESULTS - 02 L1221405



#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:40	<u>WG1481091</u>	Tc

#### Metals (ICP) by Method 6010B

Metals (ICP) by Met	thod 6010B						:	<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	[	
Analyte	ug/l		ug/l		date / time		7	$^{4}$ Cn
Barium	602		5.00	1	05/28/2020 19:49	WG1481515		CII
Chromium	ND		10.0	1	05/28/2020 19:49	WG1481515		5
Cobalt	ND		10.0	1	05/28/2020 19:49	WG1481515		ँSr
Lithium	36.3	B	15.0	1	05/28/2020 19:49	WG1481515		
Molybdenum	ND		5.00	1	05/28/2020 19:49	WG1481515	(	6 0 0

	Result	Qualifier	RDL	Dilution	Analysis	Batch	G
Analyte	ug/l		ug/l		date / time		8
Antimony	ND		4.00	1	05/29/2020 17:28	WG1481527	ĬA
Arsenic	18.6		2.00	1	05/29/2020 17:28	WG1481527	
Beryllium	ND		2.00	1	05/29/2020 17:28	WG1481527	9 50
Cadmium	ND		1.00	1	05/29/2020 17:28	WG1481527	50
Lead	ND		5.00	1	05/29/2020 17:28	WG1481527	
Selenium	ND		2.00	1	05/29/2020 17:28	WG1481527	
Thallium	ND		2.00	1	05/29/2020 17:28	WG1481527	

# Collected date/time: 05/20/20 15:15

#### SAMPLE RESULTS - 03 L1221405



#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	C
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:42	WG1481091	<sup>2</sup> Te
Metals (ICP) by M	ethod 6010B						<sup>3</sup> S

#### Metals (ICP) by Method 6010B

							1 33
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cr
Barium	658		5.00	1	05/28/2020 19:52	WG1481515	
Chromium	ND		10.0	1	05/28/2020 19:52	WG1481515	5
Cobalt	ND		10.0	1	05/28/2020 19:52	WG1481515	ँSr
Lithium	50.9	B	15.0	1	05/28/2020 19:52	WG1481515	
Molybdenum	ND		5.00	1	05/28/2020 19:52	WG1481515	6

#### Metals (ICPMS) by Method 6020

	00 0020							
	Result	Qualifier	RDL	Dilution	Analysis	Batch		G
Analyte	ug/l		ug/l		date / time		, i i i i i i i i i i i i i i i i i i i	8
Antimony	ND		4.00	1	05/29/2020 17:31	WG1481527		ĂI
Arsenic	ND		2.00	1	05/29/2020 17:31	WG1481527	L	
Beryllium	ND		2.00	1	05/29/2020 17:31	WG1481527	1	<sup>9</sup> SC
Cadmium	ND		1.00	1	05/29/2020 17:31	WG1481527		50
Lead	ND		5.00	1	05/29/2020 17:31	WG1481527		
Selenium	ND		2.00	1	05/29/2020 17:31	WG1481527		
Thallium	ND		2.00	1	05/29/2020 17:31	WG1481527		

SDG: L1221405 Lithium

Molybdenum

#### SAMPLE RESULTS - 04 L1221405

Qc

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#### Mercury by Method 7470A

meredry by mer							
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:44	WG1481091	Tc
Metals (ICP) by I	Method 6010B						<sup>3</sup> Ss
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
Barium	207		5.00	1	05/28/2020 19:54	WG1481515	
Chromium	ND		10.0	1	05/28/2020 19:54	WG1481515	5
Cobalt	ND		10.0	1	05/28/2020 19:54	WG1481515	Sr

05/28/2020 19:54

05/28/2020 19:54

WG1481515

WG1481515

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15.0

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#### Metals (ICPMS) by Method 6020

21.5

18.3

	Ju 0020						
	Result	Qualifier	RDL	Dilution	Analysis	Batch	G
Analyte	ug/l		ug/l		date / time		8
Antimony	ND		4.00	1	05/29/2020 17:34	WG1481527	ĨAĨ
Arsenic	ND		2.00	1	05/29/2020 17:34	WG1481527	
Beryllium	ND		2.00	1	05/29/2020 17:34	WG1481527	<sup>9</sup> Sc
Cadmium	ND		1.00	1	05/29/2020 17:34	WG1481527	50
Lead	ND		5.00	1	05/29/2020 17:34	WG1481527	
Selenium	ND		2.00	1	05/29/2020 17:34	WG1481527	
Thallium	ND		2.00	1	05/29/2020 17:34	WG1481527	

Selenium

Thallium

# SAMPLE RESULTS - 05



#### Mercury by Method 7470A

ND

ND

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ср
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:46	WG1481091	Tc
Metals (ICP) by I	Method 6010B						<sup>3</sup> Ss

							35
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
Barium	308		5.00	1	05/28/2020 19:57	WG1481515	CII
Chromium	ND		10.0	1	05/28/2020 19:57	WG1481515	5
Cobalt	ND		10.0	1	05/28/2020 19:57	WG1481515	ັSr
Lithium	28.9	В	15.0	1	05/28/2020 19:57	WG1481515	
Molybdenum	33.8		5.00	1	05/28/2020 19:57	WG1481515	<sup>6</sup> Qc
Metals (ICPMS) h	w Method 6020						
							 ΄GΙ
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		8
Antimony	ND		4.00	1	05/29/2020 17:38	WG1481527	ĬAĬ
Arsenic	ND		2.00	1	05/29/2020 17:38	WG1481527	
Beryllium	ND		2.00	1	05/29/2020 17:38	WG1481527	9 50
Cadmium	ND		1.00	1	05/29/2020 17:38	WG1481527	50
Lead	ND		5.00	1	05/29/2020 17:38	WG1481527	

05/29/2020 17:38

05/29/2020 17:38

2.00

2.00

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WG1481527

WG1481527

SDG: L1221405

#### SAMPLE RESULTS - 06 L1221405

#### Mercury by Method 7470A

, - , - ,	-						l'on
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:48	WG1481091	⁻Tc

#### Metals (ICP) by Method 6010B

Metals (ICP) by M	lethod 6010B						<sup>3</sup> ¢
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		4
Barium	73.2		5.00	1	05/28/2020 20:00	WG1481515	
Chromium	ND		10.0	1	05/28/2020 20:00	WG1481515	5
Cobalt	ND		10.0	1	05/28/2020 20:00	WG1481515	ĨS
Lithium	16.2	B	15.0	1	05/28/2020 20:00	WG1481515	
Molybdenum	43.6		5.00	1	05/28/2020 20:00	WG1481515	6 (

#### Metals (ICPMS) by Method 6020

	Result	Qualifier	RDL	Dilution	Analysis	Batch				
Analyte	ug/l		ug/l		date / time		8			
Antimony	ND		4.00	1	05/29/2020 17:41	WG1481527	ĬĂĬ			
Arsenic	ND		2.00	1	05/29/2020 17:41	WG1481527				
Beryllium	ND		2.00	1	05/29/2020 17:41	WG1481527	<sup>9</sup> Sc			
Cadmium	ND		1.00	1	05/29/2020 17:41	WG1481527	50			
Lead	ND		5.00	1	05/29/2020 17:41	WG1481527				
Selenium	ND		2.00	1	05/29/2020 17:41	WG1481527				
Thallium	ND		2.00	1	05/29/2020 17:41	WG1481527				

SDG: L1221405

# Collected date/time: 05/20/20 13:15

#### SAMPLE RESULTS - 07 L1221405

#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:50	<u>WG1481091</u>	Tc

#### Metals (ICP) by Method 6010B

Metals (ICP) by Method 6010B										
	Result	Qualifier	RDL	Dilution	Analysis	Batch				
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn			
Barium	110		5.00	1	05/28/2020 20:05	WG1481516	CII			
Chromium	ND		10.0	1	05/28/2020 20:05	WG1481516	5			
Cobalt	ND		10.0	1	05/28/2020 20:05	WG1481516	ँSr			
Lithium	29.6		15.0	1	05/28/2020 20:05	WG1481516				
Molybdenum	10.7		5.00	1	05/28/2020 20:05	WG1481516	<sup>6</sup> Qc			

Metals (ICI MD) by Metho											
	Result	Qualifier	RDL	Dilution	Analysis	Batch	- G				
Analyte	ug/l		ug/l		date / time		8				
Antimony	ND		4.00	1	05/28/2020 19:59	WG1481528	AI				
Arsenic	ND		2.00	1	05/28/2020 19:59	WG1481528					
Beryllium	ND		2.00	1	05/29/2020 09:15	WG1481528	9 SC				
Cadmium	ND		1.00	1	05/28/2020 19:59	WG1481528	50				
Lead	ND		5.00	1	05/28/2020 19:59	WG1481528					
Selenium	ND		2.00	1	05/28/2020 19:59	WG1481528					
Thallium	ND		2.00	1	05/28/2020 19:59	WG1481528					

# Collected date/time: 05/20/20 13:00

#### SAMPLE RESULTS - 08 L1221405



#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:52	WG1481091	<sup>2</sup> Tc
Metals (ICP) by N	lethod 6010B						<sup>3</sup> 5 6

#### Metals (ICP) by Method 6010B

							55
	Result	Qualifier	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l		date / time		$^{4}$ Cn
Barium	187		5.00	1	05/28/2020 20:13	WG1481516	CII
Chromium	ND		10.0	1	05/28/2020 20:13	WG1481516	5
Cobalt	ND		10.0	1	05/28/2020 20:13	WG1481516	Sr
Lithium	21.7		15.0	1	05/28/2020 20:13	WG1481516	
Molybdenum	24.6		5.00	1	05/28/2020 20:13	WG1481516	<sup>6</sup> Qc

	Result	Qualifier	RDL	Dilution	Analysis	Batch	G			
Analyte	ug/l		ug/l		date / time		8			
Antimony	ND		4.00	1	05/28/2020 20:02	WG1481528	Ă			
Arsenic	ND		2.00	1	05/28/2020 20:02	WG1481528				
Beryllium	ND		2.00	1	05/29/2020 09:19	WG1481528	9 50			
Cadmium	ND		1.00	1	05/28/2020 20:02	WG1481528	50			
Lead	ND		5.00	1	05/28/2020 20:02	WG1481528				
Selenium	ND		2.00	1	05/28/2020 20:02	WG1481528				
Thallium	ND		2.00	1	05/28/2020 20:02	WG1481528				

# Collected date/time: 05/20/20 14:20

#### SAMPLE RESULTS - 09 L1221405



#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ct
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 20:59	WG1481091	Tc

#### Metals (ICP) by Method 6010B

Metals (ICP) by Method 6010B										
	Result	Qualifier	RDL	Dilution	Analysis	Batch				
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cr			
Barium	88.7	<u>01</u>	5.00	1	05/28/2020 19:47	WG1481516		. 1		
Chromium	ND		10.0	1	05/28/2020 19:47	WG1481516	5			
Cobalt	ND		10.0	1	05/28/2020 19:47	WG1481516	۲ Sr	i i		
Lithium	ND		15.0	1	05/28/2020 19:47	WG1481516				
Molybdenum	184		5.00	1	05/28/2020 19:47	WG1481516	<sup>6</sup> Q	с		

Metals (ICPMS) by Method 6020									
	Result	Qualifier	RDL	Dilution	Analysis	<u>Batch</u>	G		
Analyte	ug/l		ug/l		date / time		8		
Antimony	ND		4.00	1	05/28/2020 16:19	WG1481528	Ă		
Arsenic	ND		2.00	1	05/28/2020 16:19	WG1481528			
Beryllium	ND		2.00	1	05/28/2020 16:19	WG1481528	9 S C		
Cadmium	ND		1.00	1	05/28/2020 16:19	WG1481528	50		
Lead	ND		5.00	1	05/28/2020 16:19	WG1481528			
Selenium	ND		2.00	1	05/28/2020 16:19	WG1481528			
Thallium	ND		2.00	1	05/28/2020 16:19	WG1481528			

#### SAMPLE RESULTS - 10 L1221405

#### Mercury by Method 7470A

	Result	Qualifier	RDL	Dilution	Analysis	Batch		Cp	
Analyte	ug/l		ug/l		date / time			2	
Mercury	ND		0.200	1	05/26/2020 21:54	WG1481091		Tc	

#### Metals (ICP) by Method 6010B

Metals (ICP) by Method 6010B										
	Result	Qualifier	RDL	Dilution	Analysis	Batch				
Analyte	ug/l		ug/l		date / time		<sup>4</sup> Cn			
Barium	380		5.00	1	05/28/2020 20:15	WG1481516	СП			
Chromium	ND		10.0	1	05/28/2020 20:15	WG1481516	5			
Cobalt	ND		10.0	1	05/28/2020 20:15	WG1481516	<sup>°</sup> Sr			
Lithium	24.6		15.0	1	05/28/2020 20:15	WG1481516				
Molybdenum	11.5		5.00	1	05/28/2020 20:15	WG1481516	<sup>6</sup> Qc			

#### Metals (ICPMS) by Method 6020

Metals (ICPMS) by Method 6020										
	Result	Qualifier	RDL	Dilution	Analysis	Batch	G			
Analyte	ug/l		ug/l		date / time		8			
Antimony	ND		4.00	1	05/28/2020 20:05	WG1481528	Ĩ Ă Î			
Arsenic	ND		2.00	1	05/28/2020 20:05	WG1481528				
Beryllium	ND		2.00	1	05/29/2020 09:22	WG1481528	<sup>9</sup> Sc			
Cadmium	ND		1.00	1	05/28/2020 20:05	WG1481528	00			
Lead	ND		5.00	1	05/28/2020 20:05	WG1481528				
Selenium	ND		2.00	1	05/28/2020 20:05	WG1481528				
Thallium	ND		2.00	1	05/28/2020 20:05	WG1481528				

SDG: L1221405

#### SAMPLE RESULTS - 11 L1221405

#### Mercury by Method 7470A

, , ,							1 Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l		date / time		2
Mercury	ND		0.200	1	05/26/2020 21:56	WG1481091	Tc

#### Metals (ICP) by Method 6010B

Metals (ICP) by Method 6010B										
	Result	Qualifier	RDL	Dilution	Analysis	Batch	L			
Analyte	ug/l		ug/l		date / time		4			
Barium	87.5		5.00	1	05/28/2020 20:18	WG1481516				
Chromium	ND		10.0	1	05/28/2020 20:18	WG1481516	5			
Cobalt	ND		10.0	1	05/28/2020 20:18	WG1481516	Ĭ			
Lithium	ND		15.0	1	05/28/2020 20:18	WG1481516				
Molybdenum	183		5.00	1	05/28/2020 20:18	WG1481516	6			

Metals (ICPINS) by Method 6020										
	Result	Qualifier	RDL	Dilution	Analysis	Batch	G			
Analyte	ug/l		ug/l		date / time		8			
Antimony	ND		4.00	1	05/28/2020 20:09	WG1481528	Ă			
Arsenic	ND		2.00	1	05/28/2020 20:09	WG1481528				
Beryllium	ND		2.00	1	05/29/2020 09:26	WG1481528	<sup>9</sup> SC			
Cadmium	ND		1.00	1	05/28/2020 20:09	WG1481528	00			
Lead	ND		5.00	1	05/28/2020 20:09	WG1481528				
Selenium	ND		2.00	1	05/28/2020 20:09	WG1481528				
Thallium	ND		2.00	1	05/28/2020 20:09	WG1481528				

### WG1481091

Mercury by Method 7470A

#### QUALITY CONTROL SUMMARY L1221405-01,02,03,04,05,06,07,08,09,10,11

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#### Method Blank (MB)

(MB) R3531924-1 0	5/26/20 20:55					Cp				
	MB Result	MB Qualifier	MB MDL	MB RDL	2					
Analyte	ug/l		ug/l	ug/l	T	Гс				
Mercury	U		0.100	0.200						
					<sup>3</sup> S	SS				

#### Laboratory Control Sample (LCS)

(LCS) R3531924-4 05/26/	.CS) R3531924-4 05/26/20 21:17								
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier				
Analyte	ug/l	ug/l	%	%					
Mercury	3.00	2.80	93.3	80.0-120					

#### L1221405-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221405-09 05/26/20 20:59 • (MS) R3531924-2 05/26/20 21:01 • (MSD) R3531924-3 05/26/20 21:02												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	ND	2.28	2.25	75.9	75.2	1	75.0-125			1.02	20

SDG: L1221405

DATE/TIME: 05/31/20 15:04

PAGE: 17 of 26 Metals (ICP) by Method 6010B

# QUALITY CONTROL SUMMARY

#### (MB) R3532807-1 05/28/20 18:27

(IVID) R5552607-1 05/26/.	VID/K5552607-1 05/26/20 16.27											
	MB Result	MB Qualifier	MB MDL	MB RDL	2							
Analyte	ug/l		ug/l	ug/l	Tc							
Barium	U		0.895	5.00								
Chromium	U		5.00	10.0	<sup>3</sup> SS							
Cobalt	U		0.807	10.0	00							
Lithium	6.36	J	5.74	15.0	4							
Molybdenum	U		1.04	5.00	Cn							

#### Laboratory Control Sample (LCS)

(LCS) R3532807-2 05/2	 _CS) R3532807-2_05/28/20 18:30										
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier						
Analyte	ug/l	ug/l	%	%							
Barium	1000	990	99.0	80.0-120							
Chromium	1000	983	98.3	80.0-120							
Cobalt	1000	1010	101	80.0-120							
Lithium	1000	962	96.2	80.0-120							
Molybdenum	1000	997	99.7	80.0-120							

DATE/TIME: 05/31/20 15:04 PAGE: 18 of 26 Ср

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Metals (ICP) by Method 6010B

#### QUALITY CONTROL SUMMARY L1221405-07,08,09,10,11

(MB) R3532814-1	05/28/20	19:42	

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

#### Laboratory Control Sample (LCS)

(LCS) R3532814-2 05/28/	_CS) R3532814-2 05/28/20 19:44										
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier						
Analyte	ug/l	ug/l	%	%							
Barium	1000	973	97.3	80.0-120							
Chromium	1000	932	93.2	80.0-120							
Cobalt	1000	954	95.4	80.0-120							
Lithium	1000	924	92.4	80.0-120							
Molybdenum	1000	958	95.8	80.0-120							

#### L1221405-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221405-09 05/28/20 19:47 • (MS) R3532814-4 05/28/20 19:52 • (MSD) R3532814-5 05/28/20 19:55												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Barium	1000	88.7	1070	1040	97.7	94.8	1	75.0-125			2.79	20
Chromium	1000	ND	948	921	94.8	92.1	1	75.0-125			2.88	20
Cobalt	1000	ND	1010	985	101	98.5	1	75.0-125			2.87	20
Lithium	1000	ND	939	908	92.8	89.7	1	75.0-125			3.27	20
Molybdenum	1000	184	1160	1140	98.1	95.8	1	75.0-125			1.99	20

#### L1221443-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221443-04 05/28/20 19:57 • (MS) R3532814-6 05/28/20 20:00 • (MSD) R3532814-7 05/28/20 20:02											
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	%	%		%			%	%
1000	223	1190	1200	96.7	97.6	1	75.0-125			0.762	20
1000	ND	939	949	93.9	94.9	1	75.0-125			1.01	20
1000	ND	983	993	98.3	99.3	1	75.0-125			1.10	20
1000	39.4	986	989	94.6	94.9	1	75.0-125			0.273	20
1000	ND	974	984	97.2	98.2	1	75.0-125			0.973	20
	0 19:57 • (MS) F Spike Amount ug/l 1000 1000 1000 1000	D19:57 • (MS)         R3532814-6         OF           Spike Amount         Original Result         ug/l           ug/l         ug/l         ug/l           1000         223         ug/l           1000         ND         ug/l           1000         39.4         ug/l           1000         ND         ug/l	D19:57 • (MS) R3532814-6         05/28/20 20:00           Spike Amount         Original Result         MS Result           ug/l         ug/l         ug/l           1000         223         1190           1000         ND         939           1000         39.4         986           1000         ND         936	D19:57 • (MS)         R3532814-6         O5/28/20         O:000         (MSD)         R35328           Spike Amount         Original Result         MS Result         MSD Result         ug/l         ug/l	D19:57 • (MS)         R3532814-6         O5/28/20         O:O:O:O:O:O:O:O:O:OS32814-7         O5/28/20           Spike Amount         Original Result         MS Result         MSD Result         MS Rec.           ug/l         ug/l         ug/l         ug/l         05/28/20 <td>D19:57 • (MS)         R3532814-6         O5/28/20         O(MSD)         R3532814-7         O5/28/20         O(0)         MSD         MSD</td> <td>D19:57 • (MS)         R3532814-6         05/28/20         CMSD         RSD         VISD         <thvisd< th="">         VISD</thvisd<></td> <td>D19:57 • (MS)         R3532814-6         O5/28/20         CMSD         R3532814-7         O5/28/20         O5/28/20</td> <td>D19:57 • (MS)         D3:32814-6         D:28/20         D:00:00         RSD Result         MSD Result</td> <td>Dis57 • (MS) R3532814-6 05/28/20 20:00 • (MSD) R3532814-7 05/28/20 20:02Spike AmounOriginal ResultMS ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD QualifierMSD Qua</td> <td>Dis57 • (MS) R3532814-6 0/2/8/20 20:00 • (MSD) R3532814-7 0/2/8/2 0/20:00MSD R0000 + 0/2/8/20 0/20:00MSD R000 + 0/2/8/20:00MSD R000 + 0/2/8/20:</td>	D19:57 • (MS)         R3532814-6         O5/28/20         O(MSD)         R3532814-7         O5/28/20         O(0)         MSD         MSD	D19:57 • (MS)         R3532814-6         05/28/20         CMSD         RSD         VISD         VISD <thvisd< th="">         VISD</thvisd<>	D19:57 • (MS)         R3532814-6         O5/28/20         CMSD         R3532814-7         O5/28/20         O5/28/20	D19:57 • (MS)         D3:32814-6         D:28/20         D:00:00         RSD Result         MSD Result	Dis57 • (MS) R3532814-6 05/28/20 20:00 • (MSD) R3532814-7 05/28/20 20:02Spike AmounOriginal ResultMS ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD ResultMSD QualifierMSD Qua	Dis57 • (MS) R3532814-6 0/2/8/20 20:00 • (MSD) R3532814-7 0/2/8/2 0/20:00MSD R0000 + 0/2/8/20 0/20:00MSD R000 + 0/2/8/20:00MSD R000 + 0/2/8/20:

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Metals (ICPMS) by Method 6020

# QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3533204-1	05/29/20 16:38

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

### Laboratory Control Sample (LCS)

LCS) R3533204-2 05/29/20 16:41							
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier		
Analyte	ug/l	ug/l	%	%			
Antimony	50.0	47.4	94.8	80.0-120			
Arsenic	50.0	46.4	92.8	80.0-120			
Beryllium	50.0	45.9	91.9	80.0-120			
Cadmium	50.0	49.9	99.8	80.0-120			
Lead	50.0	49.1	98.2	80.0-120			
Selenium	50.0	47.2	94.4	80.0-120			
Thallium	50.0	48.0	96.0	80.0-120			

### L1221261-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

OS) L1221261-01 05/29/20 16:45 • (MS) R3533204-4 05/29/20 16:51 • (MSD) R3533204-5 05/29/20 16:55												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Antimony	50.0	ND	48.3	47.6	96.7	95.3	1	75.0-125			1.49	20
Arsenic	50.0	3.05	51.2	49.4	96.4	92.7	1	75.0-125			3.69	20
Beryllium	50.0	ND	46.9	45.9	93.8	91.8	1	75.0-125			2.13	20
Cadmium	50.0	ND	52.0	50.8	104	102	1	75.0-125			2.41	20
Lead	50.0	ND	51.9	51.1	104	102	1	75.0-125			1.45	20
Selenium	50.0	ND	49.4	48.0	98.8	96.0	1	75.0-125			2.81	20
Thallium	50.0	ND	48.9	47.1	97.7	94.1	1	75.0-125			3.72	20

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Metals (ICPMS) by Method 6020

# QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3532742-1	05/28/20 16:12

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

### Laboratory Control Sample (LCS)

(LCS) R3532742-2 05/28/	20 16:15				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	ug/l	ug/l	%	%	
Antimony	50.0	46.9	93.7	80.0-120	
Arsenic	50.0	46.5	93.0	80.0-120	
Beryllium	50.0	46.3	92.7	80.0-120	
Cadmium	50.0	51.9	104	80.0-120	
Lead	50.0	49.3	98.5	80.0-120	
Selenium	50.0	49.5	98.9	80.0-120	
Thallium	50.0	47.3	94.7	80.0-120	

#### L1221405-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

OS) L1221405-09 05/28/20 16:19 • (MS) R3532742-4 05/28/20 16:25 • (MSD) R3532742-5 05/28/20 16:28												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Antimony	50.0	ND	48.4	49.5	96.7	99.0	1	75.0-125			2.33	20
Arsenic	50.0	ND	48.3	48.2	94.8	94.6	1	75.0-125			0.221	20
Beryllium	50.0	ND	46.2	46.8	92.3	93.5	1	75.0-125			1.31	20
Cadmium	50.0	ND	51.1	51.7	102	103	1	75.0-125			1.06	20
Lead	50.0	ND	48.8	50.2	97.5	100	1	75.0-125			2.80	20
Selenium	50.0	ND	50.6	50.7	101	101	1	75.0-125			0.00162	20
Thallium	50.0	ND	46.6	47.8	93.1	95.6	1	75.0-125			2.66	20

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Metals (ICPMS) by Method 6020

# QUALITY CONTROL SUMMARY

### L1221510-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221510-07 05/28/2016:32 • (MS) R3532742-6 05/28/2016:35 • (MSD) R3532742-7 05/28/2016:38												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Antimony	50.0	ND	47.0	47.9	94.0	95.9	1	75.0-125			2.01	20
Arsenic	50.0	7.68	54.3	54.5	93.3	93.7	1	75.0-125			0.401	20
Beryllium	50.0	ND	45.0	46.6	89.9	93.2	1	75.0-125			3.54	20
Cadmium	50.0	ND	49.5	49.7	99.1	99.4	1	75.0-125			0.348	20
Lead	50.0	ND	48.5	49.5	97.0	99.1	1	75.0-125			2.07	20
Selenium	50.0	ND	49.4	49.6	98.9	99.3	1	75.0-125			0.444	20
Thallium	50.0	ND	46.9	48.2	93.9	96.5	1	75.0-125			2.76	20

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## GLOSSARY OF TERMS

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#### 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

Qualifier	Description
В	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

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# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Neb
Alaska	17-026	Nev
Arizona	AZ0612	Nev
Arkansas	88-0469	Nev
California	2932	Nev
Colorado	TN00003	Nev
Connecticut	PH-0197	Nor
Florida	E87487	Nor
Georgia	NELAP	Nor
Georgia <sup>1</sup>	923	Nor
ldaho	TN00003	Ohi
Illinois	200008	Okl
Indiana	C-TN-01	Ore
lowa	364	Pen
Kansas	E-10277	Rho
Kentucky <sup>16</sup>	90010	Sou
Kentucky <sup>2</sup>	16	Sou
Louisiana	Al30792	Ten
Louisiana <sup>1</sup>	LA180010	Tex
Maine	TN0002	Tex
Maryland	324	Uta
Massachusetts	M-TN003	Ver
Michigan	9958	Virg
Minnesota	047-999-395	Was
Mississippi	TN00003	Wes
Missouri	340	Wis
Montana	CERT0086	Wvo

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

#### **Our Locations**

SCS Engineers - KS

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.



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hone: 913-681-0030	Client Pro 272131	ject # 57.20		Lab Project #	S-IATAN	1	EONH-							SDG # 12 1	14 <i>05</i> 03				
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MW-101	Gen	GW	-	5/20/2	0 1350	1	X								-01				
MW-102	0	GW	-		1425	1	X								02				
MW-103	1	GW	-		1515	- 1	X								03				
MW-104		GW	-		11030	1	x								04				
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* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater	Remarks:60:	I LO Metals-BA	,CR,CO,LI,M	O, 6020 Metal	s-SB,AS,BE,CI	D,PB,SE	,TL, 747	0 Metals-	HG. pH Flov	/	_ Temp _ Other		COC Sea COC Sig Bottles Correct	Sample Receipt C 1 Present/Intact med/Accurate: arrive intact: bottles used: ent volume sent	hecklist				
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eport to: ason Franks			Email To: jfranks@sc	sengineers	s.com;ja	y.martin@e	vergy.c										12065 Lebanon Rd Mount Juliet, TN 37 Phone: 615-758-58	
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one: 913-681-0030	Client Project 27213167.2	# 20		Lab Project # AQUAOPKS-IATAN		1	EONH									SDG # 12	21405	
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Sample ID	Comp/Grab	Matrix *	Depth	Da	te	Time	Cntrs	CCR N					92				Shipped Via: Remarks	Sample # (lab only)
W-111	GRAB	GW	17.	5/2	120	1535	1	X										10
UPLICATE	1	GW				1420	1	X										15
O MS/MSD	V	GW	-	4		1425	1	X										09
n an																		
		- Constant			-													
Matrix: S - Soil AIR - Air F - Filter SW - Groundwater B - Bioassay NW - WasteWater	Remarks:6010 N	 /letals-BA,C	R,CO,LI,MO	D, 6020 N	letals-S	I B,AS,BE,CD	),PB,SE	1 ,TL, 74	70 Metal	s-HG.	pH		Temp Other		COC S COC S Bottl Corre	<u>Samp</u> eal Pr igned/ es arr es bot	Le Receipt Ch esent/Intact Accurate: ive intact: tles used:	ecklist NPYN YN YN YN
DW - Drinking Water DT - Other	Samples returned UPSFedEx	via: Courier			Trackin	ng.#									Suffi VOA Z	cient lero He	volume sent: <u>If Applicab</u> adspace:	
Relinquished by : (Signature)	la la	ate: 5/21/2	Time	300	Receiv	ed by: (Signa	la o	~	1300	D Tri	p Blank I	Receive	d: Yes/ HCL TBR	No / MeoH	RAD S	creen	<0.5 mR/hr:	
Relinquished by : (Signature)	Di	ate:	Time	e:	Receiv	ed by: (Signa	ature)			Te 4	mp: 12	24.(	Bottles F	leceived:	If pres	ervation	required by Log	in: Date/Time
Relinquished by : (Signature)	D	ate:	Tíme	e:	Receiv	ed for lab by	(Sizpa	ture)		Dia	te: [1]].	11)	Time:	:10	Hold:			Condition: NCF / Ok

•



# ANALYTICAL REPORT

### **SCS Engineers - KS**

Sample Delivery Group: Samples Received: Project Number: Description: L1221461 05/22/2020 27213167.20 lantan-Ash Impoundment

Report To:

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

Entire Report Reviewed By:

Jason Romer Project Manager

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

ACCOUNT: SCS Engineers - KS

PROJECT: 27213167.20

SDG: L1221461 DATE/TIME: 06/24/20 10:34 PAGE: 1 of 22

Cp <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al <sup>9</sup>Sc

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SDG: L1221461

DATE/TIME: 06/24/20 10:34

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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MW-101 L1221461-01 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 13:50	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:42	06/10/20 09:40 06/16/20 14:55	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN
MW-102 L1221461-02 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 14:25	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:42	06/10/20 09:40 06/16/20 14:55	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN
MW-103 L1221461-03 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 15:15	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:42	06/10/20 09:40 06/16/20 14:41	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN
MW-104 L1221461-04 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 16:30	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:42	06/10/20 09:40 06/16/20 14:41	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN
MW-105 L1221461-05 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 15:15	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:42	06/10/20 09:40 06/16/20 14:41	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN
MW-107 L1221461-06 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 16:25	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:42	06/10/20 09:40 06/16/20 14:41	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN
MW-108 L1221461-07 Non-Potable Water			Collected by Jason R. Franks	Collected date/time 05/20/20 12:15	Received da 05/22/20 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904 Radiochemistry by Method SM7500Ra B M	WG1486252 WG1492712	1 1	06/04/20 15:02 06/15/20 14:44	06/10/20 09:40 06/16/20 14:41	JMR RGT	Mt. Juliet, TN Mt. Juliet, TN

PROJECT: 27213167.20

SDG: L1221461 DATE/TIME: 06/24/20 10:34

# SAMPLE SUMMARY

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			Collected by	Collected date/time	Received da	te/time
MW-109 L1221461-08 Non-Potable Water			Jason R. Franks	05/20/20 13:00	05/22/20 09	0:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Radiochemistry by Method 904	WG1486252	1	06/04/20 15:02	06/10/20 09:40	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1492712	1	06/15/20 14:42	06/16/20 14:41	RGT	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-110 L1221461-09 Non-Potable Water			Jason R. Franks	05/20/20 14:20	05/22/20 09	0:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Radiochemistry by Method 904	WG1486252	1	06/04/20 15:02	06/10/20 09:40	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1492712	1	06/15/20 14:42	06/16/20 14:41	RGT	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
MW-111 L1221461-10 Non-Potable Water			Jason R. Franks	05/20/20 15:35	05/22/20 09	0:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Radiochemistry by Method 904	WG1486252	1	06/04/20 15:02	06/11/20 09:38	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1492712	1	06/15/20 14:42	06/16/20 14:41	RGT	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DUPLICATE L1221461-11 Non-Potable Water			Jason R. Franks	05/20/20 14:20	05/22/20 09	0:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Radiochemistry by Method 904	WG1486252	1	06/04/20 15:02	06/11/20 09:38	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1492712	1	06/15/20 14:42	06/16/20 14:41	RGT	Mt. Juliet, TN

PROJECT: 27213167.20

SDG: L1221461 DATE/TIME: 06/24/20 10:34

### CASE NARRATIVE

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jason Romer Project Manager



ACCOUNT: SCS Engineers - KS PROJECT: 27213167.20

SDG: L1221461 DATE/TIME: 06/24/20 10:34

**PAGE**: 5 of 22

#### SAMPLE RESULTS - 01 L1221461

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#### Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		
ADIUM-228	6.10		0.712	0.922	06/10/2020 09:40	WG1486252	
(T) Barium	111			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium	99.9			79.0-136	06/10/2020 09:40	WG1486252	

Radiochemistry by	Method SM/5	DOCKA R M					4
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		5
RADIUM-226	0.561		0.345	0.357	06/16/2020 14:55	WG1492712	ັSr
(T) Barium-133	92.9			30.0-143	06/16/2020 14:55	WG1492712	

# Collected date/time: 05/20/20 14:25

#### SAMPLE RESULTS - 02 L1221461

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#### Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		
ADIUM-228	3.87		0.663	1.35	06/10/2020 09:40	WG1486252	
(T) Barium	72.7			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium	103			79.0-136	06/10/2020 09:40	WG1486252	

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+ / -	pCi/l	date / time		
RADIUM-226	0.255		0.256	0.332	06/16/2020 14:55	WG1492712	Ĭ
(T) Barium-133	91.6			30.0-143	06/16/2020 14:55	WG1492712	

# Collected date/time: 05/20/20 15:15

#### SAMPLE RESULTS - 03 L1221461

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#### Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+ / -	pCi/l	date / time		2
ADIUM-228	1.50		0.701	1.1	06/10/2020 09:40	WG1486252	1
(T) Barium	111			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium	108			79.0-136	06/10/2020 09:40	WG1486252	<sup>3</sup> c

Radiochemistry by Method SM7500Ra B M								
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch		Ch
Analyte	pCi/l		+/-	pCi/l	date / time			5
RADIUM-226	0.635		0.336	0.293	06/16/2020 14:41	WG1492712		Sr
(T) Barium-133	93.8			30.0-143	06/16/2020 14:41	WG1492712		

# Collected date/time: 05/20/20 16:30

#### SAMPLE RESULTS - 04 L1221461

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#### Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
nalyte	pCi/l		+ / -	pCi/l	date / time		
ADIUM-228	1.42		0.582	1.06	06/10/2020 09:40	WG1486252	
(T) Barium	90.1			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium	112			79.0-136	06/10/2020 09:40	WG1486252	

Radiochemistry by Method SM7500Ra B M							
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		5
RADIUM-226	0.389		0.227	0.198	06/16/2020 14:41	WG1492712	۲ Sr
(T) Barium-133	98.0			30.0-143	06/16/2020 14:41	WG1492712	
							<sup>6</sup> Qc
# Collected date/time: 05/20/20 15:15

#### SAMPLE RESULTS - 05 L1221461

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## Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		
RADIUM-228	-0.118		0.753	0.865	06/10/2020 09:40	WG1486252	
(T) Barium	114			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium	105			79.0-136	06/10/2020 09:40	WG1486252	

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+ / -	pCi/l	date / time		5
RADIUM-226	0.169		0.240	0.344	06/16/2020 14:41	WG1492712	
(T) Barium-133	91.2			30.0-143	06/16/2020 14:41	WG1492712	

# Collected date/time: 05/20/20 16:25

#### SAMPLE RESULTS - 06 L1221461

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## Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
alyte	pCi/l		+ / -	pCi/l	date / time	
DIUM-228	1.24		0.746	0.84	06/10/2020 09:40	WG1486252
T) Barium	97.9			62.0-143	06/10/2020 09:40	WG1486252
T) Yttrium	100			79.0-136	06/10/2020 09:40	WG1486252

Radiochemistry b	y Method SM75	500Ra B M	ł				4
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	· Cn
Analyte	pCi/l		+/-	pCi/l	date / time		5
RADIUM-226	0.119		0.173	0.261	06/16/2020 14:41	WG1492712	ँSr
(T) Barium-133	89.8			30.0-143	06/16/2020 14:41	WG1492712	
							<sup>6</sup> Qc

# Collected date/time: 05/20/20 12:15

#### SAMPLE RESULTS - 07 L1221461

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## Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l	quantor	+ / -	pCi/l	date / time		Ĺ
RADIUM-228	-0.304		0.658	0.76	06/10/2020 09:40	WG1486252	
(T) Barium	108			62.0-143	06/10/2020 09:40	WG1486252	L
(T) Yttrium	111			79.0-136	06/10/2020 09:40	WG1486252	

Radiochemistry by	/ Method SM75	00Ra B M					<sup>4</sup> Cm	٦
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch		
Analyte	pCi/l		+ / -	pCi/l	date / time		5	
RADIUM-226	0.0334		0.237	0.381	06/16/2020 14:41	WG1492712	Šr	
(T) Barium-133	93.3			30.0-143	06/16/2020 14:41	WG1492712		

# Collected date/time: 05/20/20 13:00

#### SAMPLE RESULTS - 08 L1221461

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## Radiochemistry by Method 904

	, ,						l'Cn
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	ΓCΡ
Analyte	pCi/l		+ / -	pCi/l	date / time		2
RADIUM-228	0.979		0.707	0.822	06/10/2020 09:40	WG1486252	Tc
(T) Barium	113			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium	110			79.0-136	06/10/2020 09:40	WG1486252	<sup>3</sup> Ss

Radiochemistry by	y Method SM75	DOCKA R M					4
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	Cn
Analyte	pCi/l		+/-	pCi/l	date / time		5
RADIUM-226	0.214		0.228	0.3	06/16/2020 14:41	WG1492712	ँSr
(T) Barium-133	83.4			30.0-143	06/16/2020 14:41	WG1492712	
							<sup>6</sup> Qc

# Collected date/time: 05/20/20 14:20

#### SAMPLE RESULTS - 09 L1221461

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## Radiochemistry by Method 904

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		Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte		pCi/l		+/-	pCi/l	date / time		2
RADIUM-228		1.35		0.834	1.05	06/10/2020 09:40	WG1486252	Тс
(T) Barium		98.5			62.0-143	06/10/2020 09:40	WG1486252	
(T) Yttrium		112			79.0-136	06/10/2020 09:40	WG1486252	<sup>3</sup> Ss

Radiochemistry b	y Method SM75	500Ra B M	ł				4
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	Cn
Analyte	pCi/l		+/-	pCi/l	date / time		5
RADIUM-226	0.0610		0.116	0.201	06/16/2020 14:41	WG1492712	ँSr
(T) Barium-133	86.6			30.0-143	06/16/2020 14:41	WG1492712	
							<sup>6</sup> Qc

#### SAMPLE RESULTS - 10 L1221461

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## Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		2
RADIUM-228	0.692		0.634	0.91	06/11/2020 09:38	WG1486252	<u> </u>
(T) Barium	112			62.0-143	06/11/2020 09:38	WG1486252	
(T) Yttrium	109			79.0-136	06/11/2020 09:38	WG1486252	3

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+ / -	pCi/l	date / time		5
RADIUM-226	0.550		0.302	0.241	06/16/2020 14:41	WG1492712	ິSr
(T) Barium-133	89.5			30.0-143	06/16/2020 14:41	WG1492712	

### DUPLICATE Collected date/time: 05/20/20 14:20

#### SAMPLE RESULTS - 11 L1221461

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#### Radiochemistry by Method 904

<i>,</i>						
Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
pCi/l		+ / -	pCi/l	date / time		
0.143		0.556	0.759	06/11/2020 09:38	WG1486252	
112			62.0-143	06/11/2020 09:38	WG1486252	L
106			79.0-136	06/11/2020 09:38	WG1486252	
	Result pCi/l 0.143 112 106	Result         Qualifier           pCi/l         0.143           112         106	Result         Qualifier         Uncertainty           pCi/l         + / -           0.143         0.556           112         106	Result         Qualifier         Uncertainty         MDA           pCi/l         + / -         pCi/l           0.143         0.556         0.759           112         62.0-143           106         79.0-136	Result         Qualifier         Uncertainty         MDA         Analysis Date           pCi/l         + / -         pCi/l         date / time           0.143         0.556         0.759         06/11/2020 09:38           112         62.0-143         06/11/2020 09:38           106         79.0-136         06/11/2020 09:38	Result         Qualifier         Uncertainty         MDA         Analysis Date         Batch           pCi/l         + / -         pCi/l         date / time             0.143         0.556         0.759         06/11/2020 09:38         WG1486252           112         -         62.0-143         06/11/2020 09:38         WG1486252           106         -         79.0-136         06/11/2020 09:38         WG1486252

Radiochemistry by Method SM1/500Ra B M										
Result Qualifier Uncertainty MDA Analysis Date Batch										
Analyte	pCi/l		+ / -	pCi/l	date / time			5		
RADIUM-226	0.327		0.300	0.378	06/16/2020 14:41	WG1492712		ଁSr		
(T) Barium-133	94.4			30.0-143	06/16/2020 14:41	WG1492712				

Radiochemistry by Method 904

#### QUALITY CONTROL SUMMARY L1221461-01,02,03,04,05,06,07,08,09,10,11

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#### Method Blank (MB)

(MB) R3537859-1	06/10/20 09:40					
	MB Result	MB Qualifier	MB MDA			
Analyte	pCi/l		pCi/l			
Radium-228	0.166		0.468			
(T) Barium	123					
(T) Yttrium	101					

### L1224651-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1224651-01 06/11/20 09:38 • (DUP) R3537859-5 06/10/20 09:40										
	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit		
Analyte	pCi/l	pCi/l		%			%			
Radium-228	0.274	1.54	1	140	1.38		20	3		
(T) Barium	95.1	92.6								
(T) Yttrium	115	96.1								

#### Laboratory Control Sample (LCS)

(LCS) R3537859-2 06/10/20 09:40												
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier							
Analyte	pCi/l	pCi/l	%	%								
Radium-228	5.00	5.74	115	80.0-120								
(T) Barium			104									
(T) Yttrium			106									

## L1221461-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

OS) L1221461-09 06/10/20 09:40 • (MS) R3537859-3 06/10/20 09:40 • (MSD) R3537859-4 06/10/20 09:40													
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	1.35	14.4	12.1	130	107	1	70.0-130			17.4		20
(T) Barium		98.5			115	104							
(T) Yttrium		112			94.6	104							

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
SCS Engineers - KS	27213167.20	L1221461	06/24/20 10:34	17 of 22

Radiochemistry by Method SM7500Ra B M

#### QUALITY CONTROL SUMMARY L1221461-01,02,03,04,05,06,07,08,09,10,11

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#### Method Blank (MB)

Method Blank					$ ^1$				
(MB) R3541294-1 06/16/20 14:55									
	MB Result	MB Qualifier	MB MDA		2				
Analyte	pCi/l		pCi/l		1				
Radium-226	0.0134		0.0555		<u>_</u>				
(T) Barium-133	87.1				3				
					1				

### L1222911-04 Original Sample (OS) • Duplicate (DUP)

#### (OS) L1222911-04 06/16/20 14:41 • (DUP) R3541294-5 06/16/20 14:55

	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	pCi/l		%			%	
Radium-226	0.562	0.340	1	49.4	0.521		20	3
(T) Barium-133	91.2	94.7						

## Laboratory Control Sample (LCS)

(LCS) R3541294-2 0	6/16/20 14:55					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	pCi/l	pCi/l	%	%		
Radium-226	5.02	5.23	104	80.0-120		
(T) Barium-133			86.4			

### L1221461-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

DS) L1221461-09 06/16/20 14:41 • (MS) R3541294-3 06/16/20 14:55 • (MSD) R3541294-4 06/16/20 14:55													
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.1	0.0610	22.2	21.4	110	106	1	75.0-125			3.85		20
(T) Barium-133		86.6			90.5	92.2							

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SCS Engineers - I	<s< td=""></s<>

PROJECT: 27213167.20

SDG: L1221461 DATE/TIME: 06/24/20 10:34

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## GLOSSARY OF TERMS

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### Guide to Reading and Understanding Your Laboratory Report

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

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

#### Abbreviations and Definitions

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

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

PROJECT: 27213167.20

SDG: L1221461 DATE/TIME: 06/24/20 10:34

# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Neh
Alaska	17-026	Nev
Arizona	AZ0612	Nev
Arkansas	88-0469	Nev
California	2932	Nev
Colorado	TN00003	Nev
Connecticut	PH-0197	Nor
Florida	E87487	Nor
Georgia	NELAP	Nor
Georgia <sup>1</sup>	923	Nor
Idaho	TN00003	Ohio
Illinois	200008	Okla
Indiana	C-TN-01	Ore
lowa	364	Pen
Kansas	E-10277	Rho
Kentucky <sup>16</sup>	90010	Sou
Kentucky <sup>2</sup>	16	Sou
Louisiana	AI30792	Ten
Louisiana <sup>1</sup>	LA180010	Texa
Maine	TN0002	Texa
Maryland	324	Utał
Massachusetts	M-TN003	Verr
Michigan	9958	Virg
Minnesota	047-999-395	Was
Mississippi	TN00003	Wes
Missouri	340	Wise
Montana	CERT0086	Wvc

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

#### **Our Locations**

SCS Engineers - KS

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.



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Jared Morrison December 16, 2022

# ATTACHMENT 2 Statistical Analyses

Jared Morrison December 16, 2022

# ATTACHMENT 2-1

# Spring 2019 Semiannual Detection Monitoring Statistical Analyses

#### MEMORANDUM

August 17, 2019

To: latan Generating Station 20250 State Route 45 N Platte County, Missouri Kansas City Power & Light Company





### RE: Determination of Statistically Significant Increases – Ash Impoundment Spring 2019 Initial Semiannual Detection Monitoring 40 CFR 257.94

Statistical analysis of monitoring data from the groundwater monitoring system for the Ash Impoundment at the latan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated April 16, 2019. The initial detection monitoring sampling event was scheduled for March 2019; however, the historic flooding of the Missouri River in March prevented the sampling event until flood waters receded and the sampling event was performed April 29, 2019. Review and validation of the results from the April 2019 Detection Monitoring Event was completed on June 27, 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 May 20, 2019 and July 23, 2019. The second verification sample was not collected until July because of additional flooding in June 2019.

The completed statistical evaluation identified one Appendix III constituents above its respective prediction limit. The prediction limit for chloride in monitoring well MW-107 is 25.9 mg/L. The detection monitoring sample was reported at 33.3 mg/L. The first verification re-sample was collected on May 20, 2019 with a result of 34.2 mg/L. The second verification re-sample was collected on July 23, 2019 with a result of 34.3 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring sample for chloride from monitoring well MW-107 exceeds its prediction limit and is a confirmed statistically significant increase (SSI) over background.

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified an SSI above the background prediction limit for chloride in monitoring well MW-107.

Attached to this memorandum are the following backup information:

Iatan Generating Station Determination of Statistically Significant Increases Ash Impoundment August 17, 2019 Page 2 of 2

#### Attachment 1: Sanitas<sup>™</sup> Output:

Statistical evaluation output from Sanitas<sup>™</sup> for the prediction limit analysis. This includes prediction limit plots, prediction limit background data, detection sample result, 1<sup>st</sup> verification re-sample result (when applicable), 2<sup>nd</sup> verification re-sample result (when applicable), extra sample results for pH because pH is collected as part of the sampling procedure, and a Prediction Limit summary table. Output documentation includes the analytical data used for the statistical analyses.

## Attachment 2: Sanitas<sup>™</sup> Configuration Settings:

Screen shots of the applicable Sanitas<sup>TM</sup> 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

latan Generating Station Determination of Statistically Significant Increases Ash Impoundment August 17, 2019

# ATTACHMENT 1

Sanitas<sup>™</sup> Output

Sanitas  $^{\mbox{\tiny W}}$  v.9.6.18 Sanitas software licensed to SCS Engineers. UG Hollow symbols indicate censored values.



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 8/1/2019 8:49 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Prediction Limit Within Limit Intrawell Non-parametric 0.3 MW-102 background 0.24 MW-102 compliance ٠ 0.18 mg/L Limit = 0.20.12 -0--0--0--0 -0-0.06 0 2/27/18 5/23/18 8/16/18 11/9/18 2/2/19 4/29/19

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 8/1/2019 8:49 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Sanitas<sup>w</sup> v.9.6.18 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.

Sanitas™ v.9.6.18 Sanitas software licensed to SCS Engineers. UG

Sanitas™ v.9.6.18 Sanitas software licensed to SCS Engineers. UG

Hollow symbols indicate censored values.

Within Limit

Prediction Limit



Background Data Summary: Mean=1.294, Std. Dev.=0.03021, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9056, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.007523.

Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-101
2/27/2018	<0.2	
4/16/2018	<0.2	
5/21/2018	<0.2	
7/19/2018	<0.2	
9/10/2018	<0.2	
10/30/2018	<0.2	
12/20/2018	<0.2	
2/15/2019	<0.2	
4/29/2019		<0.2

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	<0.2	
4/16/2018	<0.2	
5/21/2018	<0.2	
7/19/2018	<0.2	
9/10/2018	<0.2	
10/30/2018	<0.2	
12/20/2018	<0.2	
2/14/2019	<0.2	
4/29/2019		<0.2

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-103
2/28/2018	<0.2	
4/16/2018	<0.2	
5/21/2018	<0.2	
7/19/2018	<0.2	
9/11/2018	<0.2	
10/30/2018	<0.2	
12/20/2018	<0.2	
2/14/2019	<0.2	
4/29/2019		<0.2

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-104	MW-104
2/28/2018	1.28	
4/16/2018	1.27	
5/21/2018	1.26	
7/19/2018	1.31	
9/11/2018	1.34	
10/30/2018	1.26	
12/20/2018	1.31	
2/14/2019	1.32	
4/29/2019		1.2

Sanitas™ v.9.6.18 Sanitas software licensed to SCS Engineers. UG



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr







Background Data Summary: Mean=2.254, Std. Dev.=0.2342, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9601, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Sanitas™ v.9.6.18 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit Intrawell Parametric



Sanitas™ v.9.6.18 Sanitas software licensed to SCS Engineers. UG



mg/L

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.6525, Std. Dev.=0.0895, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8618, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=1.406, Std. Dev.=0.2847, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9636, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-105
2/28/2018	1.26	
4/16/2018	1.26	
5/21/2018	1.26	
7/19/2018	1.19	
9/11/2018	1.33	
10/30/2018	1.68	
12/19/2018	1.92	
2/14/2019	1.26	
4/29/2019		1.41

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-107
2/28/2018	2.44	
4/16/2018	2.57	
5/21/2018	2.39	
7/19/2018	2.33	
9/11/2018	2.3	
10/29/2018	2.11	
12/20/2018	2.02	
2/15/2019	1.87	
4/29/2019		2.2

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-10
2/28/2018	1.36	
4/16/2018	1.82	
5/21/2018	1.68	
7/19/2018	1.21	
9/10/2018	0.885	
10/29/2018	1.39	
12/19/2018	1.4	
2/15/2019	1.5	
4/29/2019		1.41

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-109	MW-109
2/27/2018	0.79	
4/16/2018	0.664	
5/21/2018	0.63	
7/19/2018	0.569	
9/10/2018	0.565	
10/29/2018	0.566	
12/19/2018	0.664	
2/15/2019	0.772	
4/29/2019		0.684

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Background Data Summary: Mean=2.021, Std. Dev.=0.5019, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7528, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

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Prediction Limit

Intrawell Parametric





Background Data Summary: Mean=0.9038, Std. Dev.=0.05602, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7979, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.0032). Report alpha = 0.0007523.

Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Boron Analysis Run 8/1/2019 8:49 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=133.4, Std. Dev.=4.596, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8804, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

Background Data Summary: Mean=133.3, Std. Dev.=1.832, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8826, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	1.85	
4/16/2018	2.3	
5/21/2018	2.17	
7/19/2018	1.9	
9/10/2018	0.888	
10/30/2018	2.31	
12/19/2018	2.35	
2/15/2019	2.4	
4/29/2019		2.45

Constituent: Boron (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-111	MW-111
2/27/2018	1.03	
4/16/2018	0.846	
5/21/2018	0.904	
7/19/2018	0.897	
9/10/2018	0.873	
10/30/2018	0.863	
12/19/2018	0.909	
2/15/2019	0.908	
4/29/2019		0.843

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-101
2/27/2018	132	
4/16/2018	135	
5/21/2018	134	
7/19/2018	132	
9/10/2018	135	
10/30/2018	135	
12/20/2018	133	
2/15/2019	130	
4/29/2019		124

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	130	
4/16/2018	129	
5/21/2018	133	
7/19/2018	129	
9/10/2018	135	
10/30/2018	139	
12/20/2018	141	
2/14/2019	131	
4/29/2019		125

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Background Data Summary: Mean=148.9, Std. Dev.=15.02, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8806, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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mg/L

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=50.65, Std. Dev.=1.572, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.983, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Calcium Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Calcium Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=56.44, Std. Dev.=3.125, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9447, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=96.94, Std. Dev.=3.485, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8737, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-103
2/28/2018	136	
4/16/2018	155	
5/21/2018	177	
7/19/2018	162	
9/11/2018	149	
10/30/2018	137	
12/20/2018	140	
2/14/2019	135	
4/29/2019		137

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-104	MW-104
2/28/2018	51.8	
4/16/2018	50.2	
5/21/2018	50.9	
7/19/2018	53	
9/11/2018	49.5	
10/30/2018	47.8	
12/20/2018	51.5	
2/14/2019	50.5	
4/29/2019		52.6
Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-105
2/28/2018	101	
4/16/2018	99.5	
5/21/2018	102	
7/19/2018	94.3	
9/11/2018	97.1	
10/30/2018	94.7	
12/19/2018	93.5	
2/14/2019	93.4	
4/29/2019		89.4

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-10	7
2/28/2018	60		
4/16/2018	54.8		
5/21/2018	57.5		
7/19/2018	57.6		
9/11/2018	52.7		
10/29/2018	52.3		
12/20/2018	55.8		
2/15/2019	60.8		
4/29/2019		67.4	
5/20/2019		66.8	1st verification sample
7/00/0010			and varification comple

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Background Data Summary (based on square root transformation): Mean=12.14, Std. Dev.=1.659, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7644, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr





Prediction Limit Intrawell Parametric



Background Data Summary: Mean=110.6, Std. Dev.=14.01, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9482, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=92.63, Std. Dev.=7.062, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9018, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=64.45, Std. Dev.=9.922, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7794, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-108
2/28/2018	144	
4/16/2018	113	
5/21/2018	125	
7/19/2018	131	
9/10/2018	147	
10/29/2018	157	
12/19/2018	255	
2/15/2019	127	
4/29/2019		128

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-109	MW-109
2/27/2018	93.9	
4/16/2018	117	
5/21/2018	110	
7/19/2018	104	
9/10/2018	127	
10/29/2018	130	
12/19/2018	91.5	
2/15/2019	111	
4/29/2019		126

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	55.7	
4/16/2018	57.7	
5/21/2018	62	
7/19/2018	62.5	
9/10/2018	87.1	
10/30/2018	58.6	
12/19/2018	67.6	
2/15/2019	64.4	
4/29/2019		64.1

Constituent: Calcium (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-111	MW-11
2/27/2018	83	
4/16/2018	101	
5/21/2018	91.5	
7/19/2018	84.5	
9/10/2018	87.2	
10/30/2018	98.7	
12/19/2018	96.1	
2/15/2019	99	
4/29/2019		95.9

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Background Data Summary: Mean=6.166, Std. Dev.=0.23, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9359, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.



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mg/L



Prediction Limit

Intrawell Parametric

Background Data Summary: Mean=5.129, Std. Dev.=0.2393, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8398, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Chloride Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan irr

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Prediction Limit Within Limit Intrawell Parametric 4.7 MW-103 background -3.76 MW-103 compliance 2.82 ng/L Limit = 4.679 1.88 0.94 0

2/28/18 5/24/18 8/17/18 11/10/18 2/3/19 4/29/19

Background Data Summary: Mean=4.244, Std. Dev.=0.1971, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9404, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=22.39, Std. Dev.=1.192, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8837, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Chloride Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-10
2/27/2018	6.27	
4/16/2018	5.99	
5/21/2018	6.52	
7/19/2018	6.18	
9/10/2018	6.12	
10/30/2018	5.9	
12/20/2018	6.43	
2/15/2019	5.92	
4/29/2019		6.19
2/15/2019 4/29/2019	5.92	

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	5.08	
4/16/2018	4.89	
5/21/2018	4.99	
7/19/2018	5.1	
9/10/2018	5.26	
10/30/2018	4.95	
12/20/2018	5.65	
2/14/2019	5.11	
4/29/2019		5.29

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-10
2/28/2018	4.2	
4/16/2018	4.03	
5/21/2018	4.08	
7/19/2018	4.36	
9/11/2018	4.54	
10/30/2018	4.42	
12/20/2018	4.32	
2/14/2019	4	
4/29/2019		4.51

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

2/28/2018     23.5       4/16/2018     23       5/21/2018     23.6	.5
4/16/2018 23 5/21/2018 23.6	l
5/21/2018 23.6	
=	.6
//19/2018 21.9	.9
9/11/2018 21.6	.6
10/30/2018 20.5	.5
12/20/2018 21.4	.4
2/14/2019 23.6	.6
4/29/2019	23

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Background Data Summary: Mean=18.3, Std. Dev.=0.4536, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9787, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Chloride Analysis Run 8/1/2019 8:49 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Chloride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan irr

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Within Limit

Prediction Limit Intrawell Non-parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=25.46, Std. Dev.=2.257, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8817, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Chloride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-10
2/28/2018	18.5	
4/16/2018	19	
5/21/2018	18.6	
7/19/2018	18.4	
9/11/2018	18.3	
10/30/2018	17.9	
12/19/2018	18.2	
2/14/2019	17.5	
4/29/2019		17.8
-120/2010		17.0

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-10	)7
2/28/2018	18.5		
4/16/2018	19.7		
5/21/2018	20.6		
7/19/2018	20.1		
9/11/2018	19		
10/29/2018	20.2		
12/20/2018	20.2		
2/15/2019	25.9		
4/29/2019		33.3	
5/20/2019		34.2	1st verification sample
7/23/2019		34.3	2nd verification sample

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-108
2/28/2018	16.5	
4/16/2018	16	
5/21/2018	16.4	
7/19/2018	16.7	
9/10/2018	17.5	
10/29/2018	18.9	
12/19/2018	28.7	
2/15/2019	18.8	
4/29/2019		18.7

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-109	MW-109
2/27/2018	25.2	
4/16/2018	23.1	
5/21/2018	25.7	
7/19/2018	27.7	
9/10/2018	27.2	
10/29/2018	27.1	
12/19/2018	26.5	
2/15/2019	21.2	
4/29/2019		22.5

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Chloride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



Within Limit

mg/L

Prediction Limit





Background Data Summary: Mean=9.855, Std. Dev.=1.46, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9538, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Chloride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=528.9, Std. Dev.=11.54, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9683, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.





Prediction Limit





Background Data Summary: Mean=504.5, Std. Dev.=15.64, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.918, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	20.7	
4/16/2018	20	
5/21/2018	21	
7/19/2018	20.4	
9/10/2018	11.8	
10/30/2018	20.1	
12/19/2018	20.3	
2/15/2019	20.7	
4/29/2019		20.5

Constituent: Chloride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

2018 11.3	
2018 7.71	
2018 9.92	
2018 11	
2018 11.8	
/2018 9.29	
/2018 9.63	
2019 8.19	
2019	8.3
2018 11   2018 11.8   /2018 9.29   /2018 9.63   2019 8.19   2019 2019	

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-101
2/27/2018	534	
4/16/2018	536	
5/21/2018	522	
7/19/2018	538	
9/10/2018	545	
10/30/2018	526	
12/20/2018	509	
2/15/2019	521	
4/29/2019		536

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	507	
4/16/2018	492	
5/21/2018	506	
7/19/2018	506	
9/10/2018	526	
10/30/2018	516	
12/20/2018	474	
2/14/2019	509	
4/29/2019		477

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Background Data Summary: Mean=519.6, Std. Dev.=49.82, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9082, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

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480



l/gr





MW-104 background

Background Data Summary: Mean=429.8, Std. Dev.=20.26, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9563, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Dissolved Solids Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



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Background Data Summary: Mean=686.3, Std. Dev.=15.21, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9136, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

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Prediction Limit



Background Data Summary: Mean=641.3, Std. Dev.=31.27, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9125, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0057823.

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-103
2/28/2018	493	
4/16/2018	549	
5/21/2018	619	
7/19/2018	535	
9/11/2018	528	
10/30/2018	477	
12/20/2018	465	
2/14/2019	491	
4/29/2019		485

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-104	MW-104
2/28/2018	444	
4/16/2018	433	
5/21/2018	425	
7/19/2018	455	
9/11/2018	450	
10/30/2018	417	
12/20/2018	393	
2/14/2019	421	
4/29/2019		397

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-105
2/28/2018	689	
4/16/2018	677	
5/21/2018	713	
7/19/2018	684	
9/11/2018	676	
10/30/2018	668	
12/19/2018	679	
2/14/2019	704	
4/29/2019		647

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-107
2/28/2018	683	
4/16/2018	637	
5/21/2018	628	
7/19/2018	634	
9/11/2018	639	
10/29/2018	647	
12/20/2018	583	
2/15/2019	679	
4/29/2019		619

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Dissolved Solids Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr



Within Limit

l/gr





Background Data Summary: Mean=674.9, Std. Dev.=49.53, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9485, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Dissolved Solids Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary (based on x<sup>4</sup> transformation): Mean=2.6e11, Std. Dev.=6.8e10, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7657, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.







Prediction Limit Intrawell Parametric



Background Data Summary: Mean=566.9, Std. Dev.=12.52, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9265, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-10
2/28/2018	791	
4/16/2018	761	
5/21/2018	743	
7/19/2018	796	
9/10/2018	805	
10/29/2018	906	
12/19/2018	1490	
2/15/2019	835	
4/29/2019		799

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-109	MW-109
2/27/2018	641	
4/16/2018	700	
5/21/2018	663	
7/19/2018	653	
9/10/2018	739	
10/29/2018	708	
12/19/2018	584	
2/15/2019	711	
4/29/2019		692

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	733	
4/16/2018	703	
5/21/2018	728	
7/19/2018	715	
9/10/2018	572	
10/30/2018	752	
12/19/2018	751	
2/15/2019	727	
4/29/2019		776

Constituent: Dissolved Solids (mg/l) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-111	MW-111
2/27/2018	569	
4/16/2018	554	
5/21/2018	580	
7/19/2018	555	
9/10/2018	552	
10/30/2018	586	
12/19/2018	572	
2/15/2019	567	
4/29/2019		559

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Background Data Summary: Mean=0.327, Std. Dev.=0.0401, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.796, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Background Data Summary: Mean=0.2636, Std. Dev.=0.04452, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9243, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



Limit = 0.328

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.5675, Std. Dev.=0.08725, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9166, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=0.2403, Std. Dev.=0.03972, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8898, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-101
2/27/2018	0.288	
4/16/2018	0.387	
5/21/2018	0.3	
7/19/2018	0.297	
9/10/2018	0.392	
10/30/2018	0.318	
12/20/2018	0.316	
2/15/2019	0.318	
4/29/2019		0.385

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	0.209	
4/16/2018	0.335	
5/21/2018	0.305	
7/19/2018	0.229	
9/10/2018	0.3	
10/30/2018	0.244	
12/20/2018	0.23	
2/14/2019	0.257	
4/29/2019		0.28

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-103
2/28/2018	0.197	
4/16/2018	0.306	
5/21/2018	0.277	
7/19/2018	0.21	
9/11/2018	0.273	
10/30/2018	0.219	
12/20/2018	0.209	
2/14/2019	0.231	
4/29/2019		0.257
4/29/2019		0
Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-104	MW-104
2/28/2018	0.47	
4/16/2018	0.674	
5/21/2018	0.628	
7/19/2018	0.51	
9/11/2018	0.67	
10/30/2018	0.598	
12/20/2018	0.453	
2/14/2019	0.537	
4/29/2019		0.593

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Background Data Summary: Mean=0.7195, Std. Dev.=0.08849, 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 = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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mg/L

Prediction Limit



Background Data Summary: Mean=0.6168, Std. Dev.=0.1325, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9564, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.5289, Std. Dev.=0.06427, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8832, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=0.4889, Std. Dev.=0.1113, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9807, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-105
2/28/2018	0.654	
4/16/2018	0.837	
5/21/2018	0.791	
7/19/2018	0.637	
9/11/2018	0.808	
10/30/2018	0.744	
12/19/2018	0.595	
2/14/2019	0.69	
4/29/2019		0.791

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-107
2/28/2018	0.494	
4/16/2018	0.79	
5/21/2018	0.779	
7/19/2018	0.604	
9/11/2018	0.416	
10/29/2018	0.667	
12/20/2018	0.532	
2/15/2019	0.652	
4/29/2019		0.744

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-108
2/28/2018	0.394	
4/16/2018	0.668	
5/21/2018	0.605	
7/19/2018	0.425	
9/10/2018	0.48	
10/29/2018	0.53	
12/19/2018	0.327	
2/15/2019	0.482	
4/29/2019		0.559

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

2/27/2018	
2/2//2010	0.461
4/16/2018	0.6
5/21/2018	0.58
7/19/2018	0.47
9/10/2018	0.601
10/29/2018	0.557
12/19/2018	0.445
2/15/2019	0.517
4/29/2019	0.604
10/29/2018 12/19/2018 2/15/2019 4/29/2019	0.557 0.445 0.517

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Background Data Summary: Mean=0.5185, Std. Dev.=0.1003, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.001, calculated = 0.8791, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0057523.

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Prediction Limit





Background Data Summary: Mean=0.5604, Std. Dev.=0.08549, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9284, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.00312). Report alpha = 0.0007523.

Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Fluoride Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limits

Prediction Limit



Background Data Summary: Mean=7.221, Std. Dev.=0.2682, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8777, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

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Prediction Limit



Background Data Summary: Mean=7.216, Std. Dev.=0.2011, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8971, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	0.489	
4/16/2018	0.648	
5/21/2018	0.621	
7/19/2018	0.457	
9/10/2018	0.628	
10/30/2018	0.47	
12/19/2018	0.374	
2/15/2019	0.461	
4/29/2019		0.551

Constituent: Fluoride (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

0.574

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-101
2/27/2018	7.15	
4/16/2018	6.93	
5/21/2018	7.39	
7/19/2018	7.05	
9/10/2018	7.07	
10/30/2018	7.1	
12/20/2018	7.3	
2/15/2019	7.78	
4/29/2019		7.18

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	7.11	
4/16/2018	6.99	
5/21/2018	7.37	
7/19/2018	7.07	
9/10/2018	7.1	
10/30/2018	7.15	
12/20/2018	7.35	
2/14/2019	7.59	
4/29/2019		7.11

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Background Data Summary: Mean=7.165, Std. Dev.=0.1472, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @dalpha = 0.01, calculated = 0.0459, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

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Prediction Limit



Background Data Summary: Mean=7.514, Std. Dev.=0.1894, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9364, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr Constituent: pH Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limits

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.364, Std. Dev.=0.2213, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9553, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132. Report alpha = 0.005723.

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Within Limits

Prediction Limit



Background Data Summary: Mean=7.613, Std. Dev.=0.1905, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9567, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-103
2/28/2018	7.24	
4/16/2018	6.96	
5/21/2018	7.24	
7/19/2018	7.39	
9/11/2018	7.02	
10/30/2018	7.16	
12/20/2018	7.27	
2/14/2019	7.04	
4/29/2019		7.15

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-104	MW-104
2/28/2018	7.5	
4/16/2018	7.29	
5/21/2018	7.64	
7/19/2018	7.86	
9/11/2018	7.45	
10/30/2018	7.45	
12/20/2018	7.62	
2/14/2019	7.3	
4/29/2019		7.56

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-105
2/28/2018	7.05	
4/16/2018	7.23	
5/21/2018	7.39	
7/19/2018	7.58	
9/11/2018	7.23	
10/30/2018	7.3	
12/20/2018	7.37	
2/14/2019	7.76	
4/29/2019		7.41

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-10	7
2/28/2018	7.94		
4/16/2018	7.76		
5/21/2018	7.54		
7/19/2018	7.58		
9/11/2018	7.51		
10/29/2018	7.47		
12/20/2018	7.75		
2/15/2019	7.35		
4/29/2019		7.39	
5/20/2019		7.49	extra sample
7/23/2019		7.93	extra sample

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Background Data Summary: Mean=7.506, Std. Dev.=0.4207, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8278, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.301, Std. Dev.=0.1583, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9525, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: pH Analysis Run 8/1/2019 8:50 AM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limits

S.U

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.543, Std. Dev.=0.2271, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9407, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Within Limits

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.336, Std. Dev.=0.1243, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8949, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-108
2/28/2018	7.38	
4/16/2018	7.59	
5/21/2018	7.79	
7/19/2018	7.21	
9/10/2018	7.14	
10/29/2018	7.23	
12/20/2018	7.31	
2/15/2019	8.4	
4/29/2019		7.32

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-109	MW-109
2/27/2018	7.32	
4/16/2018	7.5	
5/21/2018	7.53	
7/19/2018	7.19	
9/10/2018	7.07	
10/29/2018	7.2	
12/20/2018	7.36	
2/15/2019	7.24	
4/29/2019		7.22

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	7.52	
4/16/2018	7.87	
5/21/2018	7.83	
7/19/2018	7.5	
9/10/2018	7.25	
10/30/2018	7.31	
12/20/2018	7.65	
2/15/2019	7.41	
4/29/2019		7.51

Constituent: pH (S.U.) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-111	MW-111
2/27/2018	7.24	
4/16/2018	7.42	
5/21/2018	7.53	
7/19/2018	7.22	
9/10/2018	7.25	
10/30/2018	7.45	
12/20/2018	7.38	
2/15/2019	7.2	
4/29/2019		7.32

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Within Limit

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Prediction Limit

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: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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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.

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Hollow symbols indicate censored values.

Within Limit

Within Limit

Prediction Limit



Background Data Summary: Mean-128.8, Std. Dev.=13.73, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9158, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0057523.

Constituent: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



Prediction Limit

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: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-101	MW-101
2/27/2018	<5	
4/16/2018	<5	
5/21/2018	<5	
7/19/2018	<5	
9/10/2018	<5	
10/30/2018	<5	
12/20/2018	<5	
2/15/2019	<5	
4/29/2019		<5

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-102	MW-102
2/27/2018	<5	
4/16/2018	<5	
5/21/2018	<5	
7/19/2018	<5	
9/10/2018	<5	
10/30/2018	<5	
12/20/2018	<5	
2/14/2019	<5	
4/29/2019		<5

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-103	MW-103
2/28/2018	<5	
4/16/2018	<5	
5/21/2018	<5	
7/19/2018	<5	
9/11/2018	<5	
10/30/2018	<5	
12/20/2018	<5	
2/14/2019	<5	
4/29/2019		<5

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-104	MW-104
2/28/2018	130	
4/16/2018	136	
5/21/2018	138	
7/19/2018	147	
9/11/2018	139	
10/30/2018	109	
12/20/2018	116	
2/14/2019	115	
4/29/2019		119

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Background Data Summary: Mean=267.8, Std. Dev.=17.01, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9131, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.







mg/L

Prediction Limit





Background Data Summary: Mean=242.4, Std. Dev.=17.14, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9005, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

Constituent: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limit

Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=209.9, Std. Dev.=22.35, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.897, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-105	MW-105
2/28/2018	282	
4/16/2018	292	
5/21/2018	286	
7/19/2018	267	
9/11/2018	255	
10/30/2018	250	
12/19/2018	248	
2/14/2019	262	
4/29/2019		281

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-107	MW-10	7
2/28/2018	264		
4/16/2018	233		
5/21/2018	222		
7/19/2018	235		
9/11/2018	225		
10/29/2018	239		
12/20/2018	255		
2/15/2019	266		
4/29/2019		249	
7/23/2019		220	extra sample

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-108	MW-108
2/28/2018	292	
4/16/2018	283	
5/21/2018	278	
7/19/2018	304	
9/10/2018	303	
10/29/2018	374	
12/19/2018	666	
2/15/2019	303	
4/29/2019		336

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-109	MW-109
2/27/2018	222	
4/16/2018	233	
5/21/2018	200	
7/19/2018	203	
9/10/2018	193	
10/29/2018	186	
12/19/2018	193	
2/15/2019	249	
4/29/2019		245

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Within Limit



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Intrawell Parametric MW-111 background MW-111 compliance Limit = 96.55

0 2/27/18 5/23/18 8/16/18 11/9/18 2/2/19 4/29/19

Background Data Summary: Mean=57.46, Std. Dev.=17.69, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7706, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Prediction Limit

Constituent: Sulfate Analysis Run 8/1/2019 8:50 AM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-110	MW-110
2/27/2018	352	
4/16/2018	353	
5/21/2018	690	
7/19/2018	343	
9/10/2018	67.4	
10/30/2018	346	
12/19/2018	348	
2/15/2019	345	
4/29/2019		361

Constituent: Sulfate (mg/L) Analysis Run 8/1/2019 8:52 AM View: Ash Impound III

	MW-111	MW-11
2/27/2018	71.4	
4/16/2018	31.3	
5/21/2018	64.7	
7/19/2018	73.1	
9/10/2018	66.8	
10/30/2018	62.8	
12/19/2018	61.8	
2/15/2019	27.8	
4/29/2019		26.3

latan Utility Waste LF Client: SCS Engineers Data: latan jrr Printed 8/1/2019, 8:52 AM

Constituent	W/oll	Uppor Lim	LowerLim	Data	Obsory	Sig	Ba N		Transform	Alpha	Mothod
Boron (mg/l)	<u>Weil</u> MW/_101	<u>opper Lini.</u> 0.2	<u>n/a</u>	<u>Date</u> 1/20/2010		No.	8	100	<u>n/a</u>		NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-101	0.2	n/a	4/29/2019	0.1ND	No	8	100	n/a	0.000012	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-102	0.2	n/a	4/29/2019	0.1ND	No	8	100	n/a	0.000012	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-100	1 361	n/a	1/20/2010	1.2	No	8	0	No	0.000012	Param Intra 1 of 3
Boron (mg/L)	MW-104	1.901	n/a	4/29/2019	1.2	No	8	0	n/a	0.000	NP Intra (normality)
Boron (mg/L)	MW-103	2 771	n/a	1/20/2010	2.2	No	8	0	No	0.000012	Param Intra 1 of 3
Boron (mg/L)	MW-107	2.035	n/a	4/29/2019	2.2 1 /1	No	8	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW-100	0.8503	n/a	4/20/2010	0.684	No	0 Q	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW 110	0.0000	n/a	4/29/2019	0.064	No	0	0	No	0.000	Param Intra 1 of 2
Boron (mg/L)		3.13	n/a	4/29/2019	2.43	No	0	0	No	0.000	Param Intra 1 of 2
Bolon (mg/L)		1.020	n/a	4/29/2019	0.043	No	0	0	No	0.000	Param Intra 1 of 2
Calcium (mg/L)	MW 102	137.3	n/a	4/29/2019	124	No	0	0	No	0.000	Param Intra 1 of 2
	NIV-102	143.5	n/a	4/29/2019	125	INO N.	0	0	NO	0.000	Param Intra 1 of 3
	MW-103	182.1	n/a	4/29/2019	137	INO N.	8	0	NO	0.000	Param Intra 1 of 3
	MW-104	54.12	n/a	4/29/2019	52.6	INO N.	8	0	NO	0.000	Param Intra 1 of 3
	MW-105	104.6	n/a	4/29/2019	89.4	NO	8	0	NO	0.000	Param Intra 1 of 3
Calcium (mg/L)	MVV-107	63.34	n/a	7/23/2019	54.8	NO	8	0	NO	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-108	250	n/a	4/29/2019	128	NO	8	0	sqrt(x)	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-109	141.5	n/a	4/29/2019	126	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MVV-110	86.38	n/a	4/29/2019	64.1	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-111	108.2	n/a	4/29/2019	95.9	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-101	6.675	n/a	4/29/2019	6.19	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-102	5.657	n/a	4/29/2019	5.29	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-103	4.679	n/a	4/29/2019	4.51	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-104	25.02	n/a	4/29/2019	23	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-105	19.3	n/a	4/29/2019	17.8	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-107	25.9	n/a	7/23/2019	34.3	Yes	8	0	n/a	0.005912	NP Intra (normality)
Chloride (mg/L)	MW-108	28.7	n/a	4/29/2019	18.7	No	8	0	n/a	0.005912	NP Intra (normality)
Chloride (mg/L)	MW-109	30.45	n/a	4/29/2019	22.5	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-110	21	n/a	4/29/2019	20.5	No	8	0	n/a	0.005912	NP Intra (normality)
Chloride (mg/L)	MW-111	13.08	n/a	4/29/2019	8.3	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-101	554.4	n/a	4/29/2019	536	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-102	539.1	n/a	4/29/2019	477	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-103	629.7	n/a	4/29/2019	485	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-104	474.5	n/a	4/29/2019	397	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-105	719.9	n/a	4/29/2019	647	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-107	710.4	n/a	4/29/2019	619	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-108	1490	n/a	4/29/2019	799	No	8	0	n/a	0.005912	NP Intra (normality)
Dissolved Solids (mg/l)	MW-109	784.3	n/a	4/29/2019	692	No	8	0	No	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-110	801.3	n/a	4/29/2019	776	No	8	0	x^4	0.000	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-111	594.5	n/a	4/29/2019	559	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-101	0.4156	n/a	4/29/2019	0.385	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-102	0.362	n/a	4/29/2019	0.28	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-103	0.328	n/a	4/29/2019	0.257	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-104	0.7603	n/a	4/29/2019	0.593	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-105	0.9151	n/a	4/29/2019	0.791	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-107	0.9095	n/a	4/29/2019	0.744	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-108	0.7348	n/a	4/29/2019	0.559	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-109	0.6709	n/a	4/29/2019	0.604	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (mg/L)	MW-110	0.7402	n/a	4/29/2019	0.551	No	8	0	No	0.000	Param Intra 1 of 3
Fluoride (ma/L)	MW-111	0.7493	n/a	4/29/2019	0.574	No	8	0	No	0.000	Param Intra 1 of 3

latan Utility Waste LF Client: SCS Engineers Data: latan jrr Printed 8/1/2019, 8:52 AM

Constituent	ام//	l Inner I im	Lower Lim	Date	Observ	Sia	Ba N	%NDe	Transform	Alnha	Method
		7 01/	<u>EGWEI EIIII.</u>	<u>Date</u>	7 19	<u>oig.</u>	0	0	No		Derem Intro 1 of 2
рп (3.0.)	1010	7.014	0.020	4/29/2019	1.10	NO	0	0	NU	0.000	Falalli Illua 1 01 3
pH (S.U.)	MW-102	7.661	6.772	4/29/2019	7.11	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-103	7.49	6.84	4/29/2019	7.15	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-104	7.932	7.095	4/29/2019	7.56	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-105	7.853	6.875	4/29/2019	7.41	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-107	8.033	7.192	7/23/2019	7.93	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-108	8.436	6.576	4/29/2019	7.32	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-109	7.651	6.951	4/29/2019	7.22	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-110	8.044	7.041	4/29/2019	7.51	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-111	7.611	7.062	4/29/2019	7.32	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-101	5	n/a	4/29/2019	2.5ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	MW-102	5	n/a	4/29/2019	2.5ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	MW-103	5	n/a	4/29/2019	2.5ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	MW-104	159.1	n/a	4/29/2019	119	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-105	305.3	n/a	4/29/2019	281	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-107	280.2	n/a	7/23/2019	220	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-108	666	n/a	4/29/2019	336	No	8	0	n/a	0.005912	NP Intra (normality)
Sulfate (mg/L)	MW-109	259.3	n/a	4/29/2019	245	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-110	690	n/a	4/29/2019	361	No	8	0	n/a	0.005912	NP Intra (normality)
Sulfate (mg/L)	MW-111	96.55	n/a	4/29/2019	26.3	No	8	0	No	0.000	Param Intra 1 of 3
latan Generating Station Determination of Statistically Significant Increases Ash Impoundment August 17, 2019

## ATTACHMENT 2

Sanitas<sup>™</sup> Configuration Settings

Data	Output	Trend Test	Control Cht	Prediction Lim	Tolerance Lim	Conf/Tol Int	ANOVA	Welchs	Other Tests
Evolut	la data flag	e.							
Excite	ic data hay	ə.							
Data	Reading O	ptions							
🔘 In	ndividual Ob	oservations							
$\bigcirc$ M	lean of Eac	:h:	O Month						
$\bigcirc$ M	ledian of Ea	ach:	Seasor	n					
Non-	Detect / Tr	ace Handling.							
Setup	Seasons								
🗌 Aut	omatically f	Process Resa	mples						

Data	Output	Trend Test	Control Cht	Prediction Lim	Tolerance Lim	Conf/Tol In	nt ANOVA	Welchs	Other Tests
Data Bla Fou Fou Dra Control C	Output ck and Whi ar Plots Per Always Con Include Ticl Use Constit aw Border A arge/Reduc de Margins de CAS# (No incate File N lude Limit Li ow Deselect ow Deselect o Symbols ar	Trend Test te Output Page abine Data Pa k Marks on D uent Name for round Text R ce Fonts (Grap ce Fonts (Data con reports with t Const. Name Vames to 20 nes when fou ted Data on a nd Colors	Control Cht ages ata Page r Graph Title eports and Da phs): a/Text Report thout explicit s e) Characters ind in Databas Time Series	Prediction Lim ta Pages 100% s): 100% etting) se ighter ~	Tolerance Lim  Pro Rou Use Indi Sho Thic Zou Output Les No No	Conf/Tol In mpt to Overv and Limits to er-Set Scale icate Backgr ow Exact Da ck Plot Lines om Factor: Decimal Pre- ss Precision mal Precision re Precision	nt ANOVA write/Append S 2 Sig. Digits round Data ates s 200% ~ ccision	Welchs Summary Ta (when not	Other Tests ables set in data file)
				<b>∠</b> S	tore Print Jobs in	Multiple Cor	nstituent Mode	Store A	NI Print Jobs
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Data Output Trend Test Control Cht	Prediction Lim	Tolerance Lim	Conf/Tol Int	ANOVA	Welchs	Other Tests		
<ul> <li>✓ Test for Normality using Shapiro-Wilk/Fra</li> <li>✓ Use Non-Parametric Test when Non-Detecture</li> <li>✓ When Non-Detecture</li> </ul>	incia ✓ cts Percent > etects Percent >	at Alpha = 0.01       Image: Constraint of the second						
Optional Further Refinement: Use	~ w	hen NDs % >	50	Use Best W	/ Statistic	i Log 🗸		
Use Poisson Prediction Limit when Non-De	etects Percent >	90		Plot Transfo	ormed Value	es		
Deseasonalize (Intra- and InterWell) ● If Seasonality Is Detected ○ If Seasonality Is Detected Or Insufficient ○ Always (When Sufficient Data) ○ I □ Always Use Non-Parametric Facility α Statistical Evaluations per Year: Constituents Analyzed: Downgradient (Compliance) Wells: Sampling Plan Comparing Individual Observations ○ 1 of 1 ○ 1 of 2 ● 1 of 3 ○ 2 of 4 ("Modified California")	to Test Never 2 7 10 0 1 of 4	Intra Well Ot Stop if I Plot Bai Override St Override DI Automa 2-Tailed Show D Non-Parame Non-Parame Most R Most R	her Background Tr ckground Data andard Deviati F:	end Detect on: Dverride Kap Backgroun a Lighter dighest Bac 100% Non est Backgro vailable, or und Value (	ed at Alph ppa: d Outliers wground Va -Detects: Dund Value MDL (subst. meth	a = 0.05 ~		

Data Output Trend Test Control Cht Prediction Lim Tolerance Lim Conf/Tol Int ANOVA Welchs Oth	her Tests											
Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney												
Use Modified Alpha 2-Tailed Test Mode												
Outlier Tests												
C EPA 1989 Outlier Screening (fixed alpha of 0.05)												
• Dixon's at $\alpha = 0.05 \lor$ or if n > 22 $\lor$ Rosner's at $\alpha = 0.01 \lor$ Use EPA Screening to establish Suspected	dOutliers											
O Tukey's Outlier Screening, with IQR Multiplier = 3.0 Use Ladder of Powers to achieve Best W Stat												
✓ Test For Normality using Shapiro-Wilk/Francia ∨ at Alpha = 0.1 ∨												
Stop if Non-Normal												
◯ Continue with Parametric Test if Non-Normal												
O Tukey's if Non-Normal, with IQR Multiplier = 3.0 Use Ladder of Powers to achieve Best W Stat												
No Outlier If Less Than 3.0 Times Median												
Apply Bules found in Obio Guidance Document 0715												
Combine Background Wells on the Outlier Report												
Piper, Stiff Diagram												
Use Cenetituent Names     Inde CatorrAnion Balance (Piper only)												

# ATTACHMENT 2-2

Fall 2019 Semiannual Detection Monitoring Statistical Analyses

#### **MEMORANDUM**

March 10, 2020

To: latan Generating Station 20250 State Route 45 N Platte County, Missouri Evergy Metro, Inc.



#### From: SCS Engineers

#### RE: Determination of Statistically Significant Increases – Ash Impoundment Fall 2019 Initial Semiannual Detection Monitoring 40 CFR 257.94

Statistical analysis of monitoring data from the groundwater monitoring system for the Ash Impoundment at the latan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated April 16, 2019. Groundwater samples were collected on November 4, 2019. Review and validation of the results from the November 2019 Detection Monitoring Event was completed on December 12, 2019, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on January 16, 2020 and February 4, 2020.

The completed statistical evaluation identified one Appendix III constituent above the prediction limit established for monitoring wells MW-105 and MW-107.

Constituent/Monitoring Well	*UPL	Observation November 4, 2019	1st Verification January 16, 2020	2nd Verification February 4, 2020	
Chloride					
MW-105	19.3	20.2	20.4	20.9	
MW-107	25.9	31.3	34.3	27.5	

\*UPL – Upper Prediction Limit

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified an SSI above the background prediction limit for chloride in monitoring wells MW-105 and MW-107.

Attached to this memorandum are the following backup information:

Attachment 1: Sanitas<sup>™</sup> Output:

Statistical evaluation output from Sanitas<sup>™</sup> for the prediction limit analysis. This includes prediction limit plots, prediction limit background data, detection sample result, 1<sup>st</sup> verification re-sample result (when applicable), 2<sup>nd</sup> verification re-sample result (when

applicable), extra sample results for pH because pH is collected as part of the sampling procedure, and a Prediction Limit summary table. Output documentation includes the analytical data used for the statistical analyses.

Attachment 2: Sanitas<sup>™</sup> Configuration Settings:

Screen shots of the applicable Sanitas<sup>TM</sup> 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

Iatan Generating Station Determination of Statistically Significant Increases Ash Impoundment March 10, 2020

# ATTACHMENT 1

Sanitas<sup>™</sup> Output

Sanitas  $^{\mbox{\tiny W}}$  v.9.6.25 Sanitas software licensed to SCS Engineers. UG Hollow symbols indicate censored values.



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 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Prediction Limit Within Limit Intrawell Non-parametric 0.3 MW-102 background 0.24 MW-102 compliance ٠ 0.18 mg/L Limit = 0.20.12 -0-0-+0--0--0--0 0.06 0 2/27/18 6/30/18 10/31/18 3/3/19 7/4/19 11/4/19

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 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Sanitas<sup>™</sup> v.9.6.25 Sanitas software licensed to SCS Engineers. UG Hollow symbols indicate censored values.

Within Limit

Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 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.

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Hollow symbols indicate censored values.

Within Limit

Prediction Limit



Background Data Summary: Mean=1.294, Std. Dev.=0.03021, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9056, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.007523.

Constituent: Boron Analysis Run 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Boron Analysis Run 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Boron Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

	MW-101	MW-101	MW-102	MW-102	MW-103	MW-103	MW-104	MW-104
2/27/2018	<0.2		<0.2					
2/28/2018					<0.2		1.28	
4/16/2018	<0.2		<0.2		<0.2		1.27	
5/21/2018	<0.2		<0.2		<0.2		1.26	
7/19/2018	<0.2		<0.2		<0.2		1.31	
9/10/2018	<0.2		<0.2					
9/11/2018					<0.2		1.34	
10/30/2018	<0.2		<0.2		<0.2		1.26	
12/20/2018	<0.2		<0.2		<0.2		1.31	
2/14/2019			<0.2		<0.2		1.32	
2/15/2019	<0.2							
11/4/2019		<0.2		<0.2		<0.2		1.19

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr





mg/L



Prediction Limit

Intrawell Parametric

Background Data Summary: Mean=2.254, Std. Dev.=0.2342, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9601, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Boron Analysis Run 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limit

Prediction Limit



Background Data Summary: Mean=1.406, Std. Dev.=0.2847, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.06368, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132. Report alpha = 0.005723.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.6525, Std. Dev.=0.0895, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8618, critical = 0.749. Kappa = .211 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Boron Analysis Run 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Boron Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

		MW-105	MW-105	MW-107	MW-107	MW-108	MW-108	MW-109	MW-109
:	2/27/2018							0.79	
2	2/28/2018	1.26		2.44		1.36			
	4/16/2018	1.26		2.57		1.82		0.664	
ļ	5/21/2018	1.26		2.39		1.68		0.63	
	7/19/2018	1.19		2.33		1.21		0.569	
9	9/10/2018					0.885		0.565	
9	9/11/2018	1.33		2.3					
	10/29/2018			2.11		1.39		0.566	
	10/30/2018	1.68							
	12/19/2018	1.92				1.4		0.664	
	12/20/2018			2.02					
1	2/14/2019	1.26							
:	2/15/2019			1.87		1.5		0.772	
	11/4/2019		1.77		2.1		1.35		0.709

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Background Data Summary: Mean=2.021, Std. Dev.=0.5019, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7528, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.



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Within Limit

Prediction Limit





Background Data Summary: Mean=0.9038, Std. Dev.=0.05602, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7979, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.0032). Report alpha = 0.0007523.

Constituent: Boron Analysis Run 2/21/2020 3:17 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Background Data Summary: Mean=133.3, Std. Dev.=1.832, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8826, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=133.4, Std. Dev.=4.596, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8804, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

Constituent: Boron, Calcium Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-110	MW-110	MW-111	MW-111	MW-101	MW-101	MW-102	MW-102
2/27/2018	1.85		1.03		132		130	
4/16/2018	2.3		0.846		135		129	
5/21/2018	2.17		0.904		134		133	
7/19/2018	1.9		0.897		132		129	
9/10/2018	0.888		0.873		135		135	
10/30/2018	2.31		0.863		135		139	
12/19/2018	2.35		0.909					
12/20/2018					133		141	
2/14/2019							131	
2/15/2019	2.4		0.908		130			
11/4/2019		2.54		0.786		130		126

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Background Data Summary: Mean=148.9, Std. Dev.=15.02, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8806, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.



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Within Limit

mg/L

Prediction Limit



Background Data Summary: Mean=50.65, Std. Dev =1.572, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.983, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=96.94, Std. Dev.=3.485, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8737, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

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Prediction Limit



Background Data Summary: Mean=56.44, Std. Dev.=3.125, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9447, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Calcium Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Calcium Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

1	MW-103	MW-103	MW-104	I MW-104	MW-105	MW-105	MW-107	MW-107
2/28/2018	136		51.8		101		60	
4/16/2018	155		50.2		99.5		54.8	
5/21/2018	177		50.9		102		57.5	
7/19/2018	162		53		94.3		57.6	
9/11/2018	149		49.5		97.1		52.7	
10/29/2018							52.3	
10/30/2018	137		47.8		94.7			
12/19/2018					93.5			
12/20/2018	140		51.5				55.8	
2/14/2019	135		50.5		93.4			
2/15/2019							60.8	
11/4/2019		130		56.5		76.4		57.5
1/16/2020				55.4 1st Verificatio	on			
2/4/2020				51.3 2nd Verificati	on			

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Background Data Summary (based on square root transformation): Mean=12.14, Std. Dev.=1.659, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7644, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr





Prediction Limit





Background Data Summary: Mean=110.6, Std. Dev.=14.01, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9482, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



MW-110 compliance

Limit = 86.38

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=92.63, Std. Dev.=7.062, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9018, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=64.45, Std. Dev.=9.922, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7794, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Calcium Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Calcium Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Calcium Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

	MW-108	MW-108	MW-109	MW-109	MW-110	MW-110	MW-111	MW-111
2/27/2018			93.9		55.7		83	
2/28/2018	144							
4/16/2018	113		117		57.7		101	
5/21/2018	125		110		62		91.5	
7/19/2018	131		104		62.5		84.5	
9/10/2018	147		127		87.1		87.2	
10/29/2018	157		130					
10/30/2018					58.6		98.7	
12/19/2018	255		91.5		67.6		96.1	
2/15/2019	127		111		64.4		99	
11/4/2019		129		123		61.4		98.8

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Background Data Summary: Mean=6.166, Std. Dev =0.23, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9359, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.







mg/L



Prediction Limit

Intrawell Parametric

Background Data Summary: Mean=5.129, Std. Dev.=0.2393, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8398, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Chloride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=4.244, Std. Dev.=0.1971, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9404, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=22.39, Std. Dev.=1.192, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8837, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

Constituent: Chloride Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-101	MW-101	MW-102	MW-102	MW-103	MW-103	MW-104	MW-104
2/27/2018	6.27		5.08					
2/28/2018					4.2		23.5	
4/16/2018	5.99		4.89		4.03		23	
5/21/2018	6.52		4.99		4.08		23.6	
7/19/2018	6.18		5.1		4.36		21.9	
9/10/2018	6.12		5.26					
9/11/2018					4.54		21.6	
10/30/2018	5.9		4.95		4.42		20.5	
12/20/2018	6.43		5.65		4.32		21.4	
2/14/2019			5.11		4		23.6	
2/15/2019	5.92							
11/4/2019		7.63		5.06		4.55		24.2
1/16/2020		6.38 1st Verification	on					

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Background Data Summary: Mean=18.3, Std. Dev.=0.4536, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9787, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Chloride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Chloride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Non-parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=25.46, Std. Dev.=2.257, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8817, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Chloride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Chloride Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-105	MW-105	MW-107	MW-107	MW-108	MW-108	MW-109	MW-109
2/27/2018							25.2	
2/28/2018	18.5		18.5		16.5			
4/16/2018	19		19.7		16		23.1	
5/21/2018	18.6		20.6		16.4		25.7	
7/19/2018	18.4		20.1		16.7		27.7	
9/10/2018					17.5		27.2	
9/11/2018	18.3		19					
10/29/2018			20.2		18.9		27.1	
10/30/2018	17.9							
12/19/2018	18.2				28.7		26.5	
12/20/2018			20.2					
2/14/2019	17.5							
2/15/2019			25.9		18.8		21.2	
11/4/2019		20.2		31.3		18.4		20.4
1/16/2020		20.4 1st Verifica	tion	34.3 1st Verificat	on			
2/4/2020		20.9 2nd Verifica	ation	27.5 2nd Verifica	tion			

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Chloride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



Within Limit

Prediction Limit





Background Data Summary: Mean=9.855, Std. Dev.=1.46, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9538, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Chloride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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112

0

Within Limit Prediction Limit Intrawell Parametric

2/27/18 6/30/18 10/31/18 3/3/19

MW-101 background
 MW-101 compliance
 Limit = 554.4

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Within Limit

Prediction Limit



Background Data Summary: Mean=504.5, Std. Dev.=15.64, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.918, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=528.9, Std. Dev.=11.54, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9683, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

7/4/19

11/4/19

Constituent: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Chloride, Dissolved Solids Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-110	MW-110	MW-111	MW-111	MW-101	MW-101	MW-102	MW-102
2/27/2018	20.7		11.3		534		507	
4/16/2018	20		7.71		536		492	
5/21/2018	21		9.92		522		506	
7/19/2018	20.4		11		538		506	
9/10/2018	11.8		11.8		545		526	
10/30/2018	20.1		9.29		526		516	
12/19/2018	20.3		9.63					
12/20/2018					509		474	
2/14/2019							509	
2/15/2019	20.7		8.19		521			
11/4/2019		20.2		7.85		504		446

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Background Data Summary: Mean=519.6, Std. Dev.=49.82, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9082, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.







l/gr



Prediction Limit

Background Data Summary: Mean=429.8, Std. Dev.=20.26, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9563, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Prediction Limit Within Limit Intrawell Parametric 720 MW-105 background ┼┓ 576 MW-105 compliance 432 ng/l Limit = 719.9 288 144 0 2/28/18 6/30/18 10/31/18 3/3/19 7/4/19 11/4/19

Background Data Summary: Mean=686.3, Std. Dev.=15.21, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.0136, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0057823.

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Prediction Limit



Background Data Summary: Mean=641.3, Std. Dev.=31.27, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9125, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

Constituent: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Constituent: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Dissolved Solids Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-103	MW-103	MW-104	MW-104	MW-105	MW-105	MW-107	MW-107
2/28/2018	493		444		689		683	
4/16/2018	549		433		677		637	
5/21/2018	619		425		713		628	
7/19/2018	535		455		684		634	
9/11/2018	528		450		676		639	
10/29/2018							647	
10/30/2018	477		417		668			
12/19/2018					679			
12/20/2018	465		393				583	
2/14/2019	491		421		704			
2/15/2019							679	
11/4/2019		455		418		688		577

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



Within Limit

l/gr





Background Data Summary: Mean-674.9, Std. Dev.=49.53, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9485, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Dissolved Solids Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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Within Limit





Background Data Summary (based on x<sup>4</sup> transformation): Mean=2.6e11, Std. Dev.=6.8e10, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7657, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Prediction Limit



Background Data Summary: Mean-566.9, Std. Dev.=12.52, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9265, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Dissolved Solids Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

	MW-108	MW-108	MW-109	MW-109	MW-110	MW-110	MW-111	MW-111
2/27/2018			641		733		569	
2/28/2018	791							
4/16/2018	761		700		703		554	
5/21/2018	743		663		728		580	
7/19/2018	796		653		715		555	
9/10/2018	805		739		572		552	
10/29/2018	906		708					
10/30/2018					752		586	
12/19/2018	1490		584		751		572	
2/15/2019	835		711		727		567	
11/4/2019		760		712		717		526

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Background Data Summary: Mean=0.327, Std. Dev.=0.0401, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.796, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.



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Within Limit

ng/L

Prediction Limit Intrawell Parametric





Background Data Summary: Mean=0.2636, Std. Dev.=0.04452, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9243, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.5675, Std. Dev.=0.08725, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9166, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=0.2403, Std. Dev.=0.03972, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8898, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-101	MW-101	MW-102	MW-102	MW-103	MW-103	MW-104	MW-104
2/27/2018	0.288		0.209					
2/28/2018					0.197		0.47	
4/16/2018	0.387		0.335		0.306		0.674	
5/21/2018	0.3		0.305		0.277		0.628	
7/19/2018	0.297		0.229		0.21		0.51	
9/10/2018	0.392		0.3					
9/11/2018					0.273		0.67	
10/30/2018	0.318		0.244		0.219		0.598	
12/20/2018	0.316		0.23		0.209		0.453	
2/14/2019			0.257		0.231		0.537	
2/15/2019	0.318							
11/4/2019		0.551		0.254		0.238		0.518
1/16/2020		0.38 1st Verificati	on					

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Background Data Summary: Mean=0.7195, Std. Dev.=0.08849, 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 = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.







Prediction Limit





Intrawell Parametric

Background Data Summary: Mean=0.6168, Std. Dev.=0.1325, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9564, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Parametric



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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.5289, Std. Dev.=0.06427, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8832, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Background Data Summary: Mean=0.4889, Std. Dev.=0.1113, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9807, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

> Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Fluoride Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-105	MW-105	MW-107	MW-107	MW-108	MW-108	MW-109	MW-109
2/27/2018							0.461	
2/28/2018	0.654		0.494		0.394			
4/16/2018	0.837		0.79		0.668		0.6	
5/21/2018	0.791		0.779		0.605		0.58	
7/19/2018	0.637		0.604		0.425		0.47	
9/10/2018					0.48		0.601	
9/11/2018	0.808		0.416					
10/29/2018			0.667		0.53		0.557	
10/30/2018	0.744							
12/19/2018	0.595				0.327		0.445	
12/20/2018			0.532					
2/14/2019	0.69							
2/15/2019			0.652		0.482		0.517	
11/4/2019		0.799		0.683		0.492		0.477

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Background Data Summary: Mean=0.5185, Std. Dev.=0.1003, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.001, calculated = 0.8791, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0057523.

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Prediction Limit





Background Data Summary: Mean=0.5604, Std. Dev.=0.08549, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9284, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.00312). Report alpha = 0.0007523.

Constituent: Fluoride Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



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Within Limits

Prediction Limit



Background Data Summary: Mean=7.221, Std. Dev.=0.2682, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8777, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.216, Std. Dev.=0.2011, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8971, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

Constituent: Fluoride, pH Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

	MW-110	MW-110	MW-111	MW-111	MW-101	MW-101	MW-102	MW-102
2/27/2018	0.489		0.661		7.15		7.11	
4/16/2018	0.648		0.608		6.93		6.99	
5/21/2018	0.621		0.646		7.39		7.37	
7/19/2018	0.457		0.488		7.05		7.07	
9/10/2018	0.628		0.62		7.07		7.1	
10/30/2018	0.47		0.525		7.1		7.15	
12/19/2018	0.374		0.422					
12/20/2018					7.3		7.35	
2/14/2019							7.59	
2/15/2019	0.461		0.513		7.78			
11/4/2019		0.471		0.492		7.1		7.15
1/16/2020						7.33 Extra Sample	•	

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Background Data Summary: Mean=7.165, Std. Dev.=0.1472, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523. Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG



S.U.



Prediction Limit

Intrawell Parametric

Background Data Summary: Mean=7.514, Std. Dev.=0.1894, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9364, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr Constituent: pH Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limits

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.364, Std. Dev.=0.2213, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9553, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.007523. Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG



Prediction Limit



Background Data Summary: Mean=7.613, Std. Dev.=0.1905, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9567, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.
Constituent: pH Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

latan Utility Waste LF Client: SCS Engineers Data: latan jrr

1	MW-103	MW-103	MW-104	MW-104	MW-105	MW-105	MW-107	MW-107
2/28/2018	7.24		7.5		7.05		7.94	
4/16/2018	6.96		7.29		7.23		7.76	
5/21/2018	7.24		7.64		7.39		7.54	
7/19/2018	7.39		7.86		7.58		7.58	
9/11/2018	7.02		7.45		7.23		7.51	
10/29/2018							7.47	
10/30/2018	7.16		7.45		7.3			
12/20/2018	7.27		7.62		7.37		7.75	
2/14/2019	7.04		7.3		7.76			
2/15/2019							7.35	
11/4/2019		7.08		7.65		7.33		7.51
1/16/2020				7.64 Extra Sample	•	7.49 Extra Sample	•	7.62 Extra Sample
2/4/2020				7.65 Extra Sample	)	7.44 Extra Sample	•	7.65 Extra Sample

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Background Data Summary: Mean=7.506, Std. Dev.=0.4207, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8278, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.



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Within Limits

Prediction Limit



Background Data Summary: Mean=7.301, Std. Dev.=0.1583, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9525, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limits

Prediction Limit



Background Data Summary: Mean=7.543, Std. Dev.=0.2271, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9407, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.005723.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.336, Std. Dev.=0.1243, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8949, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: pH Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

1	MW-108	MW-108	MW-109	MW-109	MW-110	MW-110	MW-111	MW-111
2/27/2018			7.32		7.52		7.24	
2/28/2018	7.38							
4/16/2018	7.59		7.5		7.87		7.42	
5/21/2018	7.79		7.53		7.83		7.53	
7/19/2018	7.21		7.19		7.5		7.22	
9/10/2018	7.14		7.07		7.25		7.25	
10/29/2018	7.23		7.2					
10/30/2018					7.31		7.45	
12/20/2018	7.31		7.36		7.65		7.38	
2/15/2019	8.4		7.24		7.41		7.2	
11/4/2019		7.34		7.24		7.56		7.23

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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: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Hollow symbols indicate censored values. Prediction Limit Within Limit Intrawell Non-parametric 6 MW-102 background 4.8 MW-102 compliance ٠ 3.6 mg/L d-------2.4 1.2

2/27/18 6/30/18 10/31/18 3/3/19

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.

7/4/19 11/4/19

Limit = 5

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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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.

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Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=128.8, Std. Dev.=13.73, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9158, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Constituent: Sulfate Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

	MW-101	MW-101	MW-102	MW-102	MW-103	MW-103	MW-104	MW-104
2/27/2018	<5		<5					
2/28/2018					<5		130	
4/16/2018	<5		<5		<5		136	
5/21/2018	<5		<5		<5		138	
7/19/2018	<5		<5		<5		147	
9/10/2018	<5		<5					
9/11/2018					<5		139	
10/30/2018	<5		<5		<5		109	
12/20/2018	<5		<5		<5		116	
2/14/2019			<5		<5		115	
2/15/2019	<5							
11/4/2019		<5		<5		<5		130

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Background Data Summary: Mean=267.8, Std. Dev.=17.01, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9131, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit





Background Data Summary: Mean=242.4, Std. Dev.=17.14, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9005, critical = 0.749. Kappa = 2.21 (c=7), w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.00523.

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III latan Utility Waste LF Client: SCS Engineers Data: latan jrr

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Within Limit

Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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.

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Prediction Limit Intrawell Parametric



Background Data Summary: Mean=209.9, Std. Dev.=22.35, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.897, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Sulfate Analysis Run 2/21/2020 3:20 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

	MW-105	MW-105	MW-107	MW-107	MW-108	MW-108	MW-109	MW-109
2/27/2018							222	
2/28/2018	282		264		292			
4/16/2018	292		233		283		233	
5/21/2018	286		222		278		200	
7/19/2018	267		235		304		203	
9/10/2018					303		193	
9/11/2018	255		225					
10/29/2018			239		374		186	
10/30/2018	250							
12/19/2018	248				666		193	
12/20/2018			255					
2/14/2019	262							
2/15/2019			266		303		249	
11/4/2019		299		221		308		253

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. 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 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Sanitas™ v.9.6.25 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit Intrawell Parametric





Background Data Summary: Mean=57.46, Std. Dev.=17.69, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7706, critical = 0.749. Kappa = 2.21 (c=7, w=10, 1 of 3, event alpha = 0.05132). Report alpha = 0.0007523.

Constituent: Sulfate Analysis Run 2/21/2020 3:18 PM View: Ash Impound III Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Constituent: Sulfate Analysis Run 2/21/2020 3:20 PM View: Ash Impound III

latan Utility Waste LF Client: SCS Engineers Data: latan jrr

	MW-110	MW-110	MW-111	MW-111
2/27/2018	352		71.4	
4/16/2018	353		31.3	
5/21/2018	690		64.7	
7/19/2018	343		73.1	
9/10/2018	67.4		66.8	
10/30/2018	346		62.8	
12/19/2018	348		61.8	
2/15/2019	345		27.8	
11/4/2019		347		22.8

latan Utility Waste LF Client: SCS Engineers Data: latan jrr Printed 2/21/2020, 3:20 PM

Constituent	Well	Upper Lim	l ower l im	Date	Observ	Sia	Ba N	%NDs	Transform	Alpha	Method
Boron (mg/l)	<u>MW-101</u>	0.2	n/a	11/4/2019	0 1ND	<u>No</u>	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-102	0.2	n/a	11/4/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-103	0.2	n/a	11/4/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-104	1.361	n/a	11/4/2019	1.19	No	8	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW-105	1.92	n/a	11/4/2019	1.77	No	8	0	n/a	0.005912	NP Intra (normality)
Boron (mg/L)	MW-107	2.771	n/a	11/4/2019	2.1	No	8	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW-108	2.035	n/a	11/4/2019	1.35	No	8	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW-109	0.8503	n/a	11/4/2019	0.709	No	8	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW-110	3.13	n/a	11/4/2019	2.54	No	8	0	No	0.000	Param Intra 1 of 3
Boron (mg/L)	MW-111	1.028	n/a	11/4/2019	0.786	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-101	137.3	n/a	11/4/2019	130	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-102	143.5	n/a	11/4/2019	126	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-103	182.1	n/a	11/4/2019	130	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-104	54.12	n/a	2/4/2020	51.3	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-105	104.6	n/a	11/4/2019	76.4	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-107	63.34	n/a	11/4/2019	57.5	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-108	250	n/a	11/4/2019	129	No	8	0	sqrt(x)	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-109	141.5	n/a	11/4/2019	123	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-110	86.38	n/a	11/4/2019	61.4	No	8	0	No	0.000	Param Intra 1 of 3
Calcium (mg/L)	MW-111	108.2	n/a	11/4/2019	98.8	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-101	6.675	n/a	1/16/2020	6.38	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-102	5.657	n/a	11/4/2019	5.06	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-103	4.679	n/a	11/4/2019	4.55	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-104	25.02	n/a	11/4/2019	24.2	No	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L)	MW-105	19.3	n/a	2/4/2020	20.9	Yes	8	0	No	0.000	Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L)	MW-105 MW-107	19.3 25.9	n/a n/a	2/4/2020 2/4/2020	20.9 27.5	Yes Yes	8 8	0 0	No n/a	0.000 0.005912	Param Intra 1 of 3 NP Intra (normality)
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L)	MW-105 MW-107 MW-108	<b>19.3</b> <b>25.9</b> 28.7	<b>n/a</b> n/a n/a	<b>2/4/2020</b> <b>2/4/2020</b> 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4	Yes Yes No	8 8 8	0 0 0	<b>No</b> n/a n/a	0.000 0.005912 0.005912	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality)
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L)	<b>MW-105</b> <b>MW-107</b> MW-108 MW-109	<b>19.3</b> <b>25.9</b> 28.7 30.45	<b>n/a</b> n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4	Yes Yes No No	<b>8</b> 8 8	<b>0</b> 0 0	No n/a No	0.000 0.005912 0.005912 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110	<b>19.3</b> <b>25.9</b> 28.7 30.45 21	<b>n/a</b> n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4 20.2	Yes Yes No No No	8 8 8 8 8	0 0 0 0	No n/a No n/a	0.000 0.005912 0.005912 0.000 0.005912	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality)
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111	<b>19.3</b> <b>25.9</b> 28.7 30.45 21 13.08	n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4 20.2 7.85	Yes Yes No No No No	8 8 8 8 8 8	0 0 0 0 0	No n/a No n/a No	0.000 0.005912 0.005912 0.000 0.005912 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101	<b>19.3</b> <b>25.9</b> 28.7 30.45 21 13.08 554.4	<b>n/a</b> n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4 20.2 7.85 504	Yes Yes No No No No	8 8 8 8 8 8 8	0 0 0 0 0 0 0	No n/a No No No	0.000 0.005912 0.005912 0.000 0.005912 0.000 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Dissolved Solids (mg/l)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102	<b>19.3</b> <b>25.9</b> 28.7 30.45 21 13.08 554.4 539.1	n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4 20.2 7.85 504 446	Yes Yes No No No No No	8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0	No n/a No n/a No No	0.000 0.005912 0.005912 0.000 0.005912 0.000 0.000 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103	<b>19.3</b> <b>25.9</b> 28.7 30.45 21 13.08 554.4 539.1 629.7	<b>n/a</b> n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4 20.2 7.85 504 446 455	Yes Yes No No No No No No	8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0	No n/a No n/a No No No	0.000 0.005912 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-104	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5	n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	<b>20.9</b> <b>27.5</b> 18.4 20.4 20.2 7.85 504 446 455 418	Yes Yes No No No No No No No	<ul> <li>8</li> <li>9</li> <li>9&lt;</li></ul>	0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No n/a No No No No	0.000 0.005912 0.005912 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 Param Intra 1 of 3 Param Intra 1 of 3 Param Intra 1 of 3
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Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l) Dissolved Solids (mg/l)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-107 MW-108	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760	Yes No No No No No No No No No No	<ul> <li>8</li> </ul>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No n/a No No No No No No No	0.000 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality)
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Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l)	MW-105 MW-107 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-105 MW-107 MW-108 MW-109 MW-110	<b>19.3 25.9</b> 28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717	Yes No No No No No No No No No No No	<ul> <li>8</li> <li>9</li> <li>9&lt;</li></ul>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No n/a No No No No No No No No No No No X^4	0.000 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.005912 0.000 0.000 0.000 0.000	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l)	MW-105 MW-107 MW-109 MW-110 MW-111 MW-101 MW-102 MW-102 MW-103 MW-104 MW-105 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111	<b>19.3 25.9</b> 28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526	Yes No No No No No No No No No No No No No	<ul> <li>8</li> <li>9</li> <li>9&lt;</li></ul>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No n/a No No No No No No No No No No No No No	0.000 0.005912 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.005912 0.0000 0.000 0.000 0.000 0.0000 0.0000 0	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
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Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-101 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-101 MW-102	<b>19.3 25.9</b> 28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.362	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254	Yes Yes No No No No No No No No No No No No No	<b>8</b> <b>8</b> 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No No No No No No No No No No No No No	0.000 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.005912 0.0000 0.000 0.000 0.0000 0.0000 0.0000 0.	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Fluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-101 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-105 MW-107 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-101 MW-102 MW-103	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.362         0.328	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238	Yes Yes No No No No No No No No No No No No No	<b>8</b> <b>8</b> 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No No No No No No No No No No No No No	0.000 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.005912 0.0000 0.0000 0.0000 0	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-107 MW-107 MW-108 MW-109 MW-109 MW-110 MW-111 MW-101 MW-101 MW-102 MW-103 MW-104	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.328         0.7603	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238 0.218	Yes Yes No No No No No No No No No No No No No	<ul> <li>8</li> <li>9</li> <li>9&lt;</li></ul>	0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No No No No No No No No No No No No No	0.000 0.005912 0.005912 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.005912 0.0000 0.0000 0.0000 0	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-111 MW-101 MW-101 MW-103 MW-104 MW-105	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.328         0.7603         0.9151	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238 0.254 0.238 0.518 0.799	Yes Yes No No No No No No No No No No No No No	<ul> <li>8</li> <li>9</li> <li>9&lt;</li></ul>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No No No No No No No No No No No No No	0.000 0.005912 0.005912 0.0000 0.0000 0.0000 0	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-103 MW-104 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-111 MW-101 MW-101 MW-102 MW-103 MW-104 MW-105 MW-107	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.328         0.7603         0.9151         0.9095	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238 0.254 0.238 0.518 0.799 0.683	Yes           Yes           No	<b>8</b> <b>8</b> 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No n/a No No No No No No No No No No No No No	0.000 0.005912 0.005912 0.0000 0.0000 0.0000 0	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Eluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-104 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-111 MW-101 MW-101 MW-103 MW-104 MW-105 MW-107 MW-108	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.328         0.7603         0.9151         0.9095         0.7348	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238 0.254 0.238 0.518 0.799 0.683 0.492	Yes           Yes           No	<ul> <li>8</li> <li>9</li> <li>9&lt;</li></ul>	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No           n/a           No           n/a           No           No	0.000 0.005912 0.005912 0.000.	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Eluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-109 MW-100 MW-110 MW-101 MW-102 MW-103 MW-104 MW-105 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-111 MW-101 MW-101 MW-103 MW-103 MW-104 MW-105 MW-107 MW-108 MW-109	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.328         0.7603         0.9151         0.9095         0.7348         0.6709	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019	20.9 27.5 18.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238 0.254 0.238 0.518 0.799 0.683 0.492 0.477	Yes           Yes           No           No	<b>8</b> <b>8</b> 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No           n/a           No           n/a           No           No	0.000 0.005912 0.005912 0.000.	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3
Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Chloride (mg/L) Dissolved Solids (mg/l) Eluoride (mg/L) Fluoride (mg/L)	MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-102 MW-103 MW-104 MW-105 MW-105 MW-107 MW-108 MW-109 MW-110 MW-111 MW-101 MW-101 MW-102 MW-103 MW-104 MW-105 MW-105 MW-107 MW-108 MW-109 MW-110	19.3         25.9         28.7         30.45         21         13.08         554.4         539.1         629.7         474.5         719.9         710.4         1490         784.3         801.3         594.5         0.4156         0.362         0.328         0.7603         0.9151         0.9095         0.7348         0.6709         0.7402	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	2/4/2020 2/4/2020 11/4/2019	20.9 27.5 18.4 20.4 20.2 7.85 504 446 455 418 688 577 760 712 717 526 0.38 0.254 0.238 0.254 0.238 0.518 0.799 0.683 0.492 0.477 0.471	Yes           Yes           No           No	<b>8</b> <b>8</b> 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	No           n/a           No           n/a           No           No	0.000 0.005912 0.005912 0.000.	Param Intra 1 of 3 NP Intra (normality) NP Intra (normality) Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3 NP Intra (normality) Param Intra 1 of 3 Param Intra 1 of 3

#### latan Utility Waste LF Client: SCS Engineers Data: latan jrr Printed 2/21/2020, 3:20 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	Method
pH (S.U.)	MW-101	7.814	6.628	1/16/2020	7.33	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-102	7.661	6.772	11/4/2019	7.15	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-103	7.49	6.84	11/4/2019	7.08	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-104	7.932	7.095	2/4/2020	7.65	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-105	7.853	6.875	2/4/2020	7.44	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-107	8.033	7.192	2/4/2020	7.65	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-108	8.436	6.576	11/4/2019	7.34	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-109	7.651	6.951	11/4/2019	7.24	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-110	8.044	7.041	11/4/2019	7.56	No	8	0	No	0.000	Param Intra 1 of 3
pH (S.U.)	MW-111	7.611	7.062	11/4/2019	7.23	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-101	5	n/a	11/4/2019	2.5ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	MW-102	5	n/a	11/4/2019	2.5ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	MW-103	5	n/a	11/4/2019	2.5ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Sulfate (mg/L)	MW-104	159.1	n/a	11/4/2019	130	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-105	305.3	n/a	11/4/2019	299	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-107	280.2	n/a	11/4/2019	221	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-108	666	n/a	11/4/2019	308	No	8	0	n/a	0.005912	NP Intra (normality)
Sulfate (mg/L)	MW-109	259.3	n/a	11/4/2019	253	No	8	0	No	0.000	Param Intra 1 of 3
Sulfate (mg/L)	MW-110	690	n/a	11/4/2019	347	No	8	0	n/a	0.005912	NP Intra (normality)
Sulfate (mg/L)	MW-111	96.55	n/a	11/4/2019	22.8	No	8	0	No	0.000	Param Intra 1 of 3

Iatan Generating Station Determination of Statistically Significant Increases Ash Impoundment March 10, 2020

### ATTACHMENT 2

Sanitas<sup>™</sup> Configuration Settings

Data	Output	Trend Test	Control Cht	Prediction Lim	Tolerance Lim	Conf/Tol Int	ANOVA	Welchs	Other Tests
Exclud	le data flag	s: i							
Data	Reading O	ptions							
🔘 In	ndividual Ob	oservations							
$\bigcirc$ M	lean of Eac	:h:	O Month						
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Non-I Setup	Detect / Tri Seasons omatically F	ace Handling. Process Resa							

Data	Output	Trend Test	Control Cht	Prediction Lim	Tolerance Lim	Conf/Tol Int	ANOVA	Welchs	Other Tests
Bla Fou Fou Fou Dra Enl Enl Vii Usu Usu Tru Shu Setur	ck and Whi ur Plots Per Always Com Include Ticl Use Constit aw Border A arge/Reduc arge/Reduc de Margins ( arge/Reduc de CAS# (No incate File N lude Limit Li ow Deselect ow Deselect o Symbols ar	te Output Page Ibine Data Pa & Marks on D uent Name fo round Text Re ce Fonts (Graj ce Fonts (Graj ce Fonts (Data (on reports with t Const. Name Names to 20 nes when fou ted Data on a ted Data on a nd Colors	iges ata Page r Graph Title eports and Da ohs): a/Text Report chout explicit s e) Characters ind in Databas Time Series	ta Pages 100% s): 100% etting) ee ighter ✓ Lighter ✓	Pro Pro Rou Use Ind Sho Sho Thi Zo Output Lee No Mo	mpt to Overwrit und Limits to 2 er-Set Scale icate Backgrou ow Exact Dates ck Plot Lines om Factor: 20 Decimal Precision mal Precision re Precision	tuent Mode	Summary Ta (when not	ables set in data file) All Print Jobs
Printer:	Adobe PD	F							✓ Printers

Data Output Trend Test Control Cht Prediction Lim Tolera	ance Lim Conf/Tol Int ANOVA Welchs Other Tests
Use Modified Alpha 0.02	
✓ Test Residuals For Normality (Parametric test only) using Shapir	ro-Wilk/Francia $\checkmark$ at Alpha = 0.01 $\checkmark$
Continue Parametric if Unable to Normalize	
Transformation (Parametric test only)  Use Ladder of Powers  Natural Log or No Transformation  Never Transform  Use Specific Transformation:  Use Best W Statistic	
Use Non-Parametric Test (Sen's Slope/Mann-Kendall) when Non-De	tects Percent > 75
Include 95. % Confidence Interval around Trend Line	
Automatically Remove Outliers (Parametric test only)	
Note: there is no "Always Use Non-Parametric" checkbox on this tab b Mann-Kendall (the non-parametric alternative) is available as a report in	ecause, for consistency with prior versions, Sen's Slope / nits own right, under Analysis->Intrawell->Trend.

Data Output Trend Test Control Cht	Prediction Lim	Tolerance Lim	Conf/Tol Int	ANOVA	Welchs	Other Tests
<ul> <li>✓ Test for Normality using Shapiro-Wilk/Fra</li> <li>✓ Use Non-Parametric Test when Non-Detect</li> <li>Use Aitchison's Adjustment ∨ when Non-Detect</li> </ul>	incia ✓ cts Percent > etects Percent >	at Alpha = 0.01	→ Tran	sformation Use Ladder Natural Log Never Tran Use Specifi	r of Powers or No Tran sform ic Transform Natura	nsformation nation: I Log V
Optional Further Refinement: Use	~ w	hen NDs % >	50	Use Best W	/ Statistic	
Use Poisson Prediction Limit when Non-De	etects Percent >	90		Plot Transfo	ormed Value	es
Deseasonalize (Intra- and InterWell) ● If Seasonality Is Detected ○ If Seasonality Is Detected Or Insufficient ○ Always (When Sufficient Data) ○ I □ Always Use Non-Parametric Facility □ α Statistical Evaluations per Year: Constituents Analyzed: Downgradient (Compliance) Wells: Sampling Plan Comparing Individual Observations ○ 1 of 1 ○ 1 of 2 ● 1 of 3 ○ 2 of 4 ("Modified California")	to Test Never	Intra Well Ot Stop if Plot Ba Override St Override D Automa 2-Taileo Show D Non-Parame Non-Parame Most R Most R	her Background Tr ckground Data andard Deviati F:( tically Remove d Test Mode Deselected Dat etric Limit = etric Limit wher t/Second High ecent PQL if a	end Detect	ed at Alph ppa: d Outliers wid Outliers v http://www.alphane. end Value MDL (subst. meth	a = 0.05 V

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	Combine Background Wells on Mann-Whitney
Outlier Tests	
<ul> <li>EPA 1989 Outlier Screening (fixed alpha of 0.05)</li> </ul>	
• Dixon's at $\alpha = 0.05 \lor$ or if n > 22 $\lor$ Rosner's at $\alpha = 0.01 \lor$	Use EPA Screening to establish Suspected Outliers
O Tukey's Outlier Screening, with IQR Multiplier = 3.0 Use	Ladder of Powers to achieve Best W Stat
✓ Test For Normality using Shapiro-Wilk/Francia ∨ at Alpha = 0.1	~
Stop if Non-Normal	
O Continue with Parametric Test if Non-Normal	
O Tukey's if Non-Normal, with IQR Multiplier = 3.0 Use	Ladder of Powers to achieve Best W Stat
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	✓ Label Constituents
Combine Dates	☑ Label Axes
Use Default Constituent Names	Note Cation-Anion Balance (Piper only)
O Use Constituent Definition File Edit	

Jared Morrison December 16, 2022

# ATTACHMENT 3 Groundwater Potentiometric Surface Maps



