

# 2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

## CCR LANDFILL IATAN GENERATING STATION PLATTE COUNTY, MISSOURI

Presented To:  
Energys Metro, Inc. (f/k/a Kansas City Power & Light Co.)

**SCS ENGINEERS**

27213167.19 | January 2020, Revised December 16, 2022

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Overland Park, Kansas 66210  
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## CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2019 Annual Groundwater Monitoring and Corrective Action Report for the CCR Landfill at the Iatan Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



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John R. Rockhold, R.G.

SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify that the 2019 Annual Groundwater Monitoring and Corrective Action Report for the CCR Landfill at the Iatan Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



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Douglas L. Doerr, P.E.

SCS Engineers

# 2019 Groundwater Monitoring and Corrective Action Report

Revision Number	Revision Date	Revision Section	Summary of Revisions
0	January 2020	NA	Original Report.
1	December 16, 2022	Addendum 1	Added Addendum 1

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#### Addendum 1 2019 Annual Groundwater Monitoring and Corrective Action Report Addendum 1

## 1 INTRODUCTION

This 2019 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the “Coal Combustion Residuals (CCR) Final Rule” (Rule) published by the United States Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015). Specifically, this report was prepared for Evergy Metro, Inc. (f/k/a Kansas City Power & Light Company) to fulfill the requirements of 40 CFR 257.90 (e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2019 Annual Groundwater Monitoring and Corrective Action Report for the CCR Landfill at the Iatan Generating Station.

## 2 § 257.90(E) ANNUAL REPORT REQUIREMENTS

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

### 2.1 § 257.90(E)(1) SITE MAP

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

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

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

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

No new monitoring wells were installed and no wells were decommissioned as part of the CCR groundwater monitoring program for the CCR Landfill in 2019.

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

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

Only detection monitoring was conducted during the reporting period (2019). Samples collected in 2019 were collected and analyzed for Appendix III detection monitoring constituents as indicated in **Appendix B, Table 1** (Appendix III Detection Monitoring Results, and **Table 2** (Detection Monitoring Field Measurements). The dates of sample collection, the monitoring program requiring the sample, and the results of the analyses are also provided in these tables. These tables include Fall 2018 semiannual detection monitoring event verification data taken in 2019; Spring 2019 semiannual detection monitoring data; and the initial Fall 2019 semiannual detection monitoring data.

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

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

There was no transition between monitoring programs in 2019. Only detection monitoring was conducted in 2019.

## 2.5 § 257.90(e)(5) OTHER REQUIREMENTS

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

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

### 2.5.1 § 257.90(e) Program Status

*Status of Groundwater Monitoring and Corrective Action Program.*

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

*Summary of Key Actions Completed.*

- a. completion of the Fall 2018 verification sampling and analyses per the certified statistical method,
- b. completion of the statistical evaluation of the Fall 2018 semiannual detection monitoring sampling and analysis event per the certified statistical method,
- c. completion of the 2018 Annual Groundwater Monitoring and Corrective Action Report,
- d. completion of a successful alternative source demonstration for the Fall 2018 semiannual detection monitoring sampling and analysis event,

- e. completion of the Spring 2019 semiannual detection monitoring sampling and analysis event, and subsequent verification sampling per the certified statistical method,
- f. completion of the statistical evaluation of the Spring 2019 semiannual detection monitoring sampling and analysis event per the certified statistical method,
- g. completion of a successful alternative source demonstration for the Spring 2019 semiannual detection monitoring sampling and analysis event, and
- h. initiation of the Fall 2019 semiannual detection monitoring sampling and analysis event.

*Projection of Key Activities for the Upcoming Year (2020).*

Completion of verification sampling and data analysis, and the statistical evaluation of Fall 2019 detection monitoring sampling and analysis event. Semiannual Spring and Fall 2020 groundwater sampling and analysis. Completion of the statistical evaluation of the Spring 2020 detection monitoring sampling and analysis event, and, if required, alternative source demonstration(s).

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

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

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

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

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

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

- C.1 CCR Landfill Groundwater Monitoring Alternative Source Demonstration Report November 2018 Groundwater Monitoring Event, CCR Landfill, Iatan Generating Station (June 2019).
- C.2 CCR Landfill Groundwater Monitoring Alternative Source Demonstration Report May 2019 Groundwater Monitoring Event, CCR Landfill, Iatan Generating Station (December 2019).

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

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

Not applicable because there was no assessment monitoring conducted.

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

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

Not applicable because there was no assessment monitoring conducted.

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

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

Not applicable because there was no assessment monitoring conducted.

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

*Within 90 days of finding that any constituent listed in appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that*



*the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.*

Not applicable because there was no assessment monitoring conducted.

### **3 GENERAL COMMENTS**

This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. The information contained in this report is a reflection of the conditions encountered at the Iatan 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 Iatan Generating Station CCR Landfill. No warranties, express or implied, are intended or made.

## APPENDIX A

### FIGURES

#### Figure 1: Site Map

N:\KCP\Projects\Groundwater\Annual CCR Reporting\2018\Fig 1 Litan Site Map\_2018 CCR.dwg Jan 09, 2020 - 1:04pm Layout Name: Fig 1 By: 4648djl

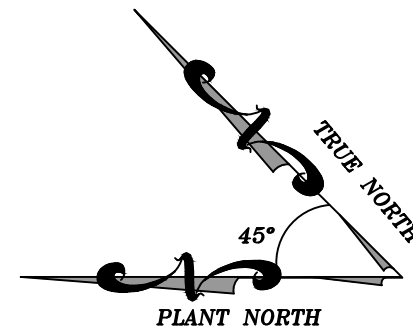


**LEGEND:**

- MW-1 CCR GROUNDWATER MONITORING WELL SYSTEM
- CCR LANDFILL UNIT BOUNDARY

**NOTES:**

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED MARCH 27, 2017. BOUNDARY AND MONITOR WELL LOCATIONS ARE APPROXIMATE
4. BOUNDARY AND MONITOR WELL LOCATIONS PROVIDED BY BURNS & MCDONNELL
5. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.



CK: BY	-	REV.	-	DATE	-
	-		-		-
SHEET TITLE		SITE MAP CCR LANDFILL CCR GROUNDWATER MONITORING SYSTEM			
PROJECT TITLE		2019 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT			
CLIENT	EVERGY METRO, INC IATAN GENERATING STATION WESTON, MISSOURI				
SCS ENGINEERS	6575 W. 110th St. Ste. 100 Overland Park, MO 66204 PH: (913) 681-0030 FAX: (913) 681-0012 PROJ. NO. 27213167.19 DSK: BT TCW DWN: BT TGV CHK: BT JRR Q/A: RW BY JRR PROJ. MGR: JRR				
CADD FILE:	FIG 1_IATAN SITE MAP_2018 COLOR				
DATE:	1/07/20				
FIGURE NO.	1				

## APPENDIX B

### TABLES

Table 1: Appendix III Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

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

Well Number	Sample Date	Appendix III Constituents						Total Dissolved Solids (mg/L)
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	
MW-1	05/20/19	<0.200	130	5.66	0.311	6.93	28.9	470
MW-1	11/04/19	<0.200	132	6.61	0.488	6.84	22.3	457
MW-2	05/20/19	<0.200	167	7.18	0.373	6.92	119	666
MW-2	07/11/19	---	---	---	*0.389	**7.33	---	---
MW-2	08/20/19	---	---	---	*0.333	**6.85	---	---
MW-2	11/04/19	<0.200	168	8.77	0.552	6.77	98.8	585
MW-6	05/20/19	<0.200	131	1.21	0.366	7.43	20.2	468
MW-6	07/11/19	---	---	---	*0.373	**7.29	---	---
MW-6	08/20/19	---	---	---	*0.328	**7.07	---	---
MW-6	11/04/19	<0.200	134	1.40	0.359	6.87	20.2	437
MW-7	01/10/19	---	*185	*23.3	---	**7.42	*159	*724
MW-7	03/14/19	---	*132	*4.77	---	**7.24	*33.9	*472
MW-7	05/20/19	<0.200	184	26.0	0.389	7.21	166	737
MW-7	07/11/19	---	*199	*31.9	---	**7.63	*186	*761
MW-7	08/20/19	---	*183	*28.7	---	**6.99	*166	*743
MW-7	11/04/19	<0.200	185	29.1	0.381	6.77	170	682
MW-8	01/10/19	---	*149	*5.63	---	**7.57	*48.4	*502
MW-8	03/14/19	---	*140	*4.79	---	**7.38	---	---
MW-8	05/20/19	<0.200	141	3.98	0.446	7.11	40.9	518
MW-8	11/04/19	<0.200	141	3.99	0.431	7.07	37.6	465
MW-9	05/20/19	<0.200	115	1.57	0.415	7.13	22.8	457
MW-9	11/04/19	<0.200	119	3.88	0.567	6.96	25.4	392
MW-10	01/10/19	---	*157	---	---	**7.36	*38.0	---
MW-10	03/14/19	---	*151	---	---	**7.27	*40.1	---
MW-10	05/20/19	<0.200	151	21.0	0.623	7.05	37.3	697
MW-10	07/11/19	---	*153	*22.5	---	**7.46	*33.0	---
MW-10	08/20/19	---	*143	*20.3	---	**6.99	*34.6	---
MW-10	11/04/19	<0.200	142	21.6	0.777	6.78	33.6	534

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

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

mg/L - milligrams per liter

pCi/L - picocuries per liter

S.U. - Standard Units

--- Not Sampled

**Table 2**  
**CCR Landfill**  
**Detection Monitoring Field Measurements**  
**KCP&L Iatan Generating Station**

Well Number	Sample Date	pH (S.U.)	Specific Conductivity (µS)	Temperature (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Water Level (ft btoc)	Groundwater Elevation (ft NGVD)
MW-1	05/20/19	6.93	811	12.09	29.7	-165	0.00	15.60	773.09
MW-1	11/04/19	6.84	771	13.97	28.3	-101	0.49	16.39	772.30
MW-2	05/20/19	6.92	979	12.24	24.8	-127	0.00	16.38	773.23
MW-2	07/11/19	**7.33	1040	16.95	29.0	-119	0.83	16.08	773.53
MW-2	08/20/19	**6.85	993	16.08	3.4	-25	0.00	17.28	772.33
MW-2	11/04/19	6.77	955	14.53	10.8	-109	1.27	17.21	772.40
MW-6	05/20/19	7.43	785	13.94	2.9	-133	0.41	16.05	773.60
MW-6	07/11/19	**7.29	1100	26.58	5.3	-107	1.48	15.36	774.29
MW-6	08/20/19	**7.07	784	16.41	0.0	-33	0.00	17.09	772.56
MW-6	11/04/19	6.87	789	14.06	0.0	118	1.15	16.73	772.92
MW-7	01/10/19	**7.42	1090	13.09	16.0	-73	1.04	19.65	770.00
MW-7	03/14/19	**7.24	838	13.92	0.4	-91	0.47	20.37	769.28
MW-7	05/20/19	7.21	1050	13.43	0.0	-100	0.47	16.33	773.32
MW-7	07/11/19	**7.63	1160	14.91	0.6	-84	0.53	15.63	774.02
MW-7	08/20/19	**6.99	1090	15.58	0.0	-3	0.00	17.28	772.37
MW-7	11/04/19	6.77	1070	13.41	0.0	69	0.85	17.04	772.61
MW-8	01/10/19	**7.57	882	11.42	4.6	-90	1.48	19.47	770.24
MW-8	03/14/19	**7.38	868	13.91	0.2	-89	0.41	19.98	769.73
MW-8	05/20/19	7.11	802	12.53	0.0	-121	0.00	16.67	773.04
MW-8	11/04/19	7.07	784	13.94	11.0	-72	1.04	17.50	772.21
MW-9	05/20/19	7.13	755	12.23	0.5	-165	0.00	16.85	773.05
MW-9	11/04/19	6.96	733	13.66	42.9	-119	0.57	17.72	772.18
MW-10	01/10/19	**7.36	1140	12.68	3.7	-91	1.91	19.32	770.14
MW-10	03/14/19	**7.27	1180	11.97	11.0	-80	7.29	19.50	769.96
MW-10	05/20/19	7.05	1060	11.81	0.0	-14	0.00	16.15	773.31
MW-10	07/11/19	**7.46	1100	16.59	0.0	-57	0.83	15.77	773.69
MW-10	08/20/19	**6.99	1040	16.3	0.0	31	0.00	17.05	772.41
MW-10	11/04/19	6.78	999	13.4	8.3	49	0.92	16.96	772.50

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

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

S.U. - Standard Units

µS - microsiemens

°C - Degrees Celsius

ft btoc - Feet Below Top of Casing

ft NGVD - National Geodetic Vertical Datum (NAVD 88)

NTU - Nephelometric Turbidity Unit

## APPENDIX C

### ALTERNATIVE SOURCE DEMONSTRATION

- C.1 CCR Landfill Groundwater Monitoring Alternative Source Demonstration Report November 2018 Groundwater Monitoring Event, CCR Landfill, Iatan Generating Station (June 2019)
- C.2 CCR Landfill Groundwater Monitoring Alternative Source Demonstration Report May 2019 Groundwater Monitoring Event, CCR Landfill, Iatan Generating Station (December 2019)

C.1 CCR Landfill Groundwater Monitoring Alternative Source  
Demonstration Report November 2018 Groundwater Monitoring  
Event, CCR Landfill, Iatan Generating Station (June 2019)



**CCR LANDFILL GROUNDWATER MONITORING  
ALTERNATIVE SOURCE DEMONSTRATION REPORT  
NOVEMBER 2018 GROUNDWATER MONITORING EVENT**

**CCR LANDFILL  
IATAN GENERATING STATION  
PLATTE COUNTY, MISSOURI**

Presented To:

**Kansas City Power & Light Company**

Presented By:

**SCS ENGINEERS**

8575 West 110th Street, Suite 100

Overland Park, Kansas 66210

June 2019

File No. 27213167.18

## CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Iatan 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.

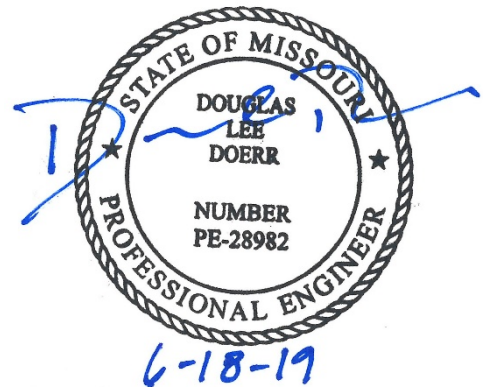


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John R. Rockhold, R.G.

SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Iatan 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.



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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 CCR Landfill at Kansas City Power & Light Company's (KCP&L) Iatan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by a Qualified Professional Engineer" document dated October 12, 2017. Groundwater samples were collected on November 12, 2018. Review and validation of the results from the November 2018 Detection Monitoring Event was completed on December 21, 2018, 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 10, 2019 and March 14, 2019.

The completed statistical evaluation identified two Appendix III constituents above their respective prediction limits. The prediction limit for calcium in monitoring well MW-10 is 131.1 mg/L. The detection monitoring sample was reported at 138 mg/L. The first verification re-sample was collected on January 10, 2019 with a result of 157 mg/L. The second verification re-sample was collected on March 14, 2019 with a result of 151 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring sample for calcium from monitoring well MW-10 exceeds its prediction limit and is a confirmed statistically significant increase (SSI) over background.

The prediction limit for sulfate in monitoring well MW-10 is 27.78 mg/L. The detection monitoring sample was reported at 32.9 mg/L. The first verification re-sample was collected on January 10, 2019 with a result of 38.0 mg/L. The second verification re-sample was collected on March 14, 2019 with a result of 40.1 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring sample for sulfate from monitoring well MW-10 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 calcium and sulfate in monitoring well MW-10.**

### 3 ALTERNATIVE SOURCE DEMONSTRATION

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

#### 3.1 UPGRADIENT WELL LOCATION

Figure 1 in Appendix A shows a potentiometric surface contour map indicating the direction of groundwater flow at the CCR Landfill at the time of sampling. Monitoring well MW-10 is generally located upgradient from the CCR Landfill depending on river stage. During this detection monitoring sampling event, MW-10 was upgradient and essentially on a groundwater ridge trending from MW-7 to MW-10. The primary direction of groundwater flow was away from the ridge to the southwest and to the northeast which makes MW-10 primarily upgradient from the CCR Landfill indicating the SSIs are not likely caused by a release from the CCR Landfill. This demonstrates that a source other than the CCR Landfill likely caused the SSI over background levels for calcium and sulfate, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

#### 3.2 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 upgradient well MW-10, box and whiskers plots for calcium and sulfate in the CCR groundwater monitoring system wells were prepared to allow comparison of these constituent concentrations between wells. The comparison between wells indicates these constituent concentrations in upgradient well MW-10 are within or even below the range of concentrations from the other wells. This demonstrates that a source other than the CCR Landfill caused the SSI 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 B**.

### 3.3 PIPER DIAGRAM PLOTS

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

A piper diagram has two triangular plots on the right and left side of a 4-sided center field. The three major cations are plotted in the left triangle and anions in the right. Each of the three cation/anion variables, in milliequivalents, is divided by the sum of the three values, to produce a percent of total cation/anions. These percentages determine the location of the associated symbol. The data points in the center field are located by extending the points in the lower triangles to the point of intersection. In order for a piper diagram to be produced, the selected data file must contain the following constituents: Sodium (Na), Potassium (K), Calcium (Ca), Magnesium (Mg), Chloride (Cl), Sulfate (SO<sub>4</sub>), Carbonate (CO<sub>3</sub>), and Bicarbonate (HCO<sub>3</sub>). Chloride was inadvertently not analyzed for the January 10, 2019 sample so the chloride concentration from the November 2018 sampling event (15.1 mg/L) and the May 20, 2019 sampling event (21 mg/L) were used to construct two piper diagrams to represent the January 10, 2019 piper plot for MW-10. The two different chloride concentrations made little difference in the piper plots.

A piper diagram generated for MW-10 and landfill leachate is provided in **Appendix C** and indicates the groundwater from this well has not changed and does not exhibit the same geochemical characteristics as the leachate. The groundwater and the leachate plot in totally different hydrochemical facies indicating there is no mixing of the two types of water (groundwater and leachate). This demonstrates that a source other than the CCR Landfill caused the SSIs over background levels for calcium and sulfate or that the SSI 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. 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 the CCR monitoring system wells indicate calcium and sulfate concentrations in MW-10 are within the range of concentrations for the other wells. This demonstrates that a source other than the CCR Landfill 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 CCR Landfill caused the SSIs 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 CCR Landfill may continue with the detection monitoring program under § 257.94.

## 5 GENERAL COMMENTS

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

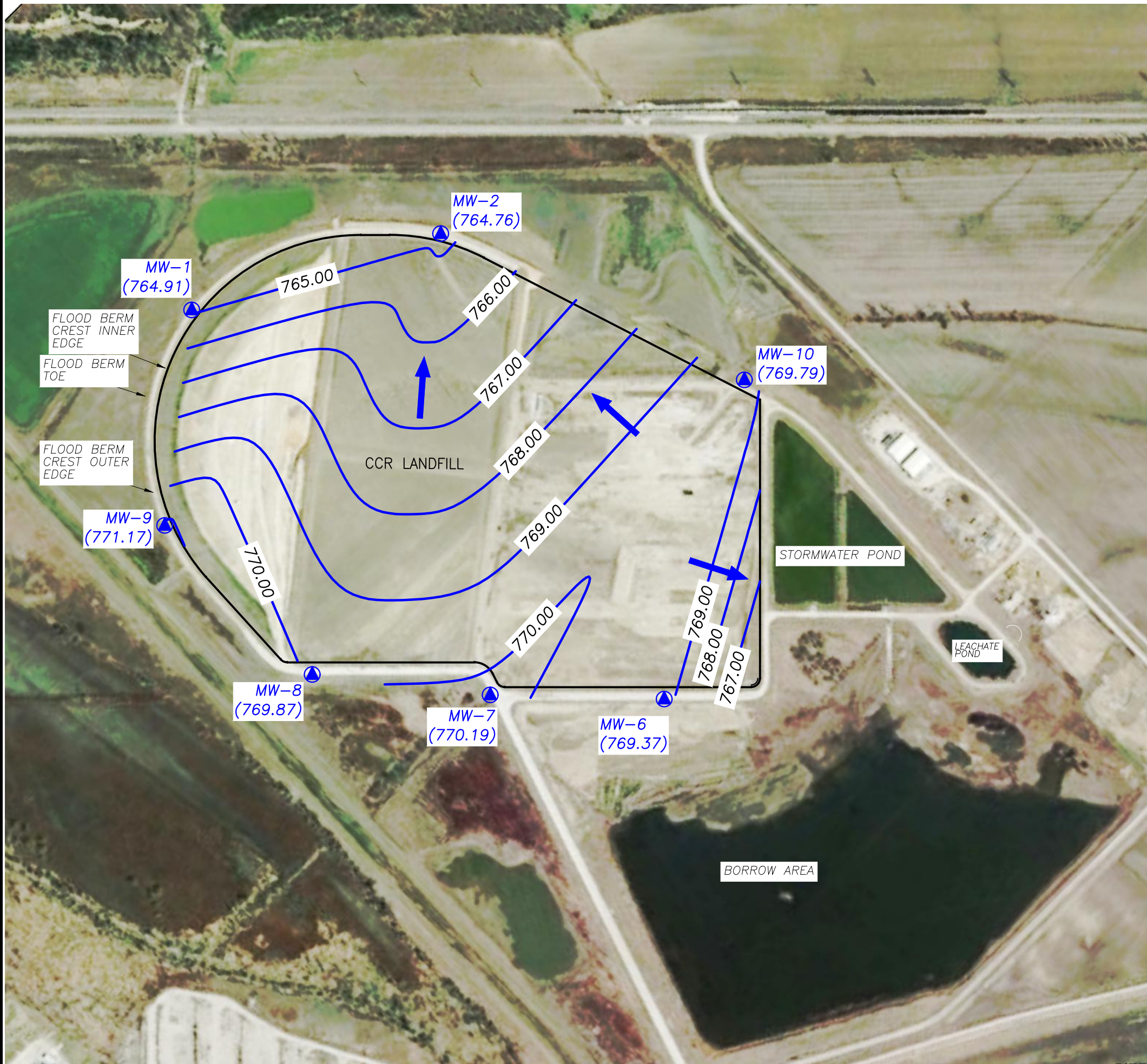
The signatures of the certifying registered geologist and professional engineer on this document represents that to the best of their knowledge, information, and belief in the exercise of their professional judgement in accordance with the standard of practice, it is their professional opinions that 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**

### **Figure 1**



N:\KCP\Projects\Groundwater\DWG\Iatan\2018\GW\_Monitoring\Landfill1 - CCR Landfill Alternative Source Demonstration.dwg Jun 18, 2019 - 3:16pm Layout Name: Fig 2.CCR By: 4470daw

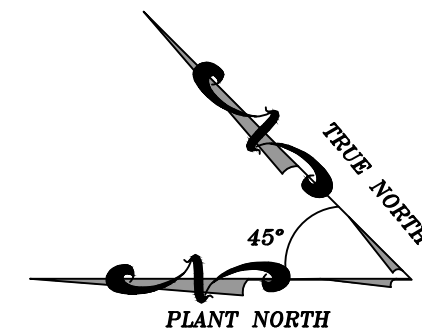


**LEGEND:**

- 765.00— GROUNDWATER SURFACE ELEVATIONS
- ▲ MW-1 765.34 CCR GROUNDWATER MONITORING WELL SYSTEM
- CCR LANDFILL UNIT BOUNDARY
- ← FLOW DIRECTION ARROW

**NOTES:**

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED MARCH 27, 2017. BOUNDARY AND MONITOR WELL LOCATIONS ARE APPROXIMATE
4. BOUNDARY AND MONITOR WELL LOCATIONS PROVIDED BY BURNS & MCDONNELL
5. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.

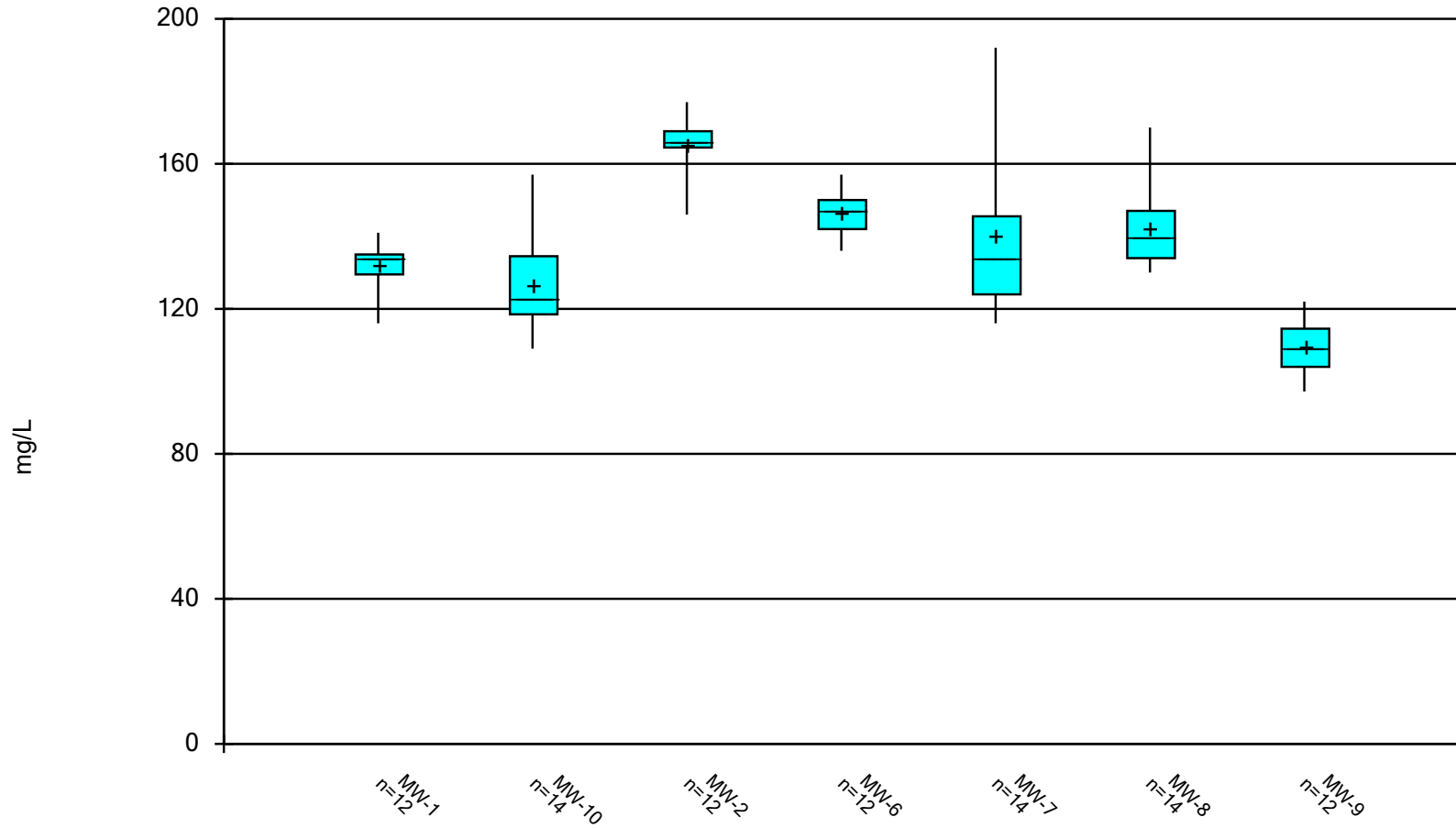


CK BY						
REV DATE						
SHEET TITLE	POTENTIOMETRIC SURFACE MAP (NOVEMBER 2018)					
PROJECT TITLE	CCR LANDFILL ALTERNATIVE SOURCE DEMONSTRATION					
CLIENT	KANSAS CITY POWER & LIGHT COMPANY IATAN GENERATING STATION IATAN, MISSOURI					
SCS ENGINEERS	8575 W. 110th St. Ste. 100 Overland Park, MO 66204 PH: (913) 681-0080 FAX: (913) 681-0012 PROJ. NO. 27213167.1B DWN. BY: DAW    CHK. BY: JRR    Q/A RW BY: JRR DES. BY: TCW    PROJ. MGR: JRR					
CADD FILE:	1 - CCR LANDFILL ALTERNATIVE SOURCE DEMONSTRATION					
DATE:	6/18/19					
FIGURE NO.	1					

## **Appendix B**

### **Box and Whiskers Plots**

### Box & Whiskers Plot



Constituent: Calcium Analysis Run 4/10/2019 11:49 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Box & Whiskers Plot

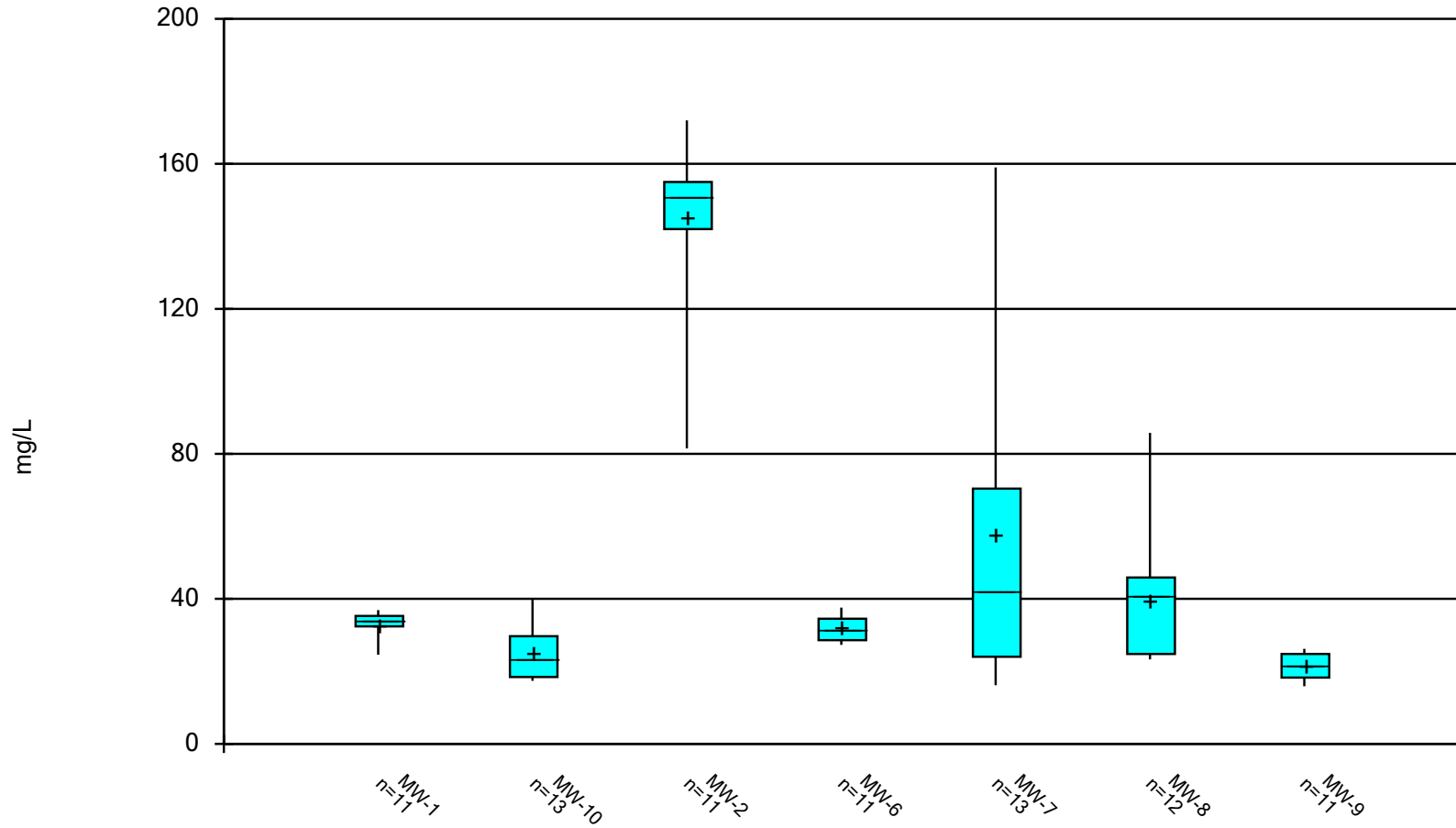
Constituent: Calcium (mg/L) Analysis Run 4/10/2019 11:52 AM View: CCR LF III

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

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	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9
8/18/2016	134	123	170	142	145	136	119
9/29/2016	134	118	169	139	144	132	102
11/9/2016	136	124	169	142	146	135	103
12/21/2016	134	123	166	146	138	139	116
2/3/2017	116	109	146	136	116	133	105
5/24/2017	128	125	166	150	123	138	108
7/5/2017	129	120	165	147	125	142	97.2
8/17/2017	134	122	168	150	133	145	110
10/5/2017	141	131	177	157	135	155	113
11/14/2017	130	119	161	151	125	145	113
5/21/2018	131	115	164	150	123	130	105
11/12/2018	137	138	166	147	192	170	122
1/10/2019		157			185	149	
3/14/2019		151			132	140	
Median	134	123	166	147	134	139.5	109
LowerQ.	129.5	118.5	164.5	142	124	134	104
UpperQ.	135	134.5	169	150	145.5	147	114.5
Min	116	109	146	136	116	130	97.2
Max	141	157	177	157	192	170	122
Mean	132	126.8	165.6	146.4	140.1	142.1	109.4

### Box & Whiskers Plot



Constituent: Sulfate Analysis Run 4/10/2019 11:49 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Box & Whiskers Plot

Constituent: Sulfate (mg/L) Analysis Run 4/10/2019 11:52 AM View: CCR LF III

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

---

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9
8/18/2016	32.4	17.8	142	30.2	70.2	23.3	16.7
9/29/2016	35.3	19.7	151	33.5	70.6	24.2	26.2
11/9/2016	33.2	17.4	155	31.4	62.6	23.8	23
12/21/2016	36.2	17.7	155	28.6	50	25.5	22.2
2/3/2017	36.9	19.1	150	28.5	41.9	39.6	21.1
5/24/2017	27.4	22.4	172	32.7	16.2	42.8	15.9
7/5/2017	34.2	24.7	158	37.2	19.5	54.8	24.8
8/17/2017	35.2	26.5	149	37.6	34.1	43	19.8
10/5/2017	34.5	26.4	151	34.5	24.3	43.4	21.5
5/21/2018	32.6	23.6	137	30.9	23.8	25.4	18.3
11/12/2018	24.6	32.9	81.5	27.3	149	85.8	25.8
1/10/2019		38			159	48.4	
3/14/2019		40.1			33.9		
Median	34.2	23.6	151	31.4	41.9	41.2	21.5
LowerQ.	32.4	18.45	142	28.6	24.05	24.8	18.3
UpperQ.	35.3	29.7	155	34.5	70.4	45.9	24.8
Min	24.6	17.4	81.5	27.3	16.2	23.3	15.9
Max	36.9	40.1	172	37.6	159	85.8	26.2
Mean	32.95	25.1	145.6	32.04	58.08	40	21.39

# Box & Whiskers Plot

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Printed 4/10/2019, 11:52 AM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Calcium (mg/L)	MW-1	12	132	6.208	1.792	134	116	141	0
Calcium (mg/L)	MW-10	14	126.8	13.43	3.589	123	109	157	0
Calcium (mg/L)	MW-2	12	165.6	7.305	2.109	166	146	177	0
Calcium (mg/L)	MW-6	12	146.4	5.838	1.685	147	136	157	0
Calcium (mg/L)	MW-7	14	140.1	22.45	6	134	116	192	0
Calcium (mg/L)	MW-8	14	142.1	10.59	2.831	139.5	130	170	0
Calcium (mg/L)	MW-9	12	109.4	7.422	2.143	109	97.2	122	0
Sulfate (mg/L)	MW-1	11	32.95	3.765	1.135	34.2	24.6	36.9	0
Sulfate (mg/L)	MW-10	13	25.1	7.627	2.115	23.6	17.4	40.1	0
Sulfate (mg/L)	MW-2	11	145.6	23.05	6.949	151	81.5	172	0
Sulfate (mg/L)	MW-6	11	32.04	3.436	1.036	31.4	27.3	37.6	0
Sulfate (mg/L)	MW-7	13	58.08	46.39	12.87	41.9	16.2	159	0
Sulfate (mg/L)	MW-8	12	40	18.17	5.244	41.2	23.3	85.8	0
Sulfate (mg/L)	MW-9	11	21.39	3.49	1.052	21.5	15.9	26.2	0

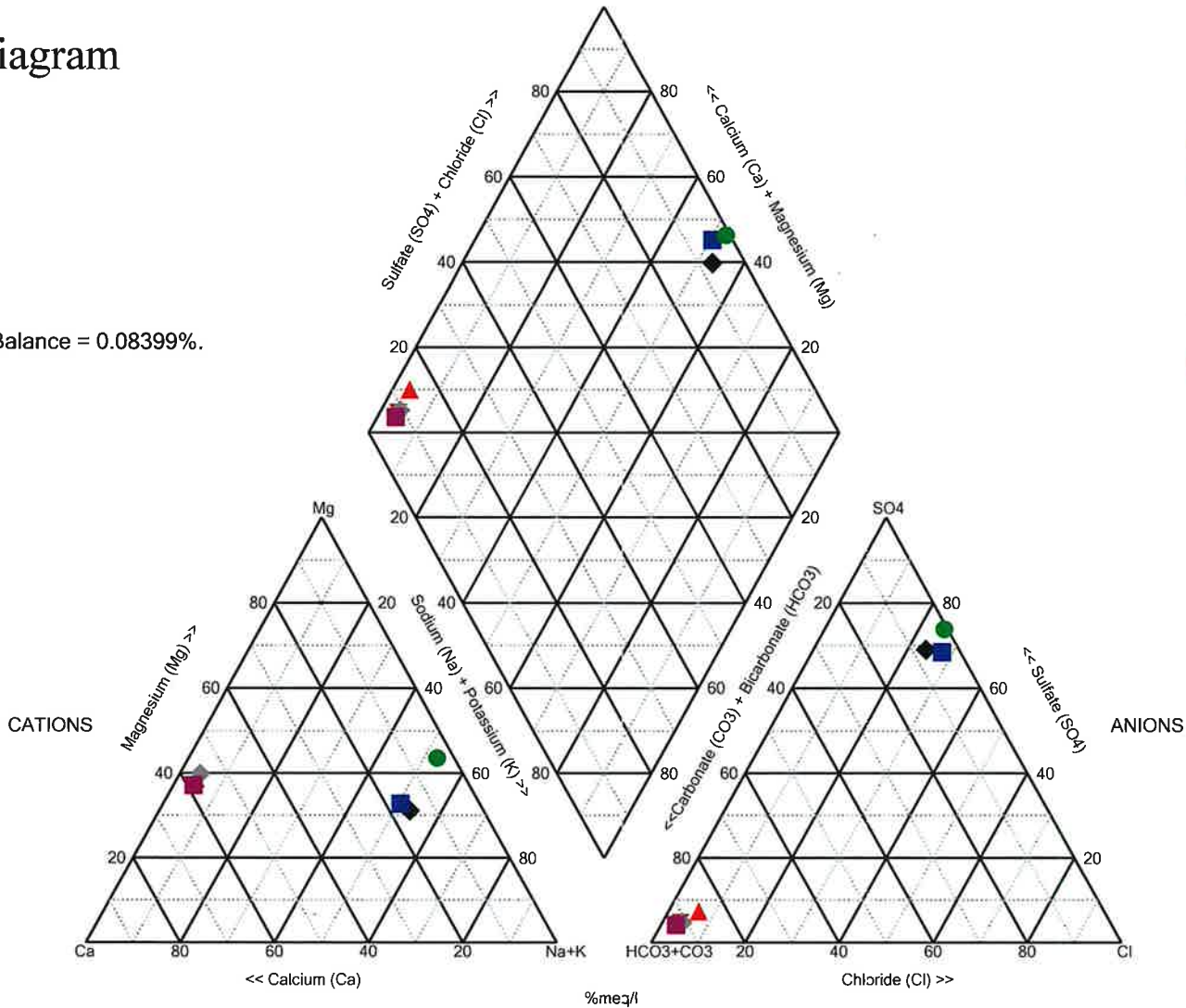
## **Appendix C**

### **Piper Diagram**



# Piper Diagram

Cation-Anion Balance = 0.08399%.



Analysis Run 6/4/2019 9:39 AM View: CCR LF III

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

# Piper Diagram

Analysis Run 6/4/2019 9:39 AM View: CCR LF III

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

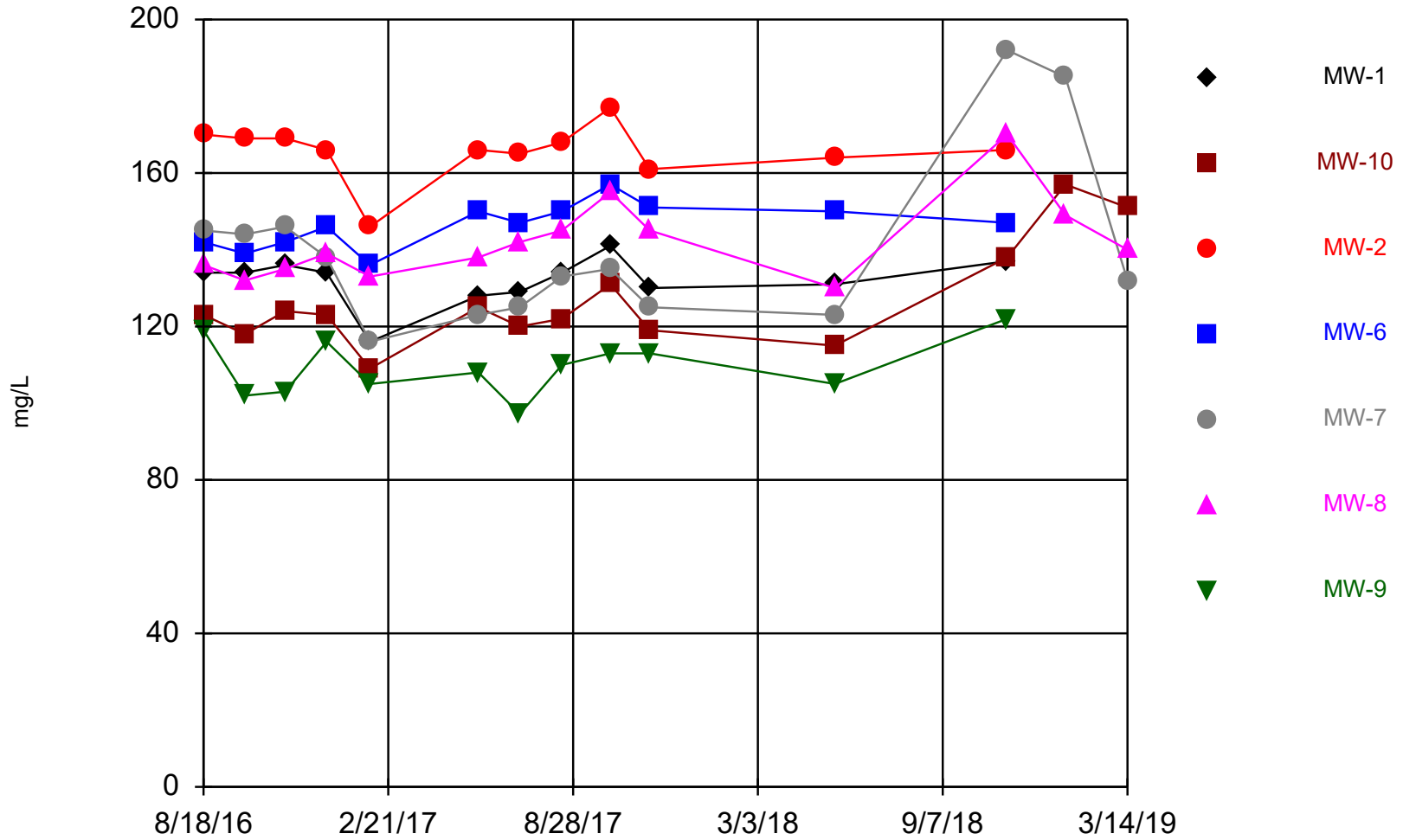
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Totals (ppm)	Na	K	Ca	Mg	Cl	S04	HCO3	CO3
MW-10 8/18/2016	7.77	4.45	123	47.3	7.47	17.8	480	10
MW-10 11/9/2016	7.11	4.02	124	47.3	9.15	17.4	428	10
MW-10 2/3/2017	7.2	3.93	109	46.7	10.3	19.1	442	10
MW-10 1/10/2019	8.51	5.08	157	64.3	21	38	555	10
LEACHATE 8/18/2016	9250	689	573	4240	6990	28000	644	10
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

## **Appendix D**

### **Time Series Plots**

### Time Series



Constituent: Calcium Analysis Run 4/10/2019 11:52 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Time Series

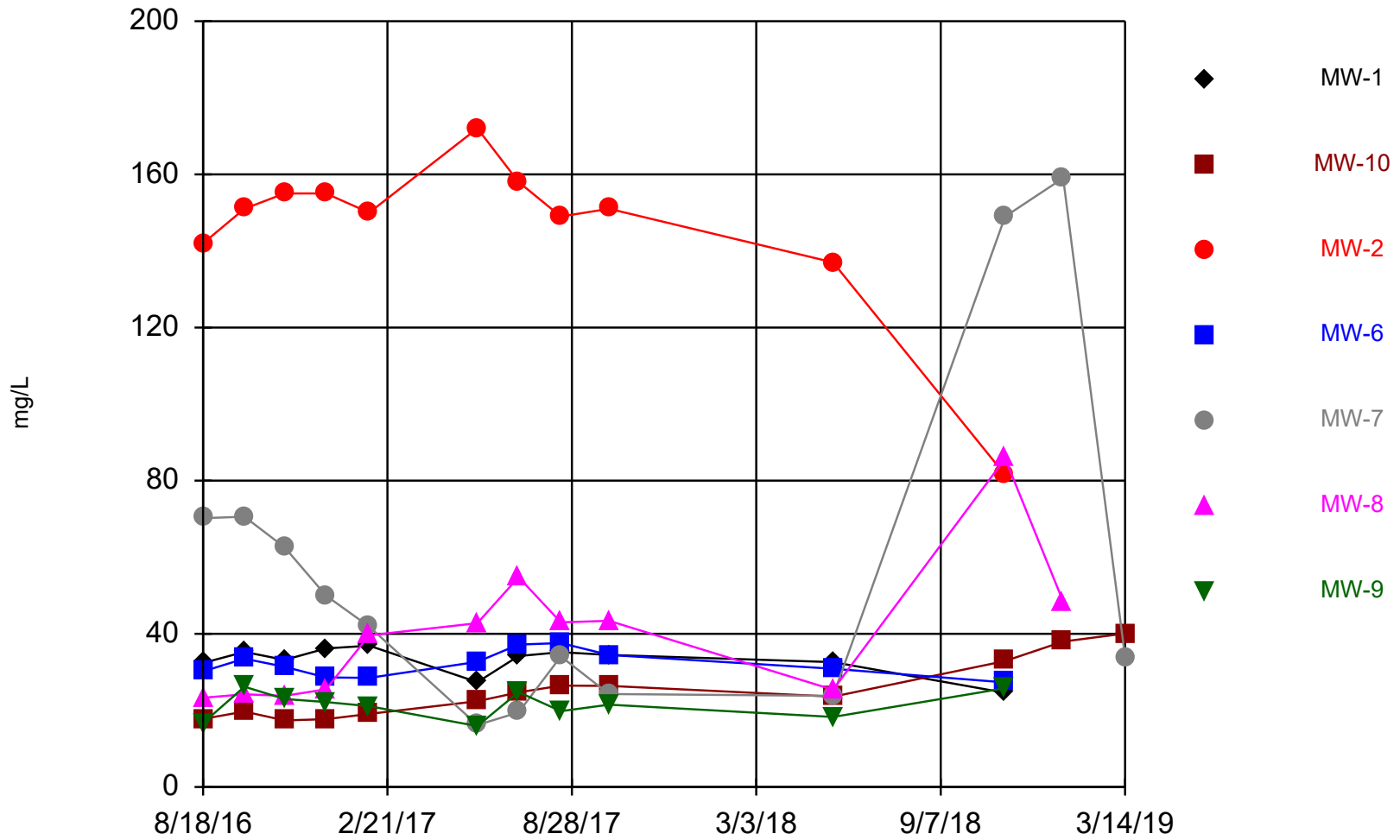
Constituent: Calcium (mg/L) Analysis Run 4/10/2019 11:53 AM View: CCR LF III

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

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	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9
8/18/2016	134	123	170	142	145	136	119
9/29/2016	134	118	169	139	144	132	102
11/9/2016	136	124	169	142	146	135	103
12/21/2016	134	123	166	146	138	139	116
2/3/2017	116	109	146	136	116	133	105
5/24/2017	128	125	166	150	123	138	108
7/5/2017	129	120	165	147	125	142	97.2
8/17/2017	134	122	168	150	133	145	110
10/5/2017	141	131	177	157	135	155	113
11/14/2017	130	119	161	151	125	145	113
5/21/2018	131	115	164	150	123	130	105
11/12/2018	137	138	166	147	192	170	122
1/10/2019		157			185	149	
3/14/2019		151			132	140	

### Time Series



# Time Series

Constituent: Sulfate (mg/L) Analysis Run 4/10/2019 11:53 AM View: CCR LF III

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

---

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9
8/18/2016	32.4	17.8	142	30.2	70.2	23.3	16.7
9/29/2016	35.3	19.7	151	33.5	70.6	24.2	26.2
11/9/2016	33.2	17.4	155	31.4	62.6	23.8	23
12/21/2016	36.2	17.7	155	28.6	50	25.5	22.2
2/3/2017	36.9	19.1	150	28.5	41.9	39.6	21.1
5/24/2017	27.4	22.4	172	32.7	16.2	42.8	15.9
7/5/2017	34.2	24.7	158	37.2	19.5	54.8	24.8
8/17/2017	35.2	26.5	149	37.6	34.1	43	19.8
10/5/2017	34.5	26.4	151	34.5	24.3	43.4	21.5
5/21/2018	32.6	23.6	137	30.9	23.8	25.4	18.3
11/12/2018	24.6	32.9	81.5	27.3	149	85.8	25.8
1/10/2019		38			159	48.4	
3/14/2019		40.1			33.9		

C.2. CCR Landfill Groundwater Monitoring Alternative Source  
Demonstration Report May 2019 Groundwater Monitoring  
Event, CCR Landfill, Iatan Generating Station (December 2019)



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

**CCR LANDFILL  
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

December 2019

File No. 27213167.18

## CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the CCR Landfill at the Iatan 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.

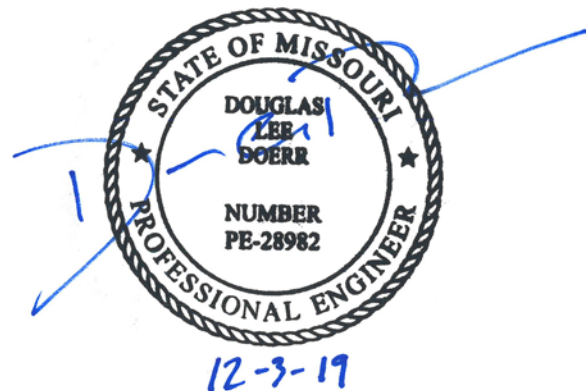


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John R. Rockhold, R.G.

SCS Engineers

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



---

Douglas L. Doerr, P.E.

SCS Engineers

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## Appendices

- Appendix A Figure 1**
- Appendix B Missouri River Stage Hydrograph and Google Maps Aerial Photograph**
- Appendix C Box and Whiskers Plots Piper Diagram**
- Appendix D Piper Diagram**

## 1 REGULATORY FRAMEWORK

Certain owners or operators of Coal Combustion Residuals (CCR) units are required to complete groundwater monitoring activities to evaluate whether a release from the unit has occurred. Included in the activities is the completion of a statistical analysis of the groundwater quality data as prescribed in § 257.93(h) of the CCR Final Rule. If the initial analysis indicates a statistically significant increase (SSI) over background levels, the owner or operator may perform an alternative source demonstration (ASD). In accordance with § 257.94(e)(2), the owner or operator of the CCR unit may demonstrate that a source other than the CCR unit caused the SSI over background levels for a constituent, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a SSI over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under § 257.94. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under § 257.95. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

## 2 STATISTICAL RESULTS

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Iatan Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated October 12, 2017. Groundwater samples were collected on May 20, 2019. Review and validation of the results from the May 2019 Detection Monitoring Event was completed on June 28, 2019, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on July 11, 2019 and August 20, 2019.

The completed statistical evaluation identified seven Appendix III constituents above their respective prediction limit in monitoring wells MW-7 and MW-10.

Constituent/Monitoring Well	*UPL	Observation May 20, 2019	1st Verification July 11, 2019	2nd Verification August 20, 2019
<b>Calcium</b>				
MW-7	157.1	184	199	183
MW-10	131.1	151	153	143
<b>Chloride</b>				
MW-7	17.12	26	31.9	28.7
MW-10	18.96	21	22.5	20.3

Constituent/Monitoring Well	*UPL	Observation May 20, 2019	1st Verification July 11, 2019	2nd Verification August 20, 2019
<b>Sulfate</b>				
MW-7	89.64	166	186	166
MW-10	27.78	37.3	33.0	34.6
<b>Total Dissolved Solids</b>				
MW-7	591.5	737	761	743

\*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 SSIs above the background prediction limits for calcium, chloride, sulfate and total dissolved solids (TDS) in monitoring well MW-7 and for calcium, chloride, and sulfate in monitoring well MW-10.**

### 3 ALTERNATIVE SOURCE DEMONSTRATION

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

#### 3.1 UPGRADIENT/CROSS GRADIENT WELL LOCATION

Figure 1 in Appendix A shows a potentiometric surface contour map indicating the direction of groundwater flow at the CCR Landfill at the time of sampling. Monitoring wells MW-7 and MW-10 were generally located upgradient or cross gradient from the CCR Landfill at the time of the detection sampling event. During this detection monitoring sampling event, groundwater elevation in MW-7 and MW-10 were within 0.01 feet of each other even though the wells are located on opposite sides of the landfill. The primary direction of groundwater flow was to the north and west, which makes neither well downgradient from the CCR Landfill, indicating the SSIs are not likely caused by a release from the CCR Landfill. This demonstrates that a source other than the CCR Landfill likely caused the SSI over background levels for calcium, chloride, sulfate and total dissolved solids, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

#### 3.2 REPRESENTATIVENES 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 concentrations of calcium, chloride, sulfate and total dissolved solids in monitoring well MW-7 and for calcium, chloride, and sulfate in monitoring well MW-10, represents the entire population of historical concentrations in these wells and constituents 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 these wells and constituents 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 the area around the landfill 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**. This indicates that the river elevation and subsequently the groundwater elevation was significantly lower during background sampling than the May 2019 sampling event. Additionally, in **Appendix B** is a Google Maps aerial photograph of the landfill and surrounding area shortly after the peak river elevation in March. This indicates that the river water was encroaching on the landfill and well network during the May 2019 sampling event. Such significant fluctuation in river elevations and groundwater elevations impact the groundwater characteristics. The upper and lower prediction limits for these wells and constituents were calculated from eight data points between August 18, 2016 and August 17, 2017 and is not believed to be representative of the entire population of concentrations for these wells and constituents under the infrequent but naturally occurring condition of flooding. This demonstrates that a source other than the CCR Landfill 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 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 SSIs were only identified in monitoring wells MW-7 and MW-10, box and whiskers plots for calcium, chloride, sulfate, and TDS in all CCR groundwater monitoring system wells were prepared to allow comparison of these constituent concentrations between wells, surface water in the borrow area, and water from the facility's collector well near the river. The comparison of these constituents between wells, surface water, and the collector well indicates the constituent concentrations in MW-7 and MW-10 are generally near, within, or even below the range of concentrations from the other wells, surface water or the collector well. This demonstrates that a source other than the CCR Landfill could have caused the SSI 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 C**.

### 3.4 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 (SO<sub>4</sub>), Carbonate (CO<sub>3</sub>), and Bicarbonate (HCO<sub>3</sub>).

A piper diagram generated for MW-7, MW-10, the collector well, and leachate is provided in **Appendix D** and indicates the groundwater from the monitoring wells are similar and the collector well water plots slightly different from the monitoring wells but neither the groundwater nor the collector well water plot near the area the leachate plots. Therefore, these waters do not exhibit the same geochemical characteristics as the leachate. The groundwater, collector well and the leachate plot in totally different hydrochemical facies indicating there is no mixing of the two types of water (groundwater and leachate). This demonstrates that a source other than the CCR Landfill caused the SSIs over background levels or that the SSIs 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 CCR Landfill caused the SSIs 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 CCR Landfill may continue with the detection monitoring program under § 257.94.

## 5 GENERAL COMMENTS

This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering and geological practices, within the constraints of the client's directives. It is intended for the exclusive use of Evergy Metro, Inc. for specific application to the Iatan 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

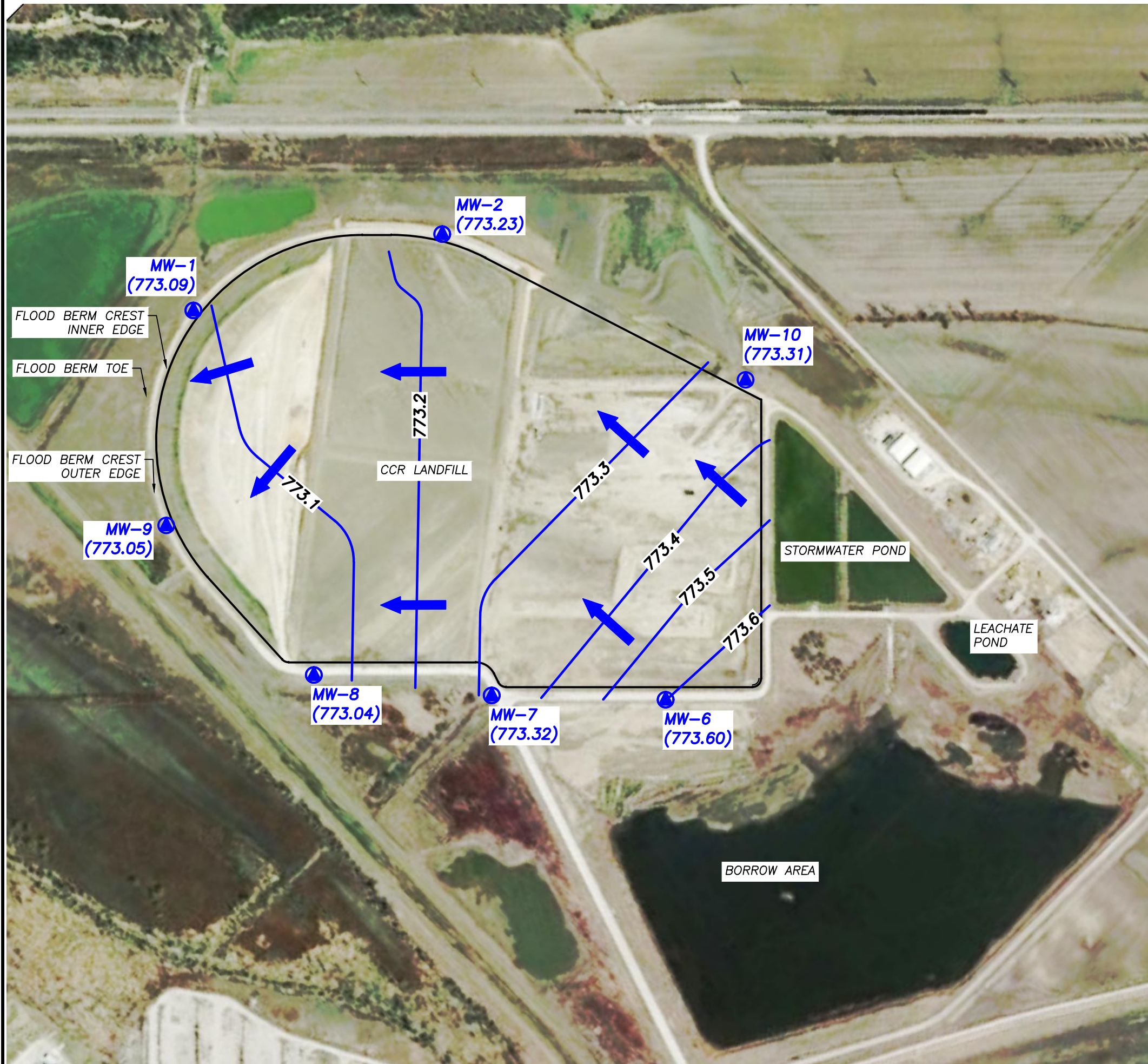
to be construed as warranties or guaranties. In addition, opinions relating to regulatory, environmental, geologic, geochemical and geotechnical conditions interpretations or other estimates are based on available data, and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.



## **Appendix A**

### **Figure 1**

N:\KCP\Projects\Groundwater\DWG\Iatan\2019\GW\_Monitoring\Landfill\CCF Landfill Alternate Source Demonstration.dwg Oct 21, 2019 - 4:36pm Layout Name: Fig 1 By: 4470daw

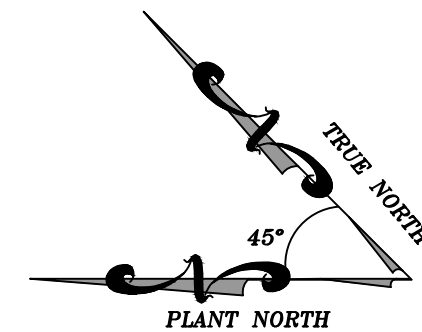


**LEGEND:**

- 773.0— GROUNDWATER SURFACE ELEVATIONS
- MW-1 CCR GROUNDWATER MONITORING WELL SYSTEM  
773.09
- UTILITY WASTE LANDFILL UNIT BOUNDARY
- ← FLOW DIRECTION ARROW

**NOTES:**

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED MARCH 27, 2017. BOUNDARY AND MONITOR WELL LOCATIONS ARE APPROXIMATE
4. BOUNDARY AND MONITOR WELL LOCATIONS PROVIDED BY BURNS & MCDONNELL
5. UTILITY WASTE LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.



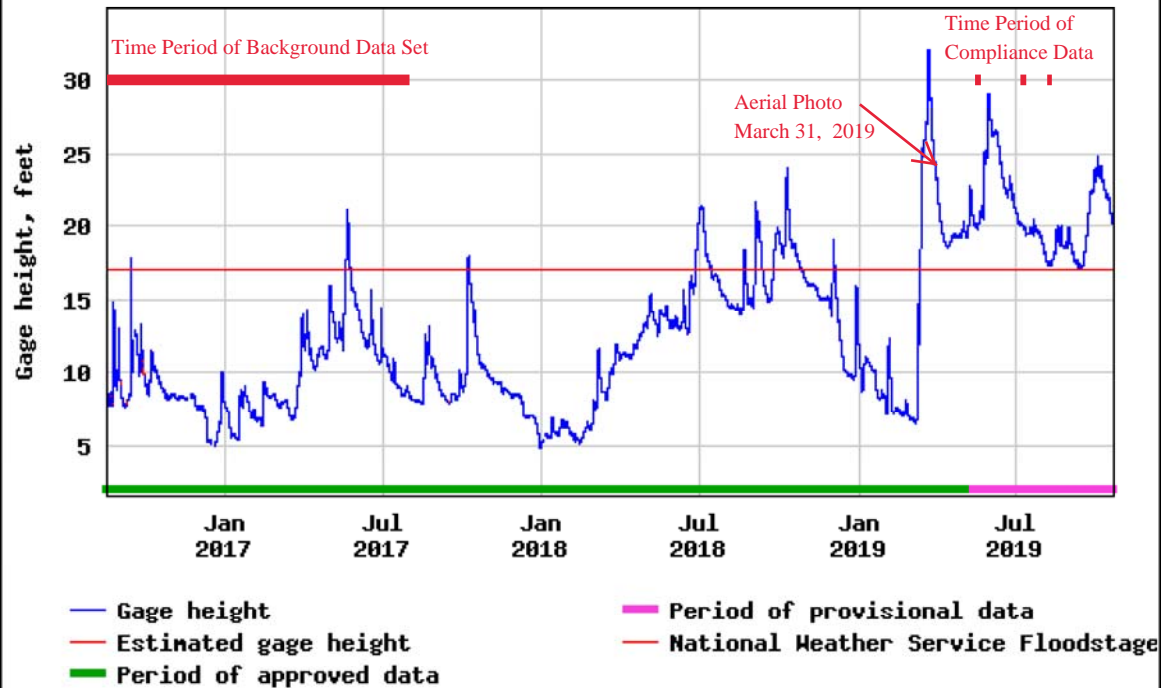
	CK BY				
	REV DATE	1	2	3	4
SHEET TITLE	POTENTIOMETRIC SURFACE MAP (MAY 2019)				
CLIENT	KANSAS CITY POWER & LIGHT COMPANY IATAN GENERATING STATION IATAN, MISSOURI				
PROJECT TITLE	CCR LANDFILL ALTERNATIVE SOURCE DEMONSTRATION				
CADD FILE:	CCR LANDFILL ALTERNATIVE SOURCE DEMONSTRATION.DWG				
DATE:	10/21/19				
FIGURE NO.	1				
SCS ENGINEERS	DWN BY: DAW	CHK BY: JRR	Q/A RW BY: JRR	PROJ. MGR: JRR	DATE: 10/21/19
8575 W. 110th St. Ste. 100 Overland Park, MO 66210 PH: (913) 681-0080 FAX: (913) 681-0012	PROJ. NO. 27213167.19	DWN BY: DAW	CHK BY: JRR	Q/A RW BY: JRR	PROJ. MGR: JRR

## **Appendix B**

### **Missouri River Stage Hydrograph and Google Maps Aerial Photograph**



### USGS 06818000 Missouri River at St. Joseph, MO



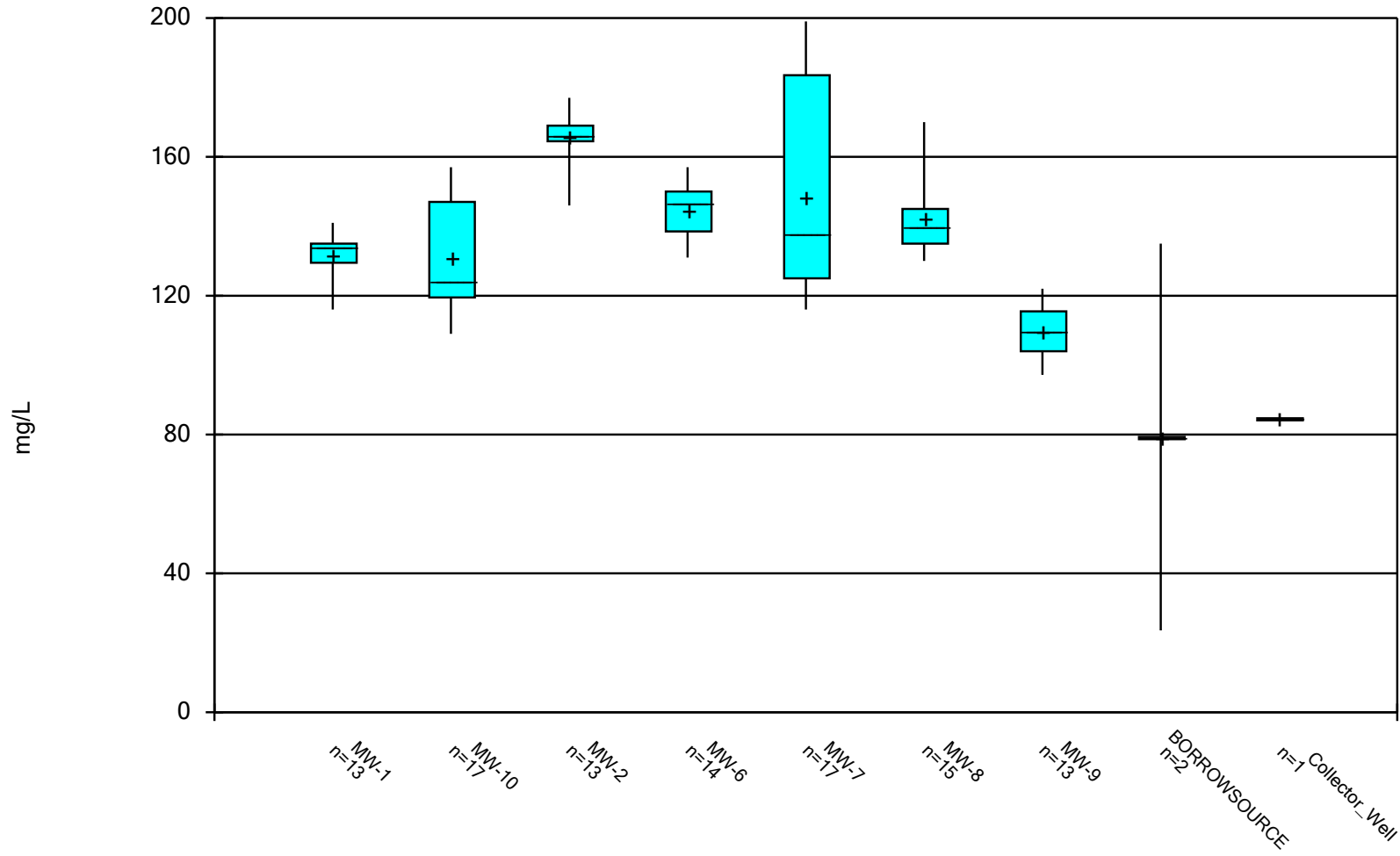


3/31/19

## **Appendix C**

### **Box and Whiskers Plots**

### Box & Whiskers Plot



Constituent: Calcium Analysis Run 10/21/2019 11:29 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Box & Whiskers Plot

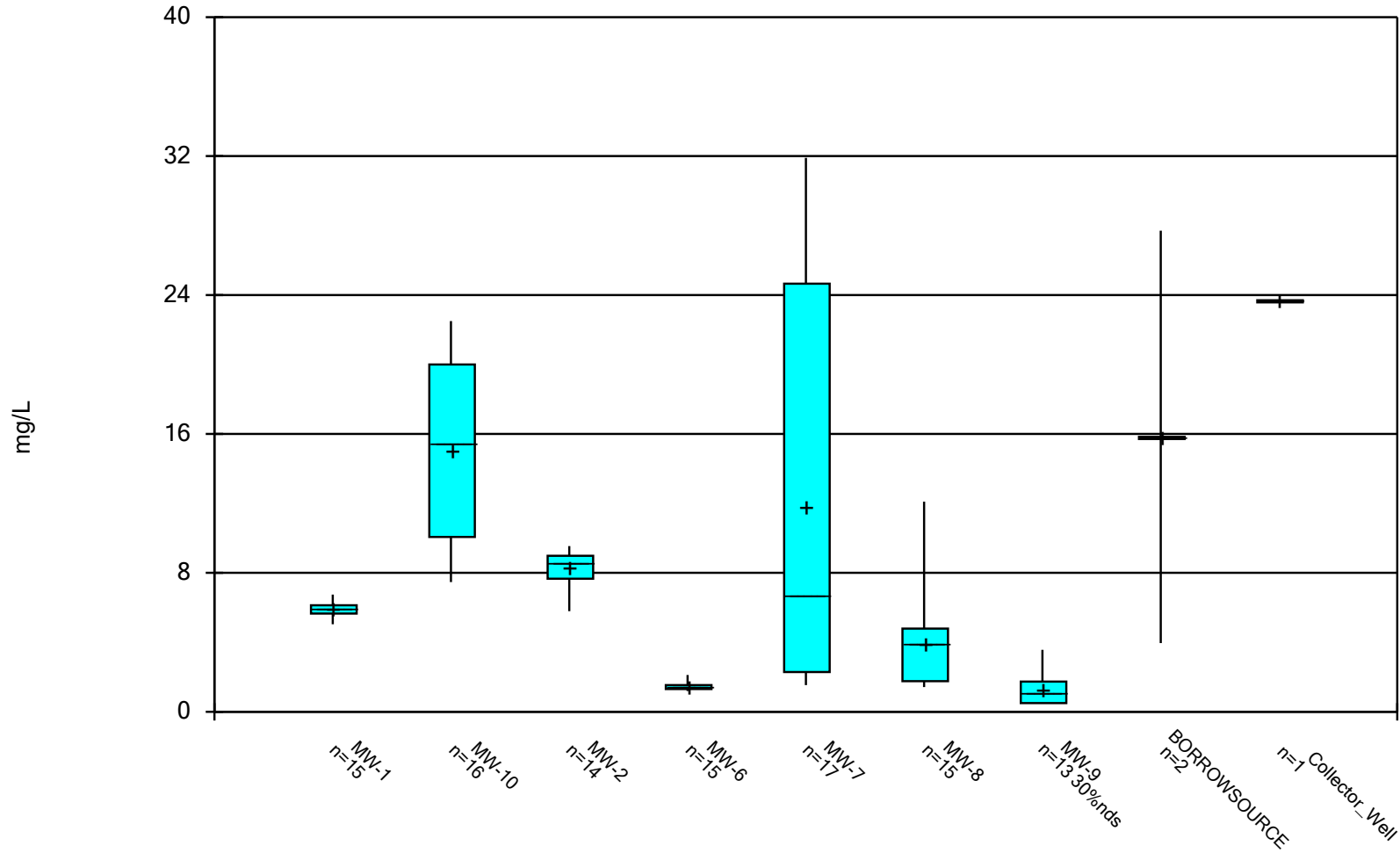
Constituent: Calcium (mg/L) Analysis Run 10/21/2019 12:39 PM View: CCR LF III

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

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9	BORROWSOURCECollector_Well	
6/17/2016									84.7
8/18/2016	134	123	170	142	145	136	119		
9/29/2016	134	118	169	139	144	132	102		
11/9/2016	136	124	169	142	146	135	103		
12/21/2016	134	123	166	146	138	139	116		
2/3/2017	116	109	146	136	116	133	105		
5/24/2017	128	125	166	150	123	138	108		
7/5/2017	129	120	165	147	125	142	97.2		
8/17/2017	134	122	168	150	133	145	110	23.6	
10/5/2017	141	131	177	157	135	155	113	135	
11/14/2017	130	119	161	151	125	145	113		
5/21/2018	131	115	164	150	123	130	105		
11/12/2018	137	138	166	147	192	170	122		
1/10/2019		157			185	149			
3/14/2019		151			132	140			
5/20/2019	130	151	167	131	184	141	115		
7/11/2019		153	175 (i)	138	199				
8/20/2019		143			183				
<b>Median</b>	134	124	166	146.5	138	140	110	79.3	84.7
<b>LowerQ.</b>	129.5	119.5	164.5	138.5	125	135	104	79.3	84.7
<b>UpperQ.</b>	135	147	169	150	183.5	145	115.5	79.3	84.7
<b>Min</b>	116	109	146	131	116	130	97.2	23.6	84.7
<b>Max</b>	141	157	177	157	199	170	122	135	84.7
<b>Mean</b>	131.8	130.7	165.7	144.7	148.7	142	109.9	79.3	84.7



### Box & Whiskers Plot



Constituent: Chloride    Analysis Run 10/21/2019 11:30 AM    View: CCR LF III  
latan Utility Waste LF    Client: SCS Engineers    Data: latan jrr

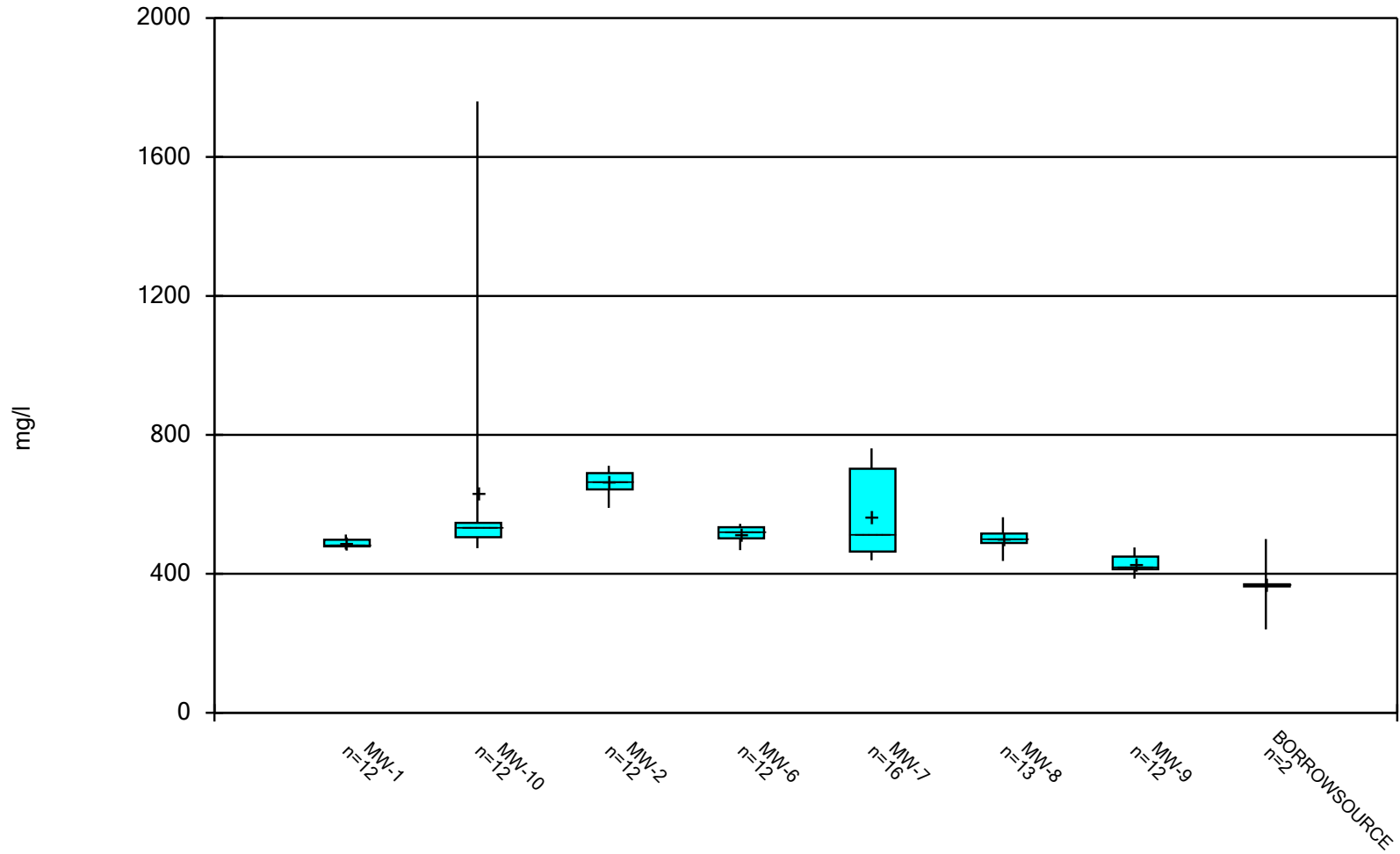
# Box & Whiskers Plot

Constituent: Chloride (mg/L) Analysis Run 10/21/2019 12:39 PM View: CCR LF III

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

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9	BORROWSOURCECollector_Well	
6/17/2016								23.7	
8/18/2016	5.93	7.47	8.26	1.31	12.3	1.5	1.95		
9/29/2016	6.07	7.83	8.79	1.46	13.9	1.42	<1		
11/9/2016	5.95	9.15	8.76	1.29	11.1	1.76	<1		
12/21/2016	5.97	9.84	8.24	1.72	6.64	1.89	1.66		
2/3/2017	6	10.3	8.17	1.4	3.32	4.02	1.16		
5/24/2017	5.61	12.6	9.54	1.49	1.76	3.63	1.07		
7/5/2017	5.78	15.9	8.99	1.54	1.81	4.44	1.06		
8/17/2017	6.13	17.6	8.98	1.32	2	3.53	<1	3.96	
10/5/2017	6.75	19.7	9.23	2.09	3.32	4.55	3.57	27.7	
11/14/2017	6.73	17.6	8.97	2.12	2.58	4.86	1.82		
12/29/2017	6.27			1.45					
12/30/2017	5.99								
5/21/2018	5.63	14.1	8.14	1.45	1.54	1.5	<1		
11/12/2018	5.04	15.1	5.79	1.31	26.4	12.1	1.1		
1/10/2019		21			23.3	5.63			
3/14/2019					4.77	4.79			
5/20/2019	5.66	21	7.18	1.21	26	3.98	1.57		
7/11/2019		22.5	6.5	1.2	31.9				
8/20/2019		20.3			28.7				
<b>Median</b>	5.97	15.5	8.51	1.45	6.64	3.98	1.1	15.83	23.7
<b>LowerQ.</b>	5.66	10.07	7.66	1.31	2.29	1.76	0.5	15.83	23.7
<b>UpperQ.</b>	6.13	20	8.985	1.54	24.65	4.79	1.74	15.83	23.7
<b>Min</b>	5.04	7.47	5.79	1.2	1.54	1.42	0.5	3.96	23.7
<b>Max</b>	6.75	22.5	9.54	2.12	31.9	12.1	3.57	27.7	23.7
<b>Mean</b>	5.967	15.12	8.253	1.491	11.84	3.973	1.305	15.83	23.7

### Box & Whiskers Plot



Constituent: Dissolved Solids    Analysis Run 10/21/2019 11:30 AM    View: CCR LF III  
latan Utility Waste LF    Client: SCS Engineers    Data: latan jrr

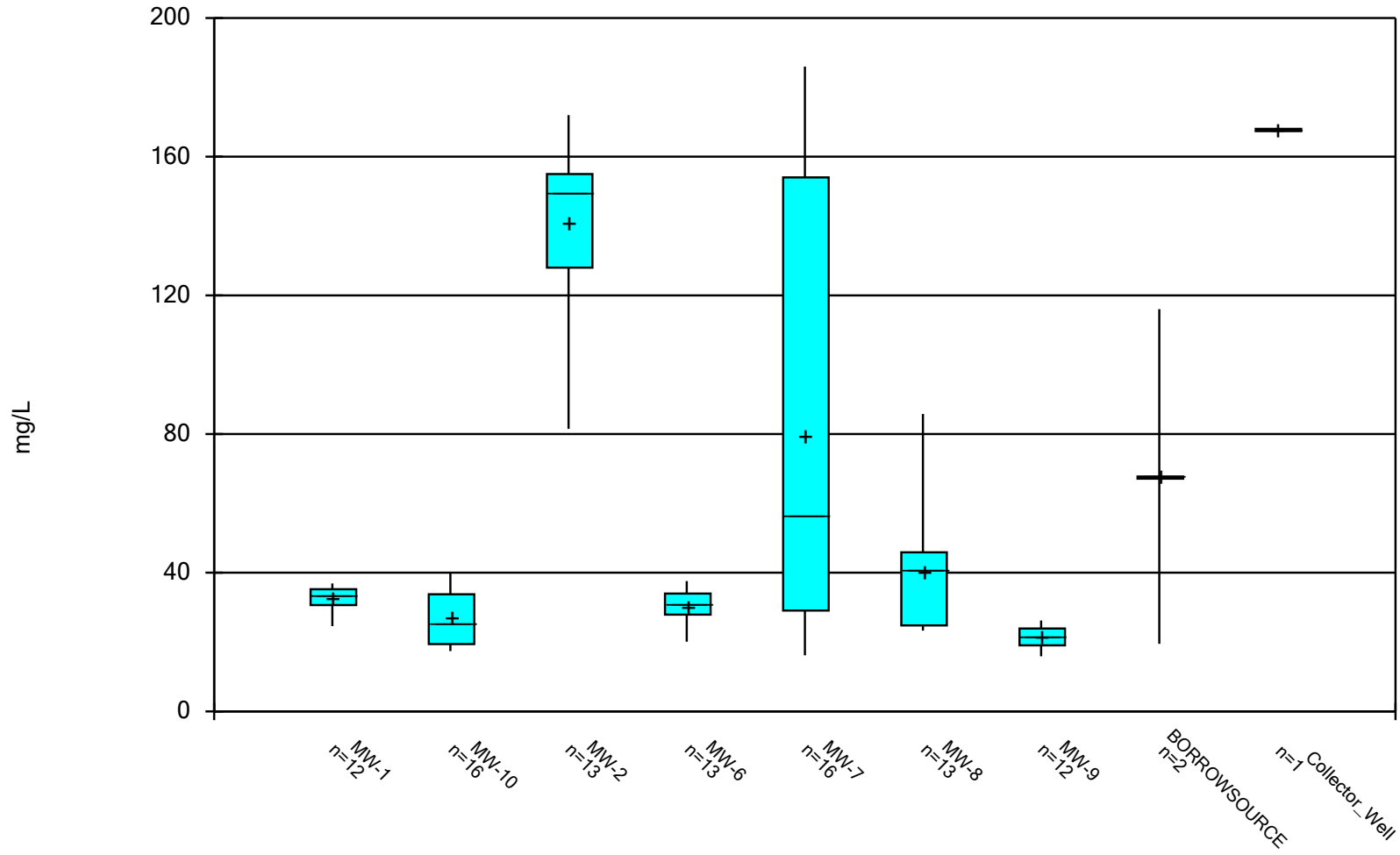
# Box & Whiskers Plot

Constituent: Dissolved Solids (mg/l) Analysis Run 10/21/2019 12:39 PM View: CCR LF III

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

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9	BORROWSOURCE
8/18/2016	513	532	696	522	560	494	475	
9/29/2016	486	502	651	498	554	517	398	
11/9/2016	484	516	711	506	538	471	476	
12/21/2016	493	497	636	519	492	493	415	
2/3/2017	506	531	661	527	487	515	442	
5/24/2017	477	1760	690	544	462	485	415	
7/5/2017	481	474	638	508	445	500	386	
8/17/2017	500	539	690	542	466	504	431	240
10/5/2017	472	539	683	528	459	505	414	500
5/21/2018	496	509	648	540	439	437	412	
11/12/2018	485	554	590	484	681	563	435	
1/10/2019					724	502		
3/14/2019					472			
5/20/2019	470	697	666	468	737	518	457	
7/11/2019					761			
8/20/2019					743			
Median	485.5	531.5	663.5	520.5	515	502	423	370
LowerQ.	479	505.5	643	502	464	489	413	370
UpperQ.	498	546.5	690	534	702.5	516	449.5	370
Min	470	474	590	468	439	437	386	240
Max	513	1760	711	544	761	563	476	500
Mean	488.6	637.5	663.3	515.5	563.8	500.3	429.7	370

### Box & Whiskers Plot



Constituent: Sulfate Analysis Run 10/21/2019 11:30 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Box & Whiskers Plot

Constituent: Sulfate (mg/L) Analysis Run 10/21/2019 12:39 PM View: CCR LF III

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

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9	BORROWSOURCECollector_Well	
6/17/2016									168
8/18/2016	32.4	17.8	142	30.2	70.2	23.3	16.7		
9/29/2016	35.3	19.7	151	33.5	70.6	24.2	26.2		
11/9/2016	33.2	17.4	155	31.4	62.6	23.8	23		
12/21/2016	36.2	17.7	155	28.6	50	25.5	22.2		
2/3/2017	36.9	19.1	150	28.5	41.9	39.6	21.1		
5/24/2017	27.4	22.4	172	32.7	16.2	42.8	15.9		
7/5/2017	34.2	24.7	158	37.2	19.5	54.8	24.8		
8/17/2017	35.2	26.5	149	37.6	34.1	43	19.8	19.5	
10/5/2017	34.5	26.4	151	34.5	24.3	43.4	21.5	116	
5/21/2018	32.6	23.6	137	30.9	23.8	25.4	18.3		
11/12/2018	24.6	32.9	81.5	27.3	149	85.8	25.8		
1/10/2019		38			159	48.4			
3/14/2019		40.1			33.9				
5/20/2019	28.9	37.3	119	20.2	166	40.9	22.8		
7/11/2019		33	112	20.1	186				
8/20/2019		34.6			166				
<b>Median</b>	33.7	25.55	150	30.9	56.3	40.9	21.85	67.75	168
<b>LowerQ.</b>	30.65	19.4	128	27.9	29.1	24.8	19.05	67.75	168
<b>UpperQ.</b>	35.25	33.8	155	34	154	45.9	23.9	67.75	168
<b>Min</b>	24.6	17.4	81.5	20.1	16.2	23.3	15.9	19.5	168
<b>Max</b>	36.9	40.1	172	37.6	186	85.8	26.2	116	168
<b>Mean</b>	32.62	26.95	141	30.21	79.57	40.07	21.51	67.75	168

# Box & Whiskers Plot

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Printed 10/21/2019, 12:39 PM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Calcium (mg/L)	MW-1	13	131.8	5.97	1.656	134	116	141	0
Calcium (mg/L)	MW-10	17	130.7	15.04	3.648	124	109	157	0
Calcium (mg/L)	MW-2	13	165.7	7.005	1.943	166	146	177	0
Calcium (mg/L)	MW-6	14	144.7	7.032	1.879	146.5	131	157	0
Calcium (mg/L)	MW-7	17	148.7	27.98	6.787	138	116	199	0
Calcium (mg/L)	MW-8	15	142	10.21	2.637	140	130	170	0
Calcium (mg/L)	MW-9	13	109.9	7.272	2.017	110	97.2	122	0
Calcium (mg/L)	BORROWSOURCE	2	79.3	78.77	55.7	79.3	23.6	135	0
Calcium (mg/L)	Collector...	1	84.7	0	0	84.7	84.7	84.7	0
Chloride (mg/L)	MW-1	15	5.967	0.4274	0.1103	5.97	5.04	6.75	0
Chloride (mg/L)	MW-10	16	15.12	5.1	1.275	15.5	7.47	22.5	0
Chloride (mg/L)	MW-2	14	8.253	1.076	0.2876	8.51	5.79	9.54	0
Chloride (mg/L)	MW-6	15	1.491	0.2829	0.07305	1.45	1.2	2.12	0
Chloride (mg/L)	MW-7	17	11.84	11.04	2.677	6.64	1.54	31.9	0
Chloride (mg/L)	MW-8	15	3.973	2.661	0.687	3.98	1.42	12.1	0
Chloride (mg/L)	MW-9	13	1.305	0.8553	0.2372	1.1	0.5	3.57	30.77
Chloride (mg/L)	BORROWSOURCE	2	15.83	16.79	11.87	15.83	3.96	27.7	0
Chloride (mg/L)	Collector...	1	23.7	0	0	23.7	23.7	23.7	0
Dissolved Solids (mg/l)	MW-1	12	488.6	13.34	3.85	485.5	470	513	0
Dissolved Solids (mg/l)	MW-10	12	637.5	357.8	103.3	531.5	474	1760	0
Dissolved Solids (mg/l)	MW-2	12	663.3	33.46	9.659	663.5	590	711	0
Dissolved Solids (mg/l)	MW-6	12	515.5	23.66	6.831	520.5	468	544	0
Dissolved Solids (mg/l)	MW-7	16	563.8	121.5	30.36	515	439	761	0
Dissolved Solids (mg/l)	MW-8	13	500.3	28.83	7.995	502	437	563	0
Dissolved Solids (mg/l)	MW-9	12	429.7	28.65	8.27	423	386	476	0
Dissolved Solids (mg/l)	BORROWSOURCE	2	370	183.8	130	370	240	500	0
Sulfate (mg/L)	MW-1	12	32.62	3.775	1.09	33.7	24.6	36.9	0
Sulfate (mg/L)	MW-10	16	26.95	7.937	1.984	25.55	17.4	40.1	0
Sulfate (mg/L)	MW-2	13	141	23.93	6.636	150	81.5	172	0
Sulfate (mg/L)	MW-6	13	30.21	5.456	1.513	30.9	20.1	37.6	0
Sulfate (mg/L)	MW-7	16	79.57	62.23	15.56	56.3	16.2	186	0
Sulfate (mg/L)	MW-8	13	40.07	17.39	4.824	40.9	23.3	85.8	0
Sulfate (mg/L)	MW-9	12	21.51	3.352	0.9676	21.85	15.9	26.2	0
Sulfate (mg/L)	BORROWSOURCE	2	67.75	68.24	48.25	67.75	19.5	116	0
Sulfate (mg/L)	Collector...	1	168	0	0	168	168	168	0

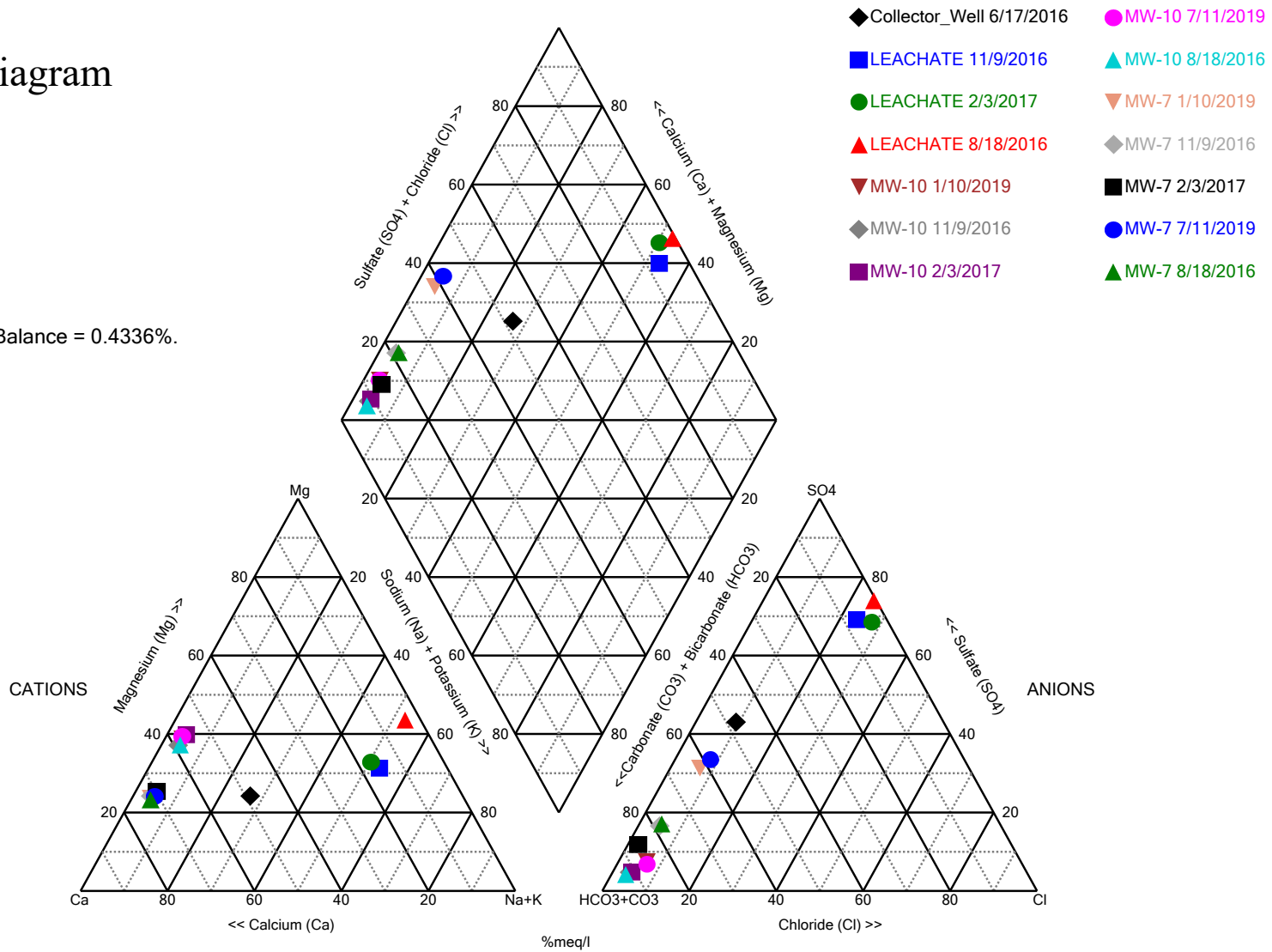
## **Appendix D**

### **Piper Diagram**



# Piper Diagram

Cation-Anion Balance = 0.4336%.



Analysis Run 10/21/2019 12:47 PM View: CCR LF III  
 latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Piper Diagram

Analysis Run 10/21/2019 12:49 PM View: CCR LF III

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

Totals (ppm)	Na	K	Ca	Mg	Cl	SO4	HCO3	CO3
MW-10 8/18/2016	7.77	4.45	123	47.3	7.47	17.8	480	10
MW-10 11/9/2016	7.11	4.02	124	47.3	9.15	17.4	428	10
MW-10 2/3/2017	7.2	3.93	109	46.7	10.3	19.1	442	10
MW-10 1/10/2019	8.51	5.08	157	64.3	21	38	555	10
MW-10 7/11/2019	8.12	5.11	153	63.8	22.5	33	537	10
MW-7 8/18/2016	6.92	5.9	145	27.5	12.3	70.2	398	10
MW-7 11/9/2016	6.72	5.56	146	29.3	11.1	62.6	368	10
MW-7 2/3/2017	6.29	5.3	116	25.4	3.32	41.9	375	10
MW-7 1/10/2019	8.87	6.61	185	36.8	23.3	159	386	10
MW-7 7/11/2019	12.3	7.2	199	40.9	31.9	186	404	10
LEACHATE 8/18/2016	9250	689	573	4240	6990	28000	644	10
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
Collector_Well 6/17/2016	49.6	6.96	84.7	25.3	23.7	168	221	10

## ADDENDUM 1

### 2019 Annual Groundwater Monitoring and Corrective Action Report Addendum 1

December 16, 2022  
File No. 27213167.19

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

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

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



The CCR Landfill at the Iatan Generating Station is subject to the groundwater monitoring and corrective action requirements of the “Coal Combustion Residuals (CCR) Final Rule” (Rule); as described in CFR 40 257.90 through CFR 40 257.98. An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting activities completed in 2019 for the CCR Landfill was completed and placed in the facility’s operating record on January 30, 2020, as required by the Rule. The Annual GWMCA report was to fulfill the requirements specified in 40 CFR 257.90(e).

This Addendum has been prepared to supplement the operating record in recognition of comments received by Evergy from the U.S. Environmental Protection Agency (USEPA) on January 11, 2022. In addition to the information listed in 40 CFR 257.90(e), the USEPA indicated in their comments that the GWMCA Report contain the following:

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

This information is not specifically referred to in 40 CFR 257.90(e) for inclusion in the GWMCA Reports; however, it is routinely collected, determined and maintained in Evergy’s files and is being provided in the attachments to this addendum.

The attachments to this addendum are as follows:

- Attachment 1 – Laboratory Analytical Reports:  
Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. The laboratory data packages for the following sampling events are provided:



- January 2019 – First verification sampling for the Fall 2018 detection monitoring event.
  - March 2019 – Second verification sampling for the Fall 2018 detection monitoring event.
  - May 2019 – Spring 2019 semiannual detection monitoring sampling event.
  - July 2019 – First verification sampling for the Spring 2019 detection monitoring sampling event.
  - August 2019 – Second verification sampling for the Spring 2019 detection monitoring sampling event.
  - November 2019 - Fall 2019 semiannual detection monitoring sampling event.
- Attachment 2 - Statistical Analyses:  
Includes summary of statistical results, prediction limit plots, prediction limit background data, detection sample results, first and second verification re-sample results (when applicable), extra sample results for pH (collected as part of the approved sampling procedures), input parameters, and a Prediction Limit summary table. Statistical analyses completed in 2019 included the following:
    - Fall 2018 semiannual detection monitoring statistical analyses.
    - Spring 2019 semiannual detection monitoring statistical analyses.
- Attachment 3 - Groundwater Potentiometric Surface Maps:  
Includes groundwater potentiometric surface maps with the measured groundwater elevations at each well and the generalized groundwater flow direction and the calculated groundwater flow rate. Maps for the following sampling events are provided:
    - May 2019 - Spring 2019 semiannual detection monitoring sampling event.
    - November 2019 - Fall 2019 semiannual detection monitoring sampling event.

Jared Morrison  
December 16, 2022

**ATTACHMENT 1**  
**Laboratory Analytical Reports**

Jared Morrison  
December 16, 2022

**ATTACHMENT 1-1**  
**January 2019 Sampling Event Laboratory Report**

January 18, 2019

## SCS Engineers - KS

Sample Delivery Group: L1060261  
Samples Received: 01/11/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

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

Entire Report Reviewed By:



Jeff Carr  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





<b>Cp: Cover Page</b>	<b>1</b>	<b><sup>1</sup>Cp</b>
<b>Tc: Table of Contents</b>	<b>2</b>	<b><sup>2</sup>Tc</b>
<b>Ss: Sample Summary</b>	<b>3</b>	<b><sup>3</sup>Ss</b>
<b>Cn: Case Narrative</b>	<b>4</b>	<b><sup>4</sup>Cn</b>
<b>Sr: Sample Results</b>	<b>5</b>	<b><sup>5</sup>Sr</b>
<b>MW-7 L1060261-01</b>	<b>5</b>	
<b>MW-8 L1060261-02</b>	<b>6</b>	
<b>MW-10 L1060261-03</b>	<b>7</b>	
<b>DUPLICATE L1060261-04</b>	<b>8</b>	
<b>Qc: Quality Control Summary</b>	<b>9</b>	<b><sup>6</sup>Qc</b>
<b>Gravimetric Analysis by Method 2540 C-2011</b>	<b>9</b>	
<b>Wet Chemistry by Method 9056A</b>	<b>10</b>	<b><sup>7</sup>Gl</b>
<b>Metals (ICP) by Method 6010B</b>	<b>12</b>	<b><sup>8</sup>Al</b>
<b>Gl: Glossary of Terms</b>	<b>13</b>	
<b>Al: Accreditations &amp; Locations</b>	<b>14</b>	<b><sup>9</sup>Sc</b>
<b>Sc: Sample Chain of Custody</b>	<b>15</b>	

# SAMPLE SUMMARY



## MW-7 L1060261-01 GW

Collected by  
G. Penaflo  
Collected date/time  
01/10/19 12:55  
Received date/time  
01/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1223225	1	01/16/19 15:22	01/16/19 15:50	AJS
Wet Chemistry by Method 9056A	WG1222799	1	01/17/19 20:11	01/17/19 20:11	ELN
Wet Chemistry by Method 9056A	WG1222799	5	01/18/19 11:10	01/18/19 11:10	ELN
Metals (ICP) by Method 6010B	WG1222775	1	01/15/19 09:12	01/15/19 17:56	TRB

1  
Cp

2  
Tc

3  
Ss

4  
Cn

## MW-8 L1060261-02 GW

Collected by  
G. Penaflo  
Collected date/time  
01/10/19 12:10  
Received date/time  
01/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1223225	1	01/16/19 15:22	01/16/19 15:50	AJS
Wet Chemistry by Method 9056A	WG1222799	1	01/17/19 20:43	01/17/19 20:43	ELN
Metals (ICP) by Method 6010B	WG1222775	1	01/15/19 09:12	01/15/19 17:31	TRB

5  
Sr

6  
Qc

7  
Gl

## MW-10 L1060261-03 GW

Collected by  
G. Penaflo  
Collected date/time  
01/10/19 11:25  
Received date/time  
01/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1222799	1	01/17/19 21:27	01/17/19 21:27	ELN
Metals (ICP) by Method 6010B	WG1222775	1	01/15/19 09:12	01/15/19 17:58	TRB

8  
Al

9  
Sc

## DUPLICATE L1060261-04 GW

Collected by  
G. Penaflo  
Collected date/time  
01/10/19 12:15  
Received date/time  
01/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1223225	1	01/16/19 15:22	01/16/19 15:50	AJS
Wet Chemistry by Method 9056A	WG1222799	1	01/17/19 21:38	01/17/19 21:38	ELN
Metals (ICP) by Method 6010B	WG1222775	1	01/15/19 09:12	01/15/19 18:01	TRB



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

Jeff Carr  
Project Manager

- <sup>1</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
- <sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	724000		13300	1	01/16/2019 15:50	<a href="#">WG1223225</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	23300		1000	1	01/17/2019 20:11	<a href="#">WG1222799</a>
Sulfate	159000		25000	5	01/18/2019 11:10	<a href="#">WG1222799</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	185000		1000	1	01/15/2019 17:56	<a href="#">WG1222775</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	502000		10000	1	01/16/2019 15:50	<a href="#">WG1223225</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	5630		1000	1	01/17/2019 20:43	<a href="#">WG1222799</a>
Sulfate	48400		5000	1	01/17/2019 20:43	<a href="#">WG1222799</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	149000	<u>O1V</u>	1000	1	01/15/2019 17:31	<a href="#">WG1222775</a>

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	38000		5000	1	01/17/2019 21:27	<a href="#">WG1222799</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	157000		1000	1	01/15/2019 17:58	<a href="#">WG1222775</a>

<sup>1</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

<sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	511000		10000	1	01/16/2019 15:50	<a href="#">WG1223225</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	5790		1000	1	01/17/2019 21:38	<a href="#">WG1222799</a>
Sulfate	49600		5000	1	01/17/2019 21:38	<a href="#">WG1222799</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	147000		1000	1	01/15/2019 18:01	<a href="#">WG1222775</a>

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3376673-1 01/16/19 15:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

L1060341-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1060341-01 01/16/19 15:50 • (DUP) R3376673-3 01/16/19 15:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	49000	49000	1	0.000		5

5 Sr

6 Qc

Laboratory Control Sample (LCS)

(LCS) R3376673-2 01/16/19 15:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8810000	100	85.0-115	

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3376928-1 01/17/19 10:45

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

<sup>1</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

<sup>9</sup> Sc

L1060180-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1060180-01 01/17/19 16:40 • (DUP) R3376928-3 01/17/19 16:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	42200	41900	1	0.834		15

L1060261-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1060261-02 01/17/19 20:43 • (DUP) R3376928-5 01/17/19 20:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	5630	5650	1	0.367		15
Sulfate	48400	48800	1	0.835		15

L1060180-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1060180-01 01/18/19 10:26 • (DUP) R3376928-8 01/18/19 10:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	117000	115000	5	1.88		15

Laboratory Control Sample (LCS)

(LCS) R3376928-2 01/17/19 10:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	37600	94.1	80.0-120	
Sulfate	40000	38300	95.7	80.0-120	



L1060180-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1060180-01 01/17/19 16:40 • (MS) R3376928-4 01/17/19 17:02

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	42200	86000	87.5	1	80.0-120	
Sulfate	50000	110000	150000	79.8	1	80.0-120	E J6

1 Cp

2 Tc

3 Ss

L1060261-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1060261-02 01/17/19 20:43 • (MS) R3376928-6 01/17/19 21:05 • (MSD) R3376928-7 01/17/19 21:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	5630	53500	53500	95.7	95.7	1	80.0-120			0.0206	15
Sulfate	50000	48400	93200	93000	89.5	89.2	1	80.0-120			0.208	15

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3376054-1 01/15/19 17:23

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

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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

(LCS) R3376054-2 01/15/19 17:26 • (LCSD) R3376054-3 01/15/19 17:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	10500	10400	105	104	80.0-120			0.948	20

6 Qc

L1060261-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1060261-02 01/15/19 17:31 • (MS) R3376054-5 01/15/19 17:36 • (MSD) R3376054-6 01/15/19 17:39

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	149000	156000	156000	66.8	75.5	1	75.0-125	V		0.558	20

7 Gl

8 Al

9 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.

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.

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

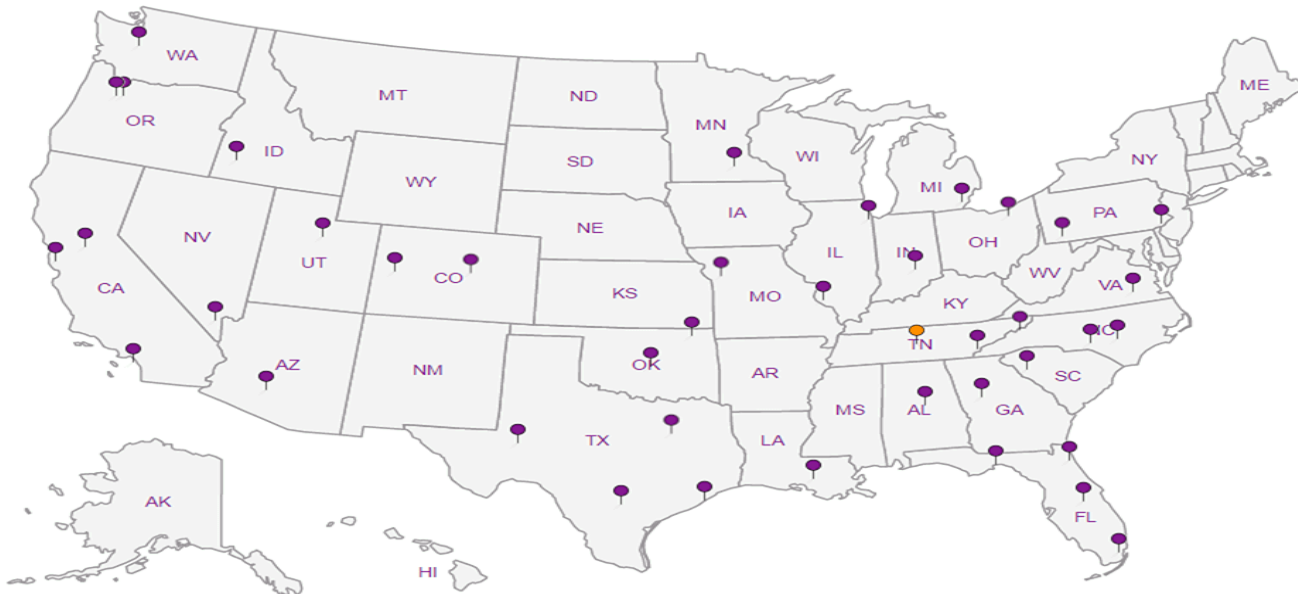
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <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

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**SCS Engineers - KS**

8575 W. 110th Street  
Overland Park, KS 66210

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

Report to:  
**Jason Franks**

Email To: [jfranks@scsengineers.com](mailto:jfranks@scsengineers.com);  
[jay.martin@kcpl.com](mailto:jay.martin@kcpl.com);

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

City/State Collected:  
Lab Project #  
**AQUAOPKS-IATAN**

Phone: **913-681-0030**  
Fax: **913-681-0012**  
Client Project #  
**27213167.18**

Collected by (print):  
*G. Penation*  
Collected by (signature):  
*Gally Pater*  
Immediately Packed on Ice N \_\_\_ Y **X**  
**Rush?** (Lab MUST Be Notified)  
\_\_\_ Same Day \_\_\_ Five Day  
\_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
\_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
\_\_\_ Three Day  
Quote #  
Date Results Needed  
**STD**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Calcium - 6010 250mlHDPE-HNO3	Chloride, SO4 125mlHDPE-NoPres	SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres
MW-7	Comp ↓	GW		11/10/19	1255	3	X	X		X
MW-8		GW		11/10/19	1210	3	X	X		X
MW-10		GW		11/10/19	1125	2	X		X	
DUPLICATE		GW		11/10/19	1215	3	X	X		X
MS/MSD		GW		11/10/19	1220	3	X	X		X

Analysis / Container / Preservative										Chain of Custody Page ___ of ___	
Pres Chk	2										 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859 L# <b>L1060261</b> <b>A120</b> Acctnum: <b>AQUAOPKS</b> Template: <b>T136056</b> Prelogin: <b>P689215</b> TSR: <b>206 - Jeff Carr</b> PB: Shipped Via: Remarks Sample # (lab only) -01 -02 -03 -04 -05

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

Remarks:  
pH \_\_\_\_\_ Temp \_\_\_\_\_  
Flow \_\_\_\_\_ Other \_\_\_\_\_  
Samples returned via:  
\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier \_\_\_\_\_  
Tracking # **4510 1661 7643**

**Sample Receipt Checklist**  
 COC Seal Present/Intact:  Y  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 If Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N

Relinquished by: (Signature) *Gally Pater* Date: **11/10/19** Time: **1426**  
 Received by: (Signature) *Jason Franks*  
 Trip Blank Received: Yes  No   
 HCL/MeOH TBR  
 Temp: **-0.2 °C** Bottles Received: **14**  
**2.1.842**  
 Relinquished by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received for lab by: (Signature) *JH* Date: **01/11/19** Time: **8:45**  
 Hold: \_\_\_\_\_ Condition: **NCF / OK**

Jared Morrison  
December 16, 2022

**ATTACHMENT 1-2**  
**March 2019 Sampling Event Laboratory Report**

March 25, 2019

## SCS Engineers - KS

Sample Delivery Group: L1079198  
Samples Received: 03/15/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

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

Entire Report Reviewed By:



Jeff Carr  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	<b>2</b> Tc
<b>Ss: Sample Summary</b>	<b>3</b>	<b>3</b> Ss
<b>Cn: Case Narrative</b>	<b>4</b>	<b>4</b> Cn
<b>Sr: Sample Results</b>	<b>5</b>	<b>5</b> Sr
<b>MW-7 L1079198-01</b>	<b>5</b>	
<b>MW-8 L1079198-02</b>	<b>6</b>	
<b>MW-10 L1079198-03</b>	<b>7</b>	
<b>DUPLICATE L1079198-04</b>	<b>8</b>	
<b>Qc: Quality Control Summary</b>	<b>9</b>	<b>6</b> Qc
<b>Gravimetric Analysis by Method 2540 C-2011</b>	<b>9</b>	
<b>Wet Chemistry by Method 9056A</b>	<b>10</b>	<b>7</b> Gl
<b>Metals (ICP) by Method 6010B</b>	<b>12</b>	<b>8</b> Al
<b>Gl: Glossary of Terms</b>	<b>13</b>	
<b>Al: Accreditations &amp; Locations</b>	<b>14</b>	<b>9</b> Sc
<b>Sc: Sample Chain of Custody</b>	<b>15</b>	

# SAMPLE SUMMARY

## MW-7 L1079198-01 GW

Collected by  
Whit Martin      Collected date/time  
03/14/19 10:00      Received date/time  
03/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1253144	1	03/21/19 20:41	03/21/19 21:04	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1252510	1	03/20/19 22:10	03/20/19 22:10	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1250678	1	03/19/19 02:11	03/19/19 09:34	TRB	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## MW-8 L1079198-02 GW

Collected by  
Whit Martin      Collected date/time  
03/14/19 10:55      Received date/time  
03/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1252510	1	03/21/19 04:15	03/21/19 04:15	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1250678	1	03/19/19 02:11	03/19/19 10:57	TRB	Mt. Juliet, TN

## MW-10 L1079198-03 GW

Collected by  
Whit Martin      Collected date/time  
03/14/19 11:40      Received date/time  
03/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1252510	1	03/21/19 04:31	03/21/19 04:31	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1250678	1	03/19/19 02:11	03/19/19 11:00	TRB	Mt. Juliet, TN

## DUPLICATE L1079198-04 GW

Collected by  
Whit Martin      Collected date/time  
03/14/19 10:00      Received date/time  
03/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1253144	1	03/21/19 20:41	03/21/19 21:04	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1252510	1	03/21/19 04:47	03/21/19 04:47	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1250678	1	03/19/19 02:11	03/19/19 11:03	TRB	Mt. Juliet, TN



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

Jeff Carr  
Project Manager

- <sup>1</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
- <sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	472000		10000	1	03/21/2019 21:04	<a href="#">WG1253144</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4770		1000	1	03/20/2019 22:10	<a href="#">WG1252510</a>
Sulfate	33900		5000	1	03/20/2019 22:10	<a href="#">WG1252510</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	132000	<u>V</u>	1000	1	03/19/2019 09:34	<a href="#">WG1250678</a>

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4790		1000	1	03/21/2019 04:15	<a href="#">WG1252510</a>

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	140000		1000	1	03/19/2019 10:57	<a href="#">WG1250678</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	40100		5000	1	03/21/2019 04:31	<a href="#">WG1252510</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	151000		1000	1	03/19/2019 11:00	<a href="#">WG1250678</a>

<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



Collected date/time: 03/14/19 10:00

L1079198

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	492000		10000	1	03/21/2019 21:04	<a href="#">WG1253144</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	5000		1000	1	03/21/2019 04:47	<a href="#">WG1252510</a>
Sulfate	36300		5000	1	03/21/2019 04:47	<a href="#">WG1252510</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	132000		1000	1	03/19/2019 11:03	<a href="#">WG1250678</a>

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Method Blank (MB)

(MB) R3394345-1 03/21/19 21:04

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

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L1079881-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1079881-09 03/21/19 21:04 • (DUP) R3394345-3 03/21/19 21:04

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1710000	1810000	1	5.70	J3	5

Laboratory Control Sample (LCS)

(LCS) R3394345-2 03/21/19 21:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8570000	97.4	85.0-115	

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3393627-1 03/20/19 21:01

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

<sup>1</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

<sup>9</sup> Sc

L1079198-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1079198-01 03/20/19 22:10 • (DUP) R3393627-3 03/20/19 22:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4770	4760	1	0.273		15
Sulfate	33900	33900	1	0.109		15

L1078975-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1078975-06 03/21/19 00:17 • (DUP) R3393627-6 03/21/19 00:33

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

Laboratory Control Sample (LCS)

(LCS) R3393627-2 03/20/19 21:17

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40800	102	80.0-120	
Sulfate	40000	41200	103	80.0-120	

L1079198-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079198-01 03/20/19 22:10 • (MS) R3393627-4 03/20/19 22:41 • (MSD) R3393627-5 03/20/19 22:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	4770	56300	56600	103	104	1	80.0-120			0.569	15
Sulfate	50000	33900	84400	84700	101	102	1	80.0-120			0.336	15



L1078975-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1078975-06 03/21/19 00:17 • (MS) R3393627-7 03/21/19 00:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50000	ND	51100	102	1	80.0-120	
Sulfate	50000	ND	51300	103	1	80.0-120	

<sup>1</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

<sup>9</sup> Sc



Method Blank (MB)

(MB) R3392979-1 03/19/19 09:26

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

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

(LCS) R3392979-2 03/19/19 09:29 • (LCSD) R3392979-3 03/19/19 09:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	9820	9750	98.2	97.5	80.0-120			0.755	20

L1079198-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079198-01 03/19/19 09:34 • (MS) R3392979-5 03/19/19 09:39 • (MSD) R3392979-6 03/19/19 09:42

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	132000	138000	138000	60.4	60.9	1	75.0-125	<u>V</u>	<u>V</u>	0.0373	20

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> 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.

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.

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

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

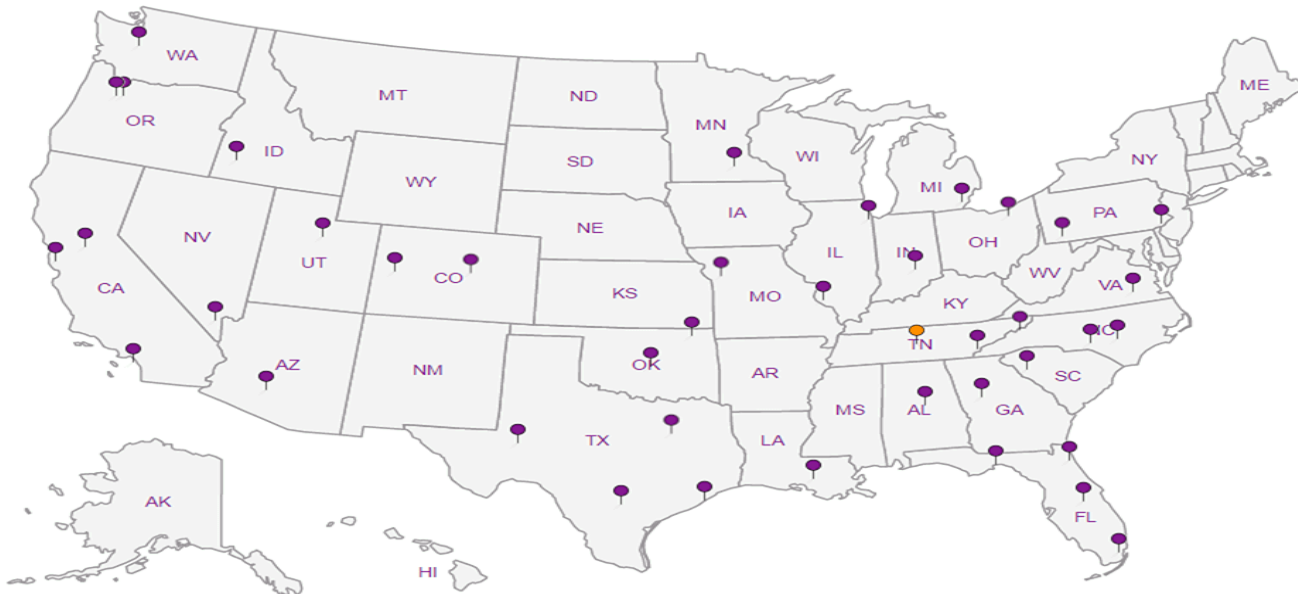
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <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

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**SCS Engineers - KS**

8575 W. 110th Street  
Overland Park, KS 66210

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

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Report to:  
Jason Franks

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

Project  
Description: KCP&L Iatan Generating Station

City/State  
Collected:

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

Client Project #  
27213167.18

Lab Project #  
AQUAOPKS-IATAN

Collected by (print):  
Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature):  
Whit Martin

**Rush?** (Lab MUST Be Notified)

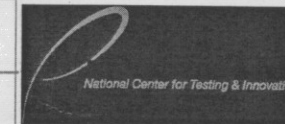
\_\_\_ Same Day \_\_\_ Five Day  
\_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
\_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
\_\_\_ Three Day

Quote #

Date Results Needed  
Std

No.  
of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Calcium - 6010 250mlHDPE-HNO3	Chloride 125mlHDPE-NoPres	Chloride, SO4 125mlHDPE-NoPres	SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres
MW-7	Grab	GW		3/14/19	1000	3	X		X		X
MW-8	Grab	GW		3/14/19	1055	2	X	X			
MW-10	Grab	GW		3/14/19	1140	2	X			X	
DUPLICATE	Grab	GW		3/14/19	1000	3	X		X		X
MW-7 MS/MSD	Grab	GW		3/14/19	1005	3	X		X		X



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



L # 4079198  
Table 1100

Acctnum: AQUAOPKS

Template: T136056

Prelogin: P698269

TSR: 206 - Jeff Carr

PB:

Shipped Via:

Remarks Sample # (lab only)

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

Remarks:

Samples returned via:

\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

Tracking #

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist

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

If Applicable

VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  N

RAD SCREEN: <0.5 mR/hr

Relinquished by: (Signature)

Whit Martin

Date:

3/14/19

Time:

1308

Received by: (Signature)

[Signature]

Trip Blank Received:  Yes /  No

1 HCl / MeOH TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

[Signature]

Temp: 44.6F °C  
3.8-1-3.7  
Bottles Received: 13 + TB

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Murphy T.

Date: 3/15  
Time: 8:45

Hold:

Condition:

NCF / OK

Jared Morrison  
December 16, 2022

**ATTACHMENT 1-3**  
**May 2019 Sampling Event Laboratory Report**

## SCS Engineers - KS

Sample Delivery Group: L1100809  
Samples Received: 05/21/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

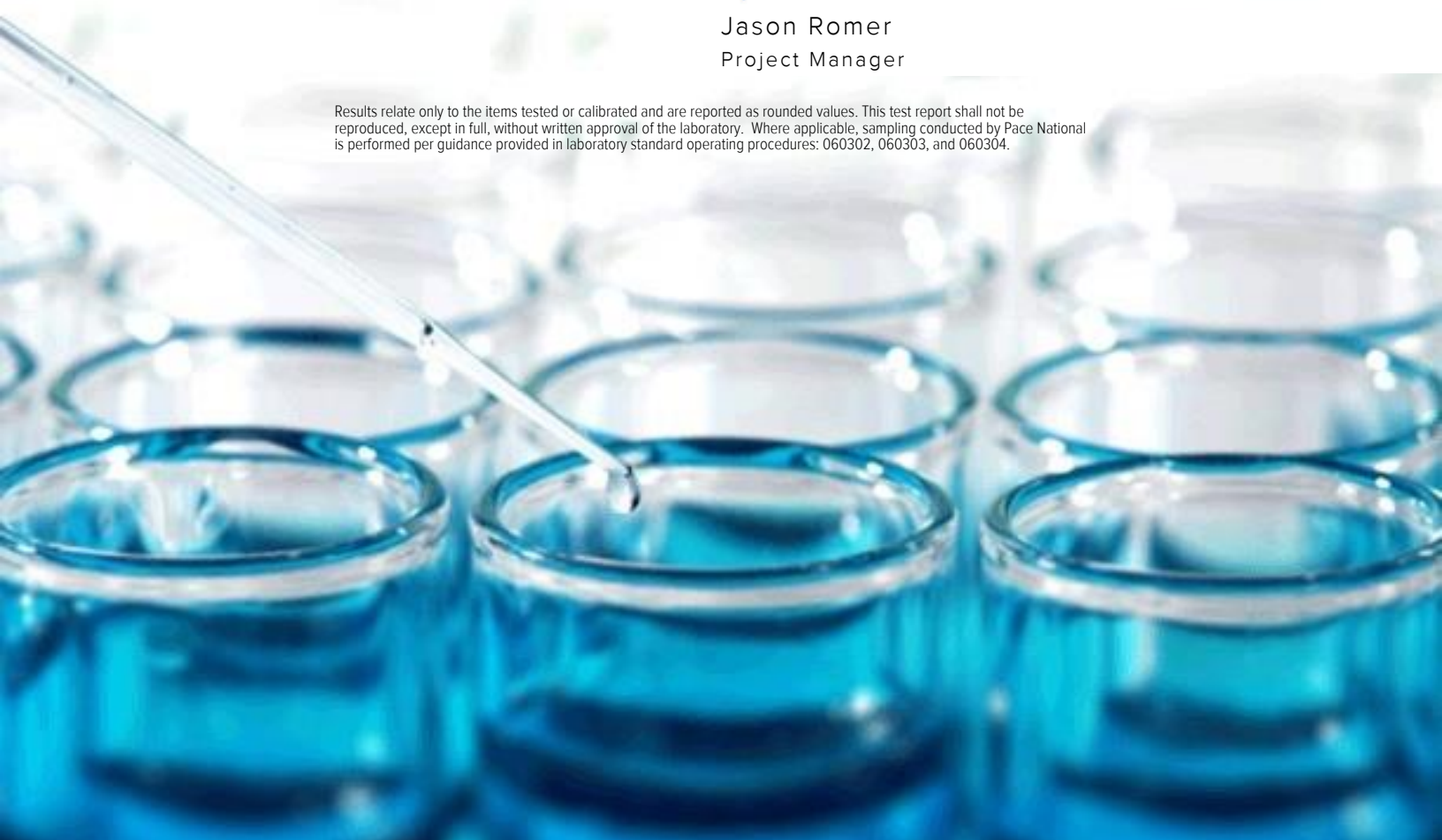
Report To: Jason Franks  
8575 W. 110th Street  
Overland Park, KS 66210

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.







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# SAMPLE SUMMARY



## MW-1 L1100809-01 GW

Collected by  
G. Penaflor  
Collected date/time  
05/20/19 11:00  
Received date/time  
05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1286119	1	05/25/19 11:35	05/25/19 12:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 17:14	05/28/19 17:14	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:44	TRB	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## MW-2 L1100809-02 GW

Collected by  
G. Penaflor  
Collected date/time  
05/20/19 12:00  
Received date/time  
05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1286119	1	05/25/19 11:35	05/25/19 12:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 17:49	05/28/19 17:49	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	5	05/29/19 09:59	05/29/19 09:59	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 10:52	TRB	Mt. Juliet, TN

## MW-6 L1100809-03 GW

Collected by  
G. Penaflor  
Collected date/time  
05/20/19 13:05  
Received date/time  
05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1286119	1	05/25/19 11:35	05/25/19 12:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 19:18	05/28/19 19:18	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:47	TRB	Mt. Juliet, TN

## MW-7 L1100809-04 GW

Collected by  
G. Penaflor  
Collected date/time  
05/20/19 13:45  
Received date/time  
05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1286119	1	05/25/19 11:35	05/25/19 12:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 19:35	05/28/19 19:35	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	5	05/29/19 10:16	05/29/19 10:16	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:49	TRB	Mt. Juliet, TN

## MW-8 L1100809-05 GW

Collected by  
G. Penaflor  
Collected date/time  
05/20/19 09:40  
Received date/time  
05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1286119	1	05/25/19 11:35	05/25/19 12:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 19:53	05/28/19 19:53	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:52	TRB	Mt. Juliet, TN

## DUPLICATE L1100809-06 GW

Collected by  
G. Penaflor  
Collected date/time  
05/20/19 12:00  
Received date/time  
05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1286119	1	05/25/19 11:35	05/25/19 12:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 20:10	05/28/19 20:10	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	5	05/29/19 10:34	05/29/19 10:34	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:54	TRB	Mt. Juliet, TN



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

Jason Romer  
Project Manager

- <sup>1</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
- <sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	470000		10000	1	05/25/2019 12:07	<a href="#">WG1286119</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	5660		1000	1	05/28/2019 17:14	<a href="#">WG1286594</a>
Fluoride	311		100	1	05/28/2019 17:14	<a href="#">WG1286594</a>
Sulfate	28900		5000	1	05/28/2019 17:14	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:44	<a href="#">WG1284393</a>
Calcium	130000		1000	1	05/25/2019 11:44	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	666000		10000	1	05/25/2019 12:07	<a href="#">WG1286119</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	7180		1000	1	05/28/2019 17:49	<a href="#">WG1286594</a>
Fluoride	373		100	1	05/28/2019 17:49	<a href="#">WG1286594</a>
Sulfate	119000		25000	5	05/29/2019 09:59	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 10:52	<a href="#">WG1284393</a>
Calcium	167000	<u>V</u>	1000	1	05/25/2019 10:52	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	468000		10000	1	05/25/2019 12:07	<a href="#">WG1286119</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1210		1000	1	05/28/2019 19:18	<a href="#">WG1286594</a>
Fluoride	366		100	1	05/28/2019 19:18	<a href="#">WG1286594</a>
Sulfate	20200		5000	1	05/28/2019 19:18	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:47	<a href="#">WG1284393</a>
Calcium	131000		1000	1	05/25/2019 11:47	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	737000		13300	1	05/25/2019 12:07	<a href="#">WG1286119</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26000		1000	1	05/28/2019 19:35	<a href="#">WG1286594</a>
Fluoride	389		100	1	05/28/2019 19:35	<a href="#">WG1286594</a>
Sulfate	166000		25000	5	05/29/2019 10:16	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:49	<a href="#">WG1284393</a>
Calcium	184000		1000	1	05/25/2019 11:49	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	518000		10000	1	05/25/2019 12:07	<a href="#">WG1286119</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3980		1000	1	05/28/2019 19:53	<a href="#">WG1286594</a>
Fluoride	446		100	1	05/28/2019 19:53	<a href="#">WG1286594</a>
Sulfate	40900		5000	1	05/28/2019 19:53	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:52	<a href="#">WG1284393</a>
Calcium	141000		1000	1	05/25/2019 11:52	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	646000		10000	1	05/25/2019 12:07	<a href="#">WG1286119</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	7230		1000	1	05/28/2019 20:10	<a href="#">WG1286594</a>
Fluoride	375		100	1	05/28/2019 20:10	<a href="#">WG1286594</a>
Sulfate	119000		25000	5	05/29/2019 10:34	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:54	<a href="#">WG1284393</a>
Calcium	166000		1000	1	05/25/2019 11:54	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3415887-1 05/25/19 12:07

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L1100809-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1100809-01 05/25/19 12:07 • (DUP) R3415887-3 05/25/19 12:07

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	470000	471000	1	0.213		5

Laboratory Control Sample (LCS)

(LCS) R3415887-2 05/25/19 12:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8580000	97.5	85.0-115	

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3415815-1 05/28/19 09:13

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

<sup>1</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

<sup>9</sup> Sc

L1100809-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1100809-01 05/28/19 17:14 • (DUP) R3415815-3 05/28/19 17:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	5660	5660	1	0.00883		15
Fluoride	311	310	1	0.322		15
Sulfate	28900	28800	1	0.175		15

L1100823-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1100823-02 05/28/19 22:31 • (DUP) R3415815-8 05/28/19 22:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	34100	34100	1	0.201		15
Fluoride	766	764	1	0.288		15
Sulfate	234000	234000	1	0.0105	E	15

Laboratory Control Sample (LCS)

(LCS) R3415815-2 05/28/19 09:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	39900	99.7	80.0-120	
Fluoride	8000	8040	101	80.0-120	
Sulfate	40000	40100	100	80.0-120	



L1100809-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100809-02 05/28/19 17:49 • (MS) R3415815-4 05/28/19 18:42 • (MSD) R3415815-5 05/28/19 19:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	7180	59300	59000	104	104	1	80.0-120			0.519	15
Fluoride	5000	373	5580	5560	104	104	1	80.0-120			0.307	15
Sulfate	50000	121000	167000	166000	90.9	90.6	1	80.0-120	<u>E</u>	<u>E</u>	0.117	15

L1100823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100823-01 05/28/19 21:03 • (MS) R3415815-6 05/28/19 21:21 • (MSD) R3415815-7 05/28/19 22:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	34200	83700	83500	98.9	98.5	1	80.0-120			0.276	15
Fluoride	5000	764	5860	5850	102	102	1	80.0-120			0.263	15
Sulfate	50000	234000	271000	272000	74.8	75.5	1	80.0-120	<u>EV</u>	<u>EV</u>	0.126	15

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3415021-1 05/25/19 10:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	293	J	46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3415021-2 05/25/19 10:47 • (LCSD) R3415021-3 05/25/19 10:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	974	951	97.4	95.1	80.0-120			2.35	20
Calcium	10000	9930	9690	99.3	96.9	80.0-120			2.46	20

5 Sr

6 Qc

L1100809-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100809-02 05/25/19 10:52 • (MS) R3415021-5 05/25/19 10:57 • (MSD) R3415021-6 05/25/19 10:59

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	ND	1120	1140	95.3	97.3	1	75.0-125			1.76	20
Calcium	10000	167000	175000	174000	81.4	71.7	1	75.0-125		V	0.560	20

7 Gl

8 Al

9 Sc

L1100823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100823-01 05/25/19 11:02 • (MS) R3415021-7 05/25/19 11:04 • (MSD) R3415021-8 05/25/19 11:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	2130	3040	3070	91.5	94.3	1	75.0-125			0.916	20
Calcium	10000	66800	75900	75400	91.9	86.6	1	75.0-125			0.692	20



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

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

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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\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

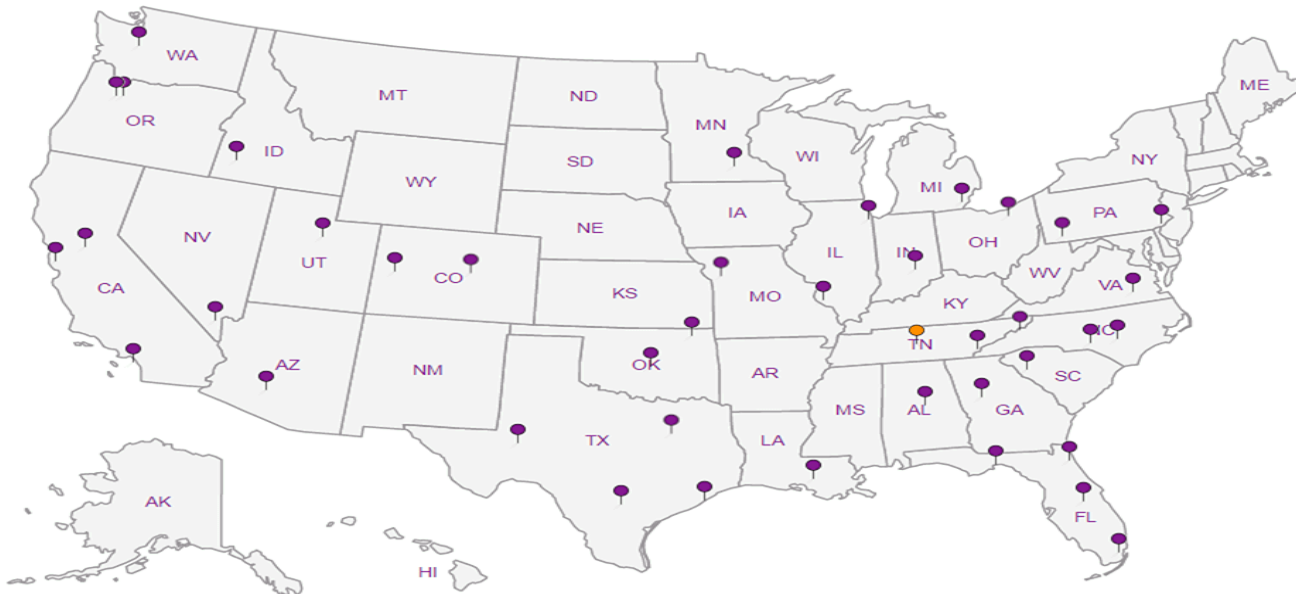
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <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

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





## SCS Engineers - KS

Sample Delivery Group: L1100821  
Samples Received: 05/21/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

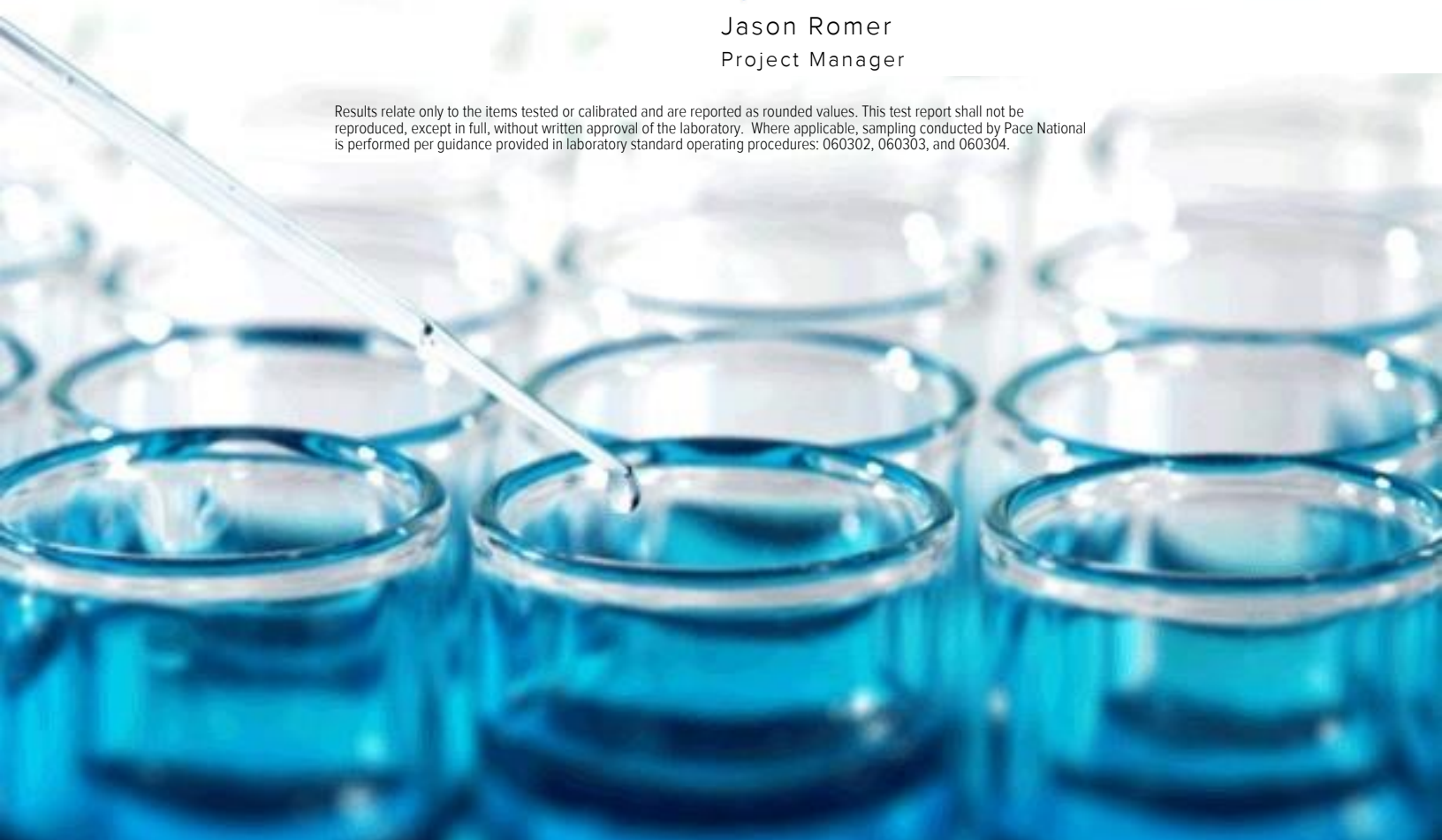
Report To: Jason Franks  
8575 W. 110th Street  
Overland Park, KS 66210

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	<b>2</b> Tc
<b>Cn: Case Narrative</b>	<b>4</b>	
<b>Sr: Sample Results</b>	<b>5</b>	<b>3</b> Ss
<b>MW-9 L1100821-01</b>	<b>5</b>	
<b>MW-10 L1100821-02</b>	<b>6</b>	<b>4</b> Cn
<b>Qc: Quality Control Summary</b>	<b>7</b>	<b>5</b> Sr
<b>Gravimetric Analysis by Method 2540 C-2011</b>	<b>7</b>	
<b>Wet Chemistry by Method 9056A</b>	<b>8</b>	<b>6</b> Qc
<b>Metals (ICP) by Method 6010B</b>	<b>10</b>	
<b>Gl: Glossary of Terms</b>	<b>11</b>	<b>7</b> Gl
<b>Al: Accreditations &amp; Locations</b>	<b>12</b>	<b>8</b> Al
<b>Sc: Sample Chain of Custody</b>	<b>13</b>	<b>9</b> Sc

# SAMPLE SUMMARY



## MW-9 L1100821-01 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	05/20/19 10:40	05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1285406	1	05/24/19 11:02	05/24/19 12:19	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 20:28	05/28/19 20:28	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:57	TRB	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## MW-10 L1100821-02 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	05/20/19 14:30	05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1285406	1	05/24/19 11:02	05/24/19 12:19	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 20:46	05/28/19 20:46	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:59	TRB	Mt. Juliet, TN



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

Jason Romer  
Project Manager

- <sup>1</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
- <sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	457000		10000	1	05/24/2019 12:19	<a href="#">WG1285406</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1570		1000	1	05/28/2019 20:28	<a href="#">WG1286594</a>
Fluoride	415		100	1	05/28/2019 20:28	<a href="#">WG1286594</a>
Sulfate	22800		5000	1	05/28/2019 20:28	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:57	<a href="#">WG1284393</a>
Calcium	115000		1000	1	05/25/2019 11:57	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	697000		13300	1	05/24/2019 12:19	<a href="#">WG1285406</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	21000		1000	1	05/28/2019 20:46	<a href="#">WG1286594</a>
Fluoride	623		100	1	05/28/2019 20:46	<a href="#">WG1286594</a>
Sulfate	37300		5000	1	05/28/2019 20:46	<a href="#">WG1286594</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	05/25/2019 11:59	<a href="#">WG1284393</a>
Calcium	151000		1000	1	05/25/2019 11:59	<a href="#">WG1284393</a>

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3415467-1 05/24/19 12:19

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

1 Cp

2 Tc

3 Ss

L1100824-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1100824-03 05/24/19 12:19 • (DUP) R3415467-3 05/24/19 12:19

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1120000	1110000	1	0.898		5

4 Cn

5 Sr

Laboratory Control Sample (LCS)

(LCS) R3415467-2 05/24/19 12:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8920000	101	85.0-115	

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3415815-1 05/28/19 09:13

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

<sup>1</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

<sup>9</sup> Sc

L1100809-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1100809-01 05/28/19 17:14 • (DUP) R3415815-3 05/28/19 17:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	5660	5660	1	0.00883		15
Fluoride	311	310	1	0.322		15
Sulfate	28900	28800	1	0.175		15

L1100823-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1100823-02 05/28/19 22:31 • (DUP) R3415815-8 05/28/19 22:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	34100	34100	1	0.201		15
Fluoride	766	764	1	0.288		15
Sulfate	234000	234000	1	0.0105	E	15

Laboratory Control Sample (LCS)

(LCS) R3415815-2 05/28/19 09:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	39900	99.7	80.0-120	
Fluoride	8000	8040	101	80.0-120	
Sulfate	40000	40100	100	80.0-120	





[L1100821-01,02](#)

L1100809-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100809-02 05/28/19 17:49 • (MS) R3415815-4 05/28/19 18:42 • (MSD) R3415815-5 05/28/19 19:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	7180	59300	59000	104	104	1	80.0-120			0.519	15
Fluoride	5000	373	5580	5560	104	104	1	80.0-120			0.307	15
Sulfate	50000	121000	167000	166000	90.9	90.6	1	80.0-120	<u>E</u>	<u>E</u>	0.117	15

L1100823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100823-01 05/28/19 21:03 • (MS) R3415815-6 05/28/19 21:21 • (MSD) R3415815-7 05/28/19 22:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	34200	83700	83500	98.9	98.5	1	80.0-120			0.276	15
Fluoride	5000	764	5860	5850	102	102	1	80.0-120			0.263	15
Sulfate	50000	234000	271000	272000	74.8	75.5	1	80.0-120	<u>EV</u>	<u>EV</u>	0.126	15

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3415021-1 05/25/19 10:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	293	J	46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) R3415021-2 05/25/19 10:47 • (LCSD) R3415021-3 05/25/19 10:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	974	951	97.4	95.1	80.0-120			2.35	20
Calcium	10000	9930	9690	99.3	96.9	80.0-120			2.46	20

L1100809-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100809-02 05/25/19 10:52 • (MS) R3415021-5 05/25/19 10:57 • (MSD) R3415021-6 05/25/19 10:59

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	ND	1120	1140	95.3	97.3	1	75.0-125			1.76	20
Calcium	10000	167000	175000	174000	81.4	71.7	1	75.0-125		V	0.560	20

L1100823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100823-01 05/25/19 11:02 • (MS) R3415021-7 05/25/19 11:04 • (MSD) R3415021-8 05/25/19 11:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	2130	3040	3070	91.5	94.3	1	75.0-125			0.916	20
Calcium	10000	66800	75900	75400	91.9	86.6	1	75.0-125			0.692	20



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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.
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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.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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7 Gl

8 Al

9 Sc



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Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

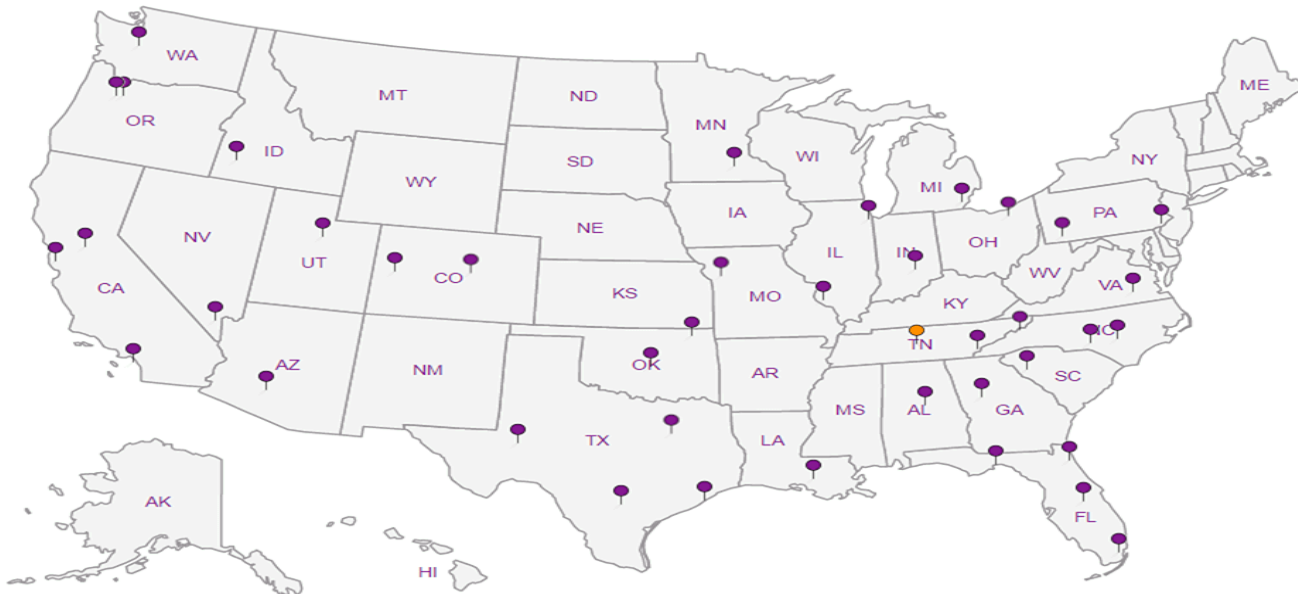
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <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

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Jared Morrison  
December 16, 2022

**ATTACHMENT 1-4**  
**July 2019 Sampling Event Laboratory Report**

July 22, 2019

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## SCS Engineers - KS

Sample Delivery Group: L1118343  
Samples Received: 07/13/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

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










Entire Report Reviewed By:



Jeff Carr  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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<b>Cn: Case Narrative</b>	<b>4</b>	
<b>Sr: Sample Results</b>	<b>5</b>	
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# SAMPLE SUMMARY

## MW-2 L1118343-01 GW

Collected by  
G. Penaflor  
Collected date/time  
07/11/19 15:30  
Received date/time  
07/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1313330	1	07/19/19 00:07	07/19/19 00:07	LDC	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## MW-6 L1118343-02 GW

Collected by  
G. Penaflor  
Collected date/time  
07/11/19 15:05  
Received date/time  
07/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1313330	1	07/19/19 00:36	07/19/19 00:36	LDC	Mt. Juliet, TN

## DUPLICATE 1 L1118343-03 GW

Collected by  
G. Penaflor  
Collected date/time  
07/11/19 15:10  
Received date/time  
07/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1313823	1	07/19/19 03:51	07/19/19 03:51	ELN	Mt. Juliet, TN

## MW-7 L1118343-04 GW

Collected by  
G. Penaflor  
Collected date/time  
07/11/19 16:10  
Received date/time  
07/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1311324	1	07/15/19 10:18	07/15/19 10:47	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1313823	1	07/19/19 04:24	07/19/19 04:24	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1313823	5	07/19/19 12:08	07/19/19 12:08	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311358	1	07/15/19 22:37	07/18/19 20:44	CCE	Mt. Juliet, TN

## DUPLICATE 2 L1118343-05 GW

Collected by  
G. Penaflor  
Collected date/time  
07/11/19 16:15  
Received date/time  
07/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1311324	1	07/15/19 10:18	07/15/19 10:47	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1313823	1	07/19/19 05:13	07/19/19 05:13	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1313823	5	07/19/19 12:24	07/19/19 12:24	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311358	1	07/15/19 22:37	07/18/19 21:11	CCE	Mt. Juliet, TN

## MW-10 L1118343-06 GW

Collected by  
G. Penaflor  
Collected date/time  
07/11/19 16:45  
Received date/time  
07/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1313823	1	07/19/19 05:30	07/19/19 05:30	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311358	1	07/15/19 22:37	07/18/19 21:14	CCE	Mt. Juliet, TN



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

Jeff Carr  
Project Manager

- <sup>1</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
- <sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluoride	389		100	1	07/19/2019 00:07	<a href="#">WG1313330</a>

<sup>1</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

<sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluoride	373		100	1	07/19/2019 00:36	<a href="#">WG1313330</a>

<sup>1</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

<sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluoride	338		100	1	07/19/2019 03:51	<a href="#">WG1313823</a>

<sup>1</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

<sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	761000		13300	1	07/15/2019 10:47	<a href="#">WG1311324</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	31900		1000	1	07/19/2019 04:24	<a href="#">WG1313823</a>
Sulfate	186000		25000	5	07/19/2019 12:08	<a href="#">WG1313823</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	199000	<a href="#">O1V</a>	1000	1	07/18/2019 20:44	<a href="#">WG1311358</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	803000		13300	1	07/15/2019 10:47	<a href="#">WG1311324</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	31800		1000	1	07/19/2019 05:13	<a href="#">WG1313823</a>
Sulfate	185000		25000	5	07/19/2019 12:24	<a href="#">WG1313823</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	200000		1000	1	07/18/2019 21:11	<a href="#">WG1311358</a>

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	22500		1000	1	07/19/2019 05:30	<a href="#">WG1313823</a>
Sulfate	33000		5000	1	07/19/2019 05:30	<a href="#">WG1313823</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	153000		1000	1	07/18/2019 21:14	<a href="#">WG1311358</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3431148-1 07/15/19 10:47

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L1118217-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1118217-01 07/15/19 10:47 • (DUP) R3431148-3 07/15/19 10:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	606000	612000	1	0.985		5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3431148-2 07/15/19 10:47

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8540000	97.0	85.0-115	



Method Blank (MB)

(MB) R3432177-1 07/18/19 23:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Fluoride	U		9.90	100

<sup>1</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

<sup>9</sup> Sc

L1118343-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1118343-01 07/19/19 00:07 • (DUP) R3432177-3 07/19/19 00:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Fluoride	389	387	1	0.412		15

L1118357-35 Original Sample (OS) • Duplicate (DUP)

(OS) L1118357-35 07/19/19 06:22 • (DUP) R3432177-6 07/19/19 06:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Fluoride	111	110	1	1.36		15

Laboratory Control Sample (LCS)

(LCS) R3432177-2 07/18/19 23:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Fluoride	8000	8130	102	80.0-120	

L1118343-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118343-02 07/19/19 00:36 • (MS) R3432177-4 07/19/19 00:50 • (MSD) R3432177-5 07/19/19 01:05

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Fluoride	5000	373	5470	5510	102	103	1	80.0-120			0.715	15

L1118357-35 Original Sample (OS) • Matrix Spike (MS)

(OS) L1118357-35 07/19/19 06:22 • (MS) R3432177-7 07/19/19 06:51

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Fluoride	5000	111	5270	103	1	80.0-120	



Method Blank (MB)

(MB) R3432453-1 07/19/19 03:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	501	↓	51.9	1000
Fluoride	U		9.90	100
Sulfate	437	↓	77.4	5000

<sup>1</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

<sup>9</sup> Sc

L1118343-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1118343-03 07/19/19 03:51 • (DUP) R3432453-3 07/19/19 04:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	1210	1200	1	1.16		15
Fluoride	338	337	1	0.296		15
Sulfate	20500	20500	1	0.259		15

L1118365-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1118365-06 07/19/19 08:30 • (DUP) R3432453-6 07/19/19 08:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	1460	1450	1	0.364		15
Fluoride	502	503	1	0.159		15

L1118365-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1118365-06 07/19/19 13:14 • (DUP) R3432453-8 07/19/19 13:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	168000	168000	5	0.301		15

Laboratory Control Sample (LCS)

(LCS) R3432453-2 07/19/19 03:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	39500	98.8	80.0-120	
Fluoride	8000	8280	104	80.0-120	
Sulfate	40000	39200	98.0	80.0-120	



L1118343-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118343-04 07/19/19 04:24 • (MS) R3432453-4 07/19/19 04:40 • (MSD) R3432453-5 07/19/19 04:57

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	31900	83600	83500	103	103	1	80.0-120			0.0558	15
Fluoride	5000	346	5540	5550	104	104	1	80.0-120			0.261	15
Sulfate	50000	196000	242000	242000	91.3	91.0	1	80.0-120	E	E	0.0465	15

L1118365-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1118365-06 07/19/19 08:30 • (MS) R3432453-7 07/19/19 09:03

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	1460	53300	104	1	80.0-120	
Fluoride	5000	502	5780	106	1	80.0-120	
Sulfate	50000	179000	225000	91.3	1	80.0-120	E

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



Method Blank (MB)

(MB) R3432163-1 07/18/19 20:37

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Calcium	U		46.3	1000

<sup>1</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

<sup>9</sup> Sc

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

(LCS) R3432163-2 07/18/19 20:39 • (LCSD) R3432163-3 07/18/19 20:42

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Calcium	10000	10100	10300	101	103	80.0-120			1.56	20

L1118418-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118418-03 07/18/19 20:54 • (MS) R3432163-6 07/18/19 20:56 • (MSD) R3432163-7 07/18/19 20:58

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Calcium	10000	72600	81100	80700	85.5	81.8	1	75.0-125			0.455	20

L1118343-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118343-04 07/18/19 20:44 • (MS) R3432163-5 07/18/19 20:49 • (MSD) R3432163-8 07/18/19 20:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Calcium	10000	199000	207000	207000	79.1	73.3	1	75.0-125		√	0.282	20



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

MDL	Method Detection Limit.
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.

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

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.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

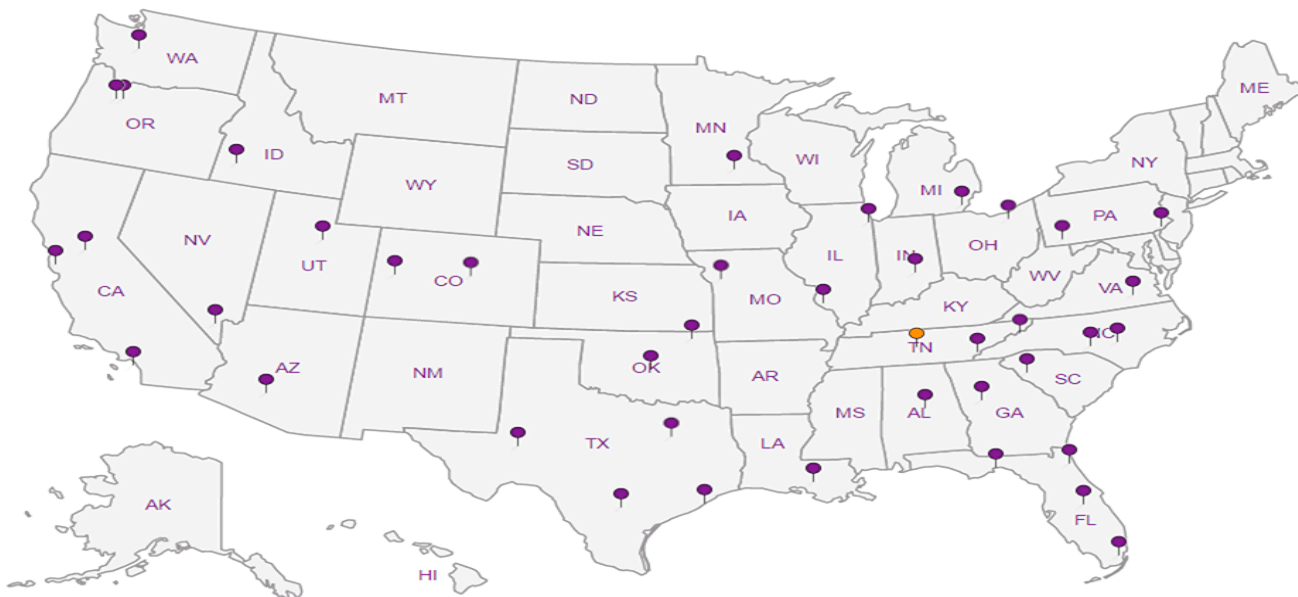
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <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

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**SCS Engineers - KS**

8575 W. 110th Street  
Overland Park, KS 66210

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

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page \_\_\_ of \_\_\_



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



Report to:  
**Jason Franks**

Email To: [jfranks@scsengineers.com](mailto:jfranks@scsengineers.com);  
[jay.martin@kcpl.com](mailto:jay.martin@kcpl.com);

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

City/State  
Collected:

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

Client Project #  
**27213167.18**

Lab Project #  
**AQUAOPKS-IATAN**

Collected by (print):  
*G. Penaf 10V*

Site/Facility ID #

P.O. #

Collected by (signature):  
*Gallagher*

**Rush?** (Lab MUST Be Notified)

Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Quote #

Date Results Needed  
*Std*

Immediately  
Packed on Ice N  Y  X

No.  
of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Ca - 6010 250mlHDPE-HNO3 < Z	Chloride, SO4 125mlHDPE-NoPres	FLUORIDE 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres									
MW-2	GRAB	GW		7/11/19	1530	1			X										-01
MW-6		GW			1505	1			X										-02
DUPLICATE 1		GW			1510	1			X										-03
MW6 MS / MSD		GW			1515	1			X										-02
MW-7		GW			1610	3	X	X		X									-04
MW-7 MS / MSD		GW			1620	3	X	X		X									-04
DUPLICATE 2		GW			1615	3	X	X		X									-05
MW-10		GW			1645	2	X	X											-06

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

Remarks:

Samples returned by:  
 UPS  FedEx  Courier

Tracking #

pH \_\_\_\_\_ Temp \_\_\_\_\_  
Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist

COC Seal Present/Intact:  Y  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  N

**RAD SCREEN: <0.5 mR/hr**

Relinquished by: (Signature)  
*Gallagher*

Date: 7/12/19

Time: 1338

Received by: (Signature) *Don Nelson* 7-12-19 1339

Trip Blank Received: Yes / No  
HCL / MeOH  
TBR

Relinquished by: (Signature)  
*Alan Webb*

Date: 7/12/19

Time: 1700

Received by: (Signature)

Temp: °C 4.7x1-4.852  
Bottles Received: 25 15 D

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)  
*Malik T.*

Date: 7/13 Time: 8:45

Hold:

Condition:  
NCF / OK



Jared Morrison  
December 16, 2022

**ATTACHMENT 1-5**  
**August 2019 Sampling Event Laboratory Report**

## SCS Engineers - KS

Sample Delivery Group: L1131379  
Samples Received: 08/21/2019  
Project Number: 27213167.19  
Description: KCP&L Iatan Generating Station

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.



<b>Cp: Cover Page</b>	<b>1</b>	
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	
<b>Cn: Case Narrative</b>	<b>4</b>	
<b>Sr: Sample Results</b>	<b>5</b>	
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MW-6 L1131379-02	<b>6</b>	
DUPLICATE 1 L1131379-03	<b>7</b>	
MW-7 L1131379-04	<b>8</b>	
DUPLICATE 2 L1131379-05	<b>9</b>	
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<b>Qc: Quality Control Summary</b>	<b>11</b>	
Gravimetric Analysis by Method 2540 C-2011	<b>11</b>	
Wet Chemistry by Method 9056A	<b>12</b>	
Metals (ICP) by Method 6010B	<b>14</b>	
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# SAMPLE SUMMARY



## MW-2 L1131379-01 GW

Collected by Jason R. Franks  
 Collected date/time 08/20/19 12:05  
 Received date/time 08/21/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1332945	1	08/22/19 14:04	08/22/19 14:04	ST	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

## MW-6 L1131379-02 GW

Collected by Jason R. Franks  
 Collected date/time 08/20/19 13:10  
 Received date/time 08/21/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1332945	1	08/22/19 14:21	08/22/19 14:21	ST	Mt. Juliet, TN

4 Cn

5 Sr

## DUPLICATE 1 L1131379-03 GW

Collected by Jason R. Franks  
 Collected date/time 08/20/19 13:10  
 Received date/time 08/21/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1332945	1	08/22/19 15:10	08/22/19 15:10	ST	Mt. Juliet, TN

6 Qc

7 Gl

## MW-7 L1131379-04 GW

Collected by Jason R. Franks  
 Collected date/time 08/20/19 12:35  
 Received date/time 08/21/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1332902	1	08/25/19 09:19	08/25/19 09:41	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1332945	1	08/22/19 15:26	08/22/19 15:26	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1332945	5	08/22/19 19:49	08/22/19 19:49	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1332889	1	08/22/19 20:10	08/23/19 08:45	TRB	Mt. Juliet, TN

8 Al

9 Sc

## DUPLICATE 2 L1131379-05 GW

Collected by Jason R. Franks  
 Collected date/time 08/20/19 12:35  
 Received date/time 08/21/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1332902	1	08/25/19 09:19	08/25/19 09:41	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1332945	1	08/22/19 16:48	08/22/19 16:48	ST	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1332945	5	08/22/19 20:05	08/22/19 20:05	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1332889	1	08/22/19 20:10	08/23/19 09:30	TRB	Mt. Juliet, TN

## MW-10 L1131379-06 GW

Collected by Jason R. Franks  
 Collected date/time 08/20/19 11:35  
 Received date/time 08/21/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1332945	1	08/22/19 17:05	08/22/19 17:05	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1332889	1	08/22/19 20:10	08/23/19 09:32	TRB	Mt. Juliet, TN



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

Jason Romer  
Project Manager

- <sup>1</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
- <sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluoride	333		100	1	08/22/2019 14:04	<a href="#">WG1332945</a>

<sup>1</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

<sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluoride	328		100	1	08/22/2019 14:21	<a href="#">WG1332945</a>

<sup>1</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

<sup>9</sup> Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluoride	330		100	1	08/22/2019 15:10	<a href="#">WG1332945</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	743000		13300	1	08/25/2019 09:41	<a href="#">WG1332902</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	28700		1000	1	08/22/2019 15:26	<a href="#">WG1332945</a>
Sulfate	166000		25000	5	08/22/2019 19:49	<a href="#">WG1332945</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	183000	<u>O1</u>	1000	1	08/23/2019 08:45	<a href="#">WG1332889</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	751000		13300	1	08/25/2019 09:41	<a href="#">WG1332902</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	28800		1000	1	08/22/2019 16:48	<a href="#">WG1332945</a>
Sulfate	167000		25000	5	08/22/2019 20:05	<a href="#">WG1332945</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	185000		1000	1	08/23/2019 09:30	<a href="#">WG1332889</a>

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	20300		1000	1	08/22/2019 17:05	<a href="#">WG1332945</a>
Sulfate	34600		5000	1	08/22/2019 17:05	<a href="#">WG1332945</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	143000		1000	1	08/23/2019 09:32	<a href="#">WG1332889</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3444278-1 08/25/19 09:41

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

1 Cp

2 Tc

3 Ss

L1130960-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1130960-01 08/25/19 09:41 • (DUP) R3444278-3 08/25/19 09:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	779000	776000	1	0.343		5

4 Cn

5 Sr

Laboratory Control Sample (LCS)

(LCS) R3444278-2 08/25/19 09:41

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8540000	97.0	85.0-115	

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3443434-1 08/22/19 08:27

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

<sup>1</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

<sup>9</sup>Sc

L1131208-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1131208-01 08/22/19 11:20 • (DUP) R3443434-3 08/22/19 11:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	4780	4890	1	2.36		15
Fluoride	ND	63.1	1	0.000		15
Sulfate	ND	730	1	0.000		15

L1131383-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1131383-04 08/22/19 18:43 • (DUP) R3443434-10 08/22/19 19:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	57900	57800	1	0.213		15
Fluoride	214	213	1	0.0468		15
Sulfate	1870000	1870000	1	0.0774	E	15

Laboratory Control Sample (LCS)

(LCS) R3443434-2 08/22/19 08:44

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	39100	97.8	80.0-120	
Fluoride	8000	8070	101	80.0-120	
Sulfate	40000	39200	98.0	80.0-120	



[L1131379-01,02,03,04,05,06](#)

L1131379-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1131379-02 08/22/19 14:21 • (MS) R3443434-4 08/22/19 14:37 • (MSD) R3443434-5 08/22/19 14:54

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	1270	51600	51000	101	99.5	1	80.0-120			1.11	15
Fluoride	5000	328	5320	5300	99.8	99.4	1	80.0-120			0.379	15
Sulfate	50000	20700	71400	70800	101	100	1	80.0-120			0.859	15

1 Cp

2 Tc

3 Ss

4 Cn

L1131379-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1131379-04 08/22/19 15:26 • (MS) R3443434-6 08/22/19 15:43 • (MSD) R3443434-7 08/22/19 15:59

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	28700	78700	79000	100	101	1	80.0-120			0.353	15
Fluoride	5000	342	5300	5370	99.2	101	1	80.0-120			1.27	15
Sulfate	50000	176000	221000	221000	89.9	90.2	1	80.0-120	<u>E</u>	<u>E</u>	0.0595	15

5 Sr

6 Qc

7 Gl

L1131383-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1131383-03 08/22/19 17:54 • (MS) R3443434-8 08/22/19 18:11 • (MSD) R3443434-9 08/22/19 18:27

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	57900	106000	106000	96.7	96.9	1	80.0-120	<u>E</u>	<u>E</u>	0.108	15
Fluoride	5000	140	4780	4800	92.9	93.2	1	80.0-120			0.323	15
Sulfate	50000	1860000	1850000	1850000	0.000	0.000	1	80.0-120	<u>E V</u>	<u>E V</u>	0.0663	15

8 Al

9 Sc



Method Blank (MB)

(MB) R3443622-1 08/23/19 08:37

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

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

(LCS) R3443622-2 08/23/19 08:40 • (LCSD) R3443622-3 08/23/19 08:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	9780	9720	97.8	97.2	80.0-120			0.654	20

L1131379-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1131379-04 08/23/19 08:45 • (MS) R3443622-5 08/23/19 08:50 • (MSD) R3443622-6 08/23/19 08:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	183000	191000	193000	79.6	104	1	75.0-125			1.24	20

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> 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).
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





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

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
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Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

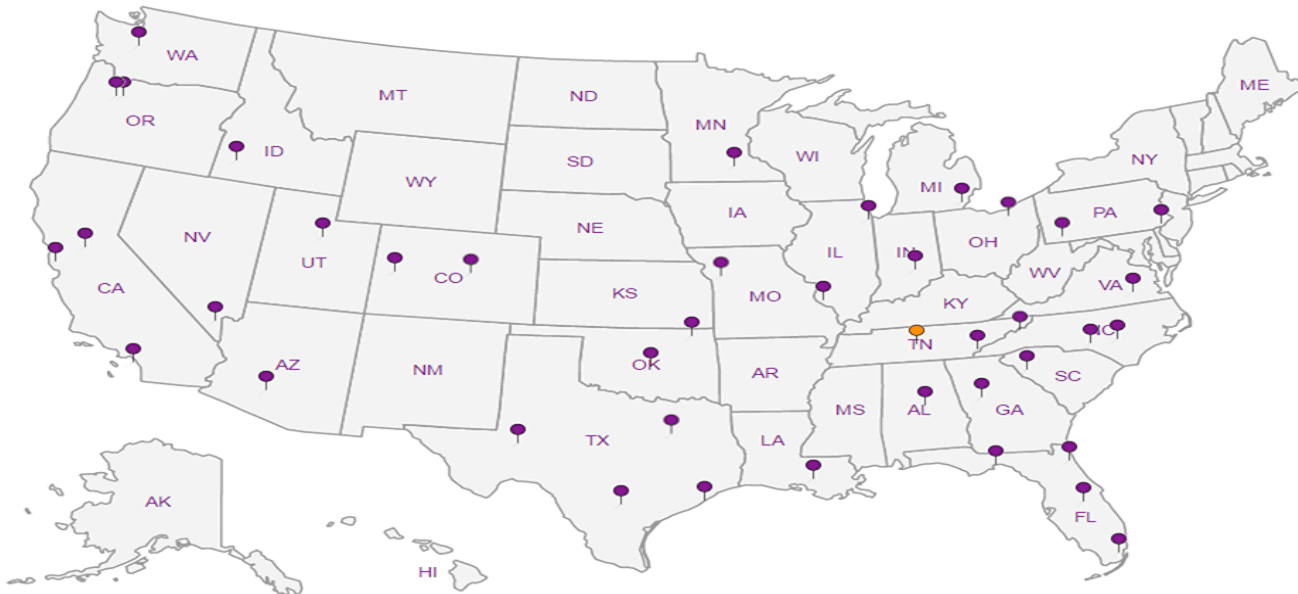
## Third Party Federal Accreditations

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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

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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Jared Morrison  
December 16, 2022

**ATTACHMENT 1-6**  
**November 2019 Sampling Event Laboratory Report**

November 12, 2019

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## SCS Engineers - KS

Sample Delivery Group: L1157654  
Samples Received: 11/06/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

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

Entire Report Reviewed By:



Jeff Carr  
Project Manager

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



<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	<b>2</b> Tc
<b>Cn: Case Narrative</b>	<b>4</b>	
<b>Sr: Sample Results</b>	<b>5</b>	<b>3</b> Ss
<b>MW-9 L1157654-01</b>	<b>5</b>	
<b>MW-10 L1157654-02</b>	<b>6</b>	<b>4</b> Cn
<b>Qc: Quality Control Summary</b>	<b>7</b>	<b>5</b> Sr
<b>Gravimetric Analysis by Method 2540 C-2011</b>	<b>7</b>	
<b>Wet Chemistry by Method 9056A</b>	<b>8</b>	<b>6</b> Qc
<b>Metals (ICP) by Method 6010B</b>	<b>10</b>	
<b>Gl: Glossary of Terms</b>	<b>11</b>	<b>7</b> Gl
<b>Al: Accreditations &amp; Locations</b>	<b>12</b>	<b>8</b> Al
<b>Sc: Sample Chain of Custody</b>	<b>13</b>	<b>9</b> Sc

# SAMPLE SUMMARY



## MW-9 L1157654-01 GW

Collected by Jason R. Franks  
 Collected date/time 11/04/19 13:05  
 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	WG1376488	1	11/10/19 07:21	11/10/19 09:34	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 02:36	11/07/19 02:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:02	EL	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

## MW-10 L1157654-02 GW

Collected by Jason R. Franks  
 Collected date/time 11/04/19 13:50  
 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	WG1376488	1	11/10/19 07:21	11/10/19 09:34	TH	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 02:49	11/07/19 02:49	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376677	1	11/10/19 13:56	11/11/19 18:05	EL	Mt. Juliet, TN

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



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

Jeff Carr  
Project Manager

<sup>1</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

<sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	392000		10000	1	11/10/2019 09:34	<a href="#">WG1376488</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3880		1000	1	11/07/2019 02:36	<a href="#">WG1375990</a>
Fluoride	567		100	1	11/07/2019 02:36	<a href="#">WG1375990</a>
Sulfate	25400		5000	1	11/07/2019 02:36	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 18:02	<a href="#">WG1376677</a>
Calcium	119000		1000	1	11/11/2019 18:02	<a href="#">WG1376677</a>

6 Qc

7 Gl

8 Al

9 Sc





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	534000		10000	1	11/10/2019 09:34	<a href="#">WG1376488</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	21600		1000	1	11/07/2019 02:49	<a href="#">WG1375990</a>
Fluoride	777		100	1	11/07/2019 02:49	<a href="#">WG1375990</a>
Sulfate	33600		5000	1	11/07/2019 02:49	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 18:05	<a href="#">WG1376677</a>
Calcium	142000		1000	1	11/11/2019 18:05	<a href="#">WG1376677</a>

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3470617-1 11/10/19 09:34

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

1 Cp

2 Tc

3 Ss

L1157537-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157537-01 11/10/19 09:34 • (DUP) R3470617-3 11/10/19 09:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2490000	2550000	1	2.38		5

4 Cn

5 Sr

Laboratory Control Sample (LCS)

(LCS) R3470617-2 11/10/19 09:34

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8070000	91.7	85.0-115	

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

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

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

<sup>1</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

<sup>9</sup>Sc

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

(OS) L1157549-02 11/06/19 23:46 • (DUP) R3469401-3 11/06/19 23:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	19700	19800	1	0.394		15
Fluoride	77.2	81.6	1	5.54	↓	15
Sulfate	18400	18400	1	0.110		15

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

(OS) L1157657-05 11/07/19 05:00 • (DUP) R3469401-8 11/07/19 05:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	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

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	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	



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

(OS) L1157549-02 11/06/19 23:46 • (MS) R3469401-4 11/07/19 00:12 • (MSD) R3469401-5 11/07/19 00:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	19700	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) R3469401-6 11/07/19 04:33 • (MSD) R3469401-7 11/07/19 04:46

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	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	<u>E J6</u>	<u>E J6</u>	10.5	15

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



Method Blank (MB)

(MB) R3470812-1 11/11/19 17:23

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

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

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
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

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

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

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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



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Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

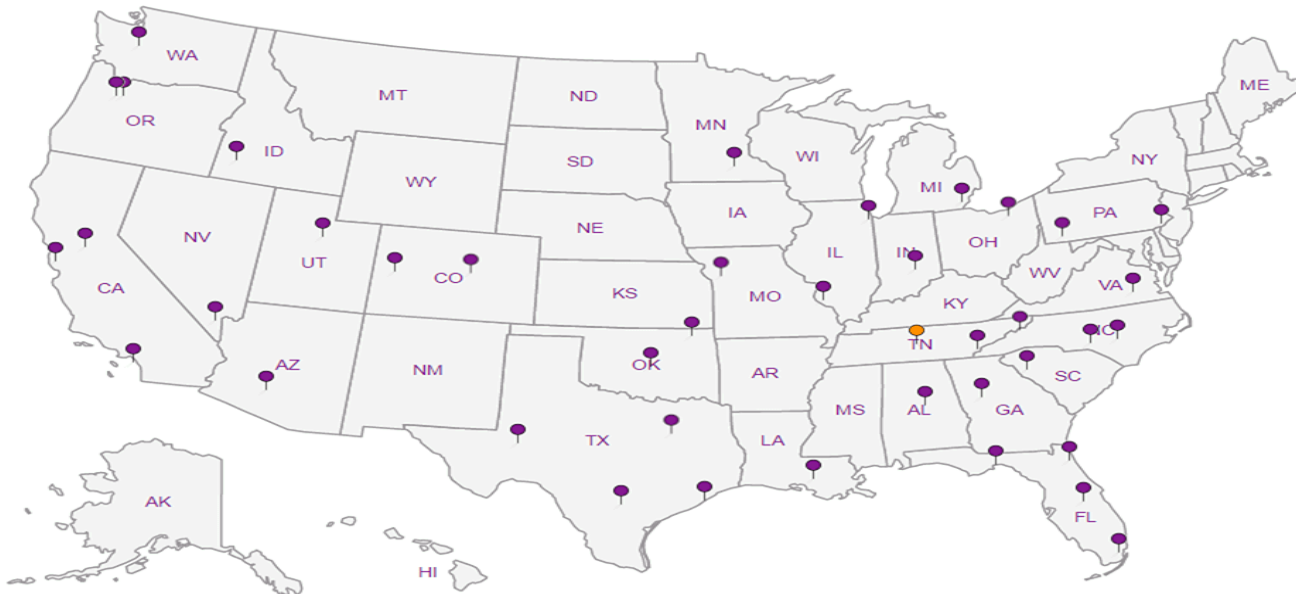
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A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
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EPA-Crypto	TN00003		

<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

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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





## SCS Engineers - KS

Sample Delivery Group: L1157657  
Samples Received: 11/06/2019  
Project Number: 27213167.18  
Description: KCP&L Iatan Generating Station

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


Entire Report Reviewed By:



Jeff Carr  
Project Manager

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



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# SAMPLE SUMMARY



## MW-1 L1157657-01 GW

Collected by Jason R Franks  
Collected date/time 11/04/19 12:20  
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, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 03:28	11/07/19 03:28	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376683	1	11/10/19 13:53	11/11/19 18:53	TRB	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

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Cn

5  
Sr

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Qc

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Gl

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Al

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Sc

## MW-2 L1157657-02 GW

Collected by Jason R Franks  
Collected date/time 11/04/19 11:35  
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, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 03:41	11/07/19 03:41	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	5	11/07/19 03:54	11/07/19 03:54	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376683	1	11/10/19 13:53	11/11/19 19:01	TRB	Mt. Juliet, TN

## MW-6 L1157657-03 GW

Collected by Jason R Franks  
Collected date/time 11/04/19 11:50  
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, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 04:07	11/07/19 04:07	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376683	1	11/10/19 13:53	11/11/19 19:04	TRB	Mt. Juliet, TN

## MW-7 L1157657-04 GW

Collected by Jason R Franks  
Collected date/time 11/04/19 12:50  
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, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 04:20	11/07/19 04:20	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	5	11/07/19 10:31	11/07/19 10:31	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376683	1	11/10/19 13:53	11/11/19 18:02	TRB	Mt. Juliet, TN

## MW-8 L1157657-05 GW

Collected by Jason R Franks  
Collected date/time 11/04/19 13:40  
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	WG1376130	1	11/07/19 12:23	11/07/19 13:46	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 05:00	11/07/19 05:00	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376683	1	11/10/19 13:53	11/11/19 19:07	TRB	Mt. Juliet, TN

## DUPLICATE 1 L1157657-06 GW

Collected by Jason R Franks  
Collected date/time 11/04/19 12:50  
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, TN
Wet Chemistry by Method 9056A	WG1375990	1	11/07/19 05:26	11/07/19 05:26	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1375990	5	11/07/19 10:45	11/07/19 10:45	MCG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1376683	1	11/10/19 13:53	11/11/19 19:10	TRB	Mt. Juliet, TN



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

Jeff Carr  
Project Manager

<sup>1</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

<sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	457000		10000	1	11/07/2019 13:46	<a href="#">WG1376130</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	6610		1000	1	11/07/2019 03:28	<a href="#">WG1375990</a>
Fluoride	488		100	1	11/07/2019 03:28	<a href="#">WG1375990</a>
Sulfate	22300		5000	1	11/07/2019 03:28	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 18:53	<a href="#">WG1376683</a>
Calcium	132000		1000	1	11/11/2019 18:53	<a href="#">WG1376683</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	585000		10000	1	11/07/2019 13:46	<a href="#">WG1376130</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8770		1000	1	11/07/2019 03:41	<a href="#">WG1375990</a>
Fluoride	552		100	1	11/07/2019 03:41	<a href="#">WG1375990</a>
Sulfate	98800		25000	5	11/07/2019 03:54	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 19:01	<a href="#">WG1376683</a>
Calcium	168000		1000	1	11/11/2019 19:01	<a href="#">WG1376683</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	437000		10000	1	11/07/2019 13:46	<a href="#">WG1376130</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1400		1000	1	11/07/2019 04:07	<a href="#">WG1375990</a>
Fluoride	359		100	1	11/07/2019 04:07	<a href="#">WG1375990</a>
Sulfate	20200		5000	1	11/07/2019 04:07	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 19:04	<a href="#">WG1376683</a>
Calcium	134000		1000	1	11/11/2019 19:04	<a href="#">WG1376683</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	682000		10000	1	11/07/2019 13:46	<a href="#">WG1376130</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	29100		1000	1	11/07/2019 04:20	<a href="#">WG1375990</a>
Fluoride	381		100	1	11/07/2019 04:20	<a href="#">WG1375990</a>
Sulfate	170000		25000	5	11/07/2019 10:31	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 18:02	<a href="#">WG1376683</a>
Calcium	185000	<a href="#">O1V</a>	1000	1	11/11/2019 18:02	<a href="#">WG1376683</a>

6 Qc

7 Gl

8 Al

9 Sc





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	465000		10000	1	11/07/2019 13:46	<a href="#">WG1376130</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3990		1000	1	11/07/2019 05:00	<a href="#">WG1375990</a>
Fluoride	431		100	1	11/07/2019 05:00	<a href="#">WG1375990</a>
Sulfate	37600		5000	1	11/07/2019 05:00	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 19:07	<a href="#">WG1376683</a>
Calcium	141000		1000	1	11/11/2019 19:07	<a href="#">WG1376683</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	674000		10000	1	11/07/2019 13:46	<a href="#">WG1376130</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	30800		1000	1	11/07/2019 05:26	<a href="#">WG1375990</a>
Fluoride	630		100	1	11/07/2019 05:26	<a href="#">WG1375990</a>
Sulfate	169000		25000	5	11/07/2019 10:45	<a href="#">WG1375990</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	11/11/2019 19:10	<a href="#">WG1376683</a>
Calcium	188000		1000	1	11/11/2019 19:10	<a href="#">WG1376683</a>

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3469996-1 11/07/19 13:46

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

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

(OS) L1157688-03 11/07/19 13:46 • (DUP) R3469996-3 11/07/19 13:46

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1030000	1120000	1	8.36	<u>J3</u>	5

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3469996-2 11/07/19 13:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8500000	96.6	85.0-115	



Method Blank (MB)

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

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

<sup>1</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

<sup>9</sup>Sc

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

(OS) L1157549-02 11/06/19 23:46 • (DUP) R3469401-3 11/06/19 23:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	19700	19800	1	0.394		15
Fluoride	77.2	81.6	1	5.54	↓	15
Sulfate	18400	18400	1	0.110		15

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

(OS) L1157657-05 11/07/19 05:00 • (DUP) R3469401-8 11/07/19 05:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	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

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	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	



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

(OS) L1157549-02 11/06/19 23:46 • (MS) R3469401-4 11/07/19 00:12 • (MSD) R3469401-5 11/07/19 00:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	19700	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) R3469401-6 11/07/19 04:33 • (MSD) R3469401-7 11/07/19 04:46

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	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	<u>E J6</u>	<u>E J6</u>	10.5	15

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3470824-1 11/11/19 17:54

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

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3470824-2 11/11/19 17:56 • (LCSD) R3470824-3 11/11/19 17:59

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	964	956	96.4	95.6	80.0-120			0.841	20
Calcium	10000	9820	9760	98.2	97.6	80.0-120			0.566	20

5 Sr

6 Qc

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

(OS) L1157657-04 11/11/19 18:02 • (MS) R3470824-5 11/11/19 18:07 • (MSD) R3470824-6 11/11/19 18:10

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	ND	1100	1130	93.9	97.5	1	75.0-125			3.17	20
Calcium	10000	185000	190000	191000	47.7	62.5	1	75.0-125	V	V	0.780	20

7 Gl

8 Al

9 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.

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

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.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

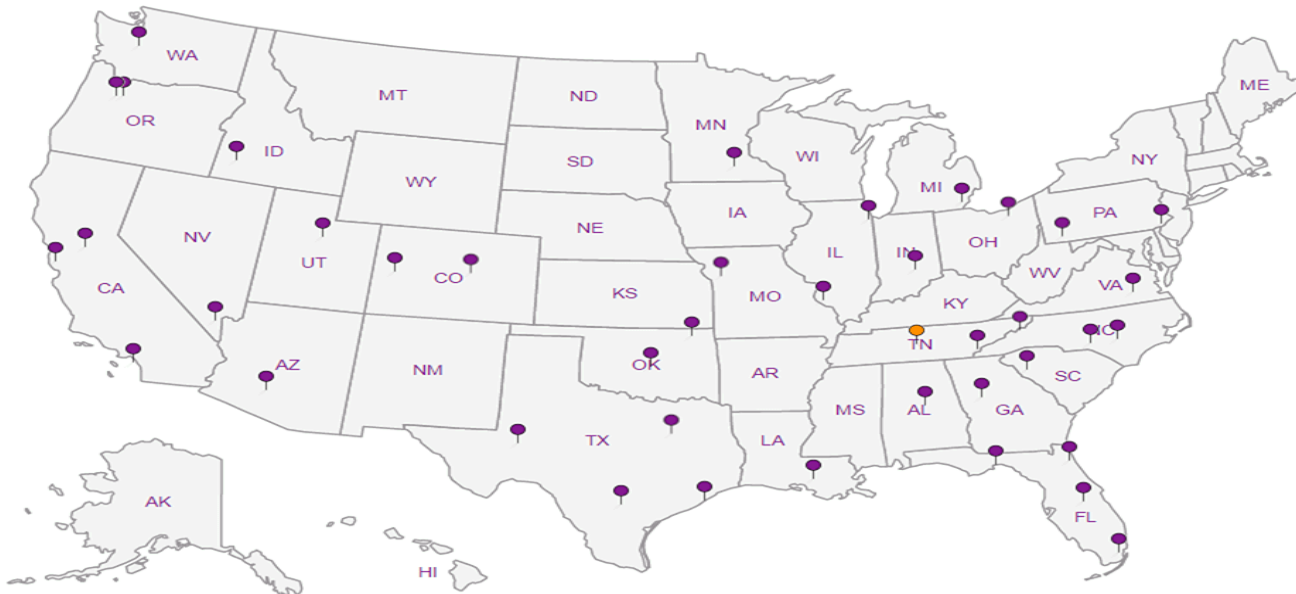
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <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

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.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



SCS Engineers - KS

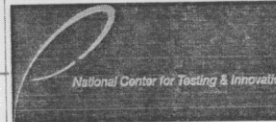
8575 W. 110th Street  
Overland Park, KS 66210

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

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



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



SDG # 1157657

Tablet # B109

Acctnum: AQUAOPKS

Template: T136059

Prelogin: P736892

PM: 206 - Jeff Carr

PB:

Shipped Via:

Remarks Sample # (lab only)

Report to:  
Jason Franks

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

Project Description: KCP&L Iatan Generating Station

City/State Collected: Weston, MO  
Please Circle: PT MT CT ET

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

Client Project # 27213167.18  
Lab Project # AQUAOPKS-IATAN

Collected by (print): Jason R. Franko

Site/Facility ID # P.O. #

Collected by (signature): Jason R. Franko

Quote #

Immediately Packed on Ice N  Y

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

Date Results Needed

Sample ID

Comp/Grab Matrix \* Depth Date Time

MW-1

3' X X X

MW-2

3' X X X

MW-6

3' X X X

MW-7

3' X X X

MW-8

3' X X X

DUPLICATE #1

3' X X X

MW7 MS / MSD

3' X X X

Anions (Cl, F, SO4) 125mlHDPE-NoPres  
B, Ca - 6010 250mlHDPE-HNO3  
TDS 250mlHDPE-NoPres

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

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_  
Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist

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

Samples returned via:  
 UPS  FedEx  Courier

Tracking #

SW

Relinquished by: (Signature) Jason R. Franko

Date: 11/5/19

Time: 1245

Received by: (Signature) Alan Nelson

Date: 11-5-19

Trip Blank Received: Yes/No  
HCL / MeOH  
TBR

Relinquished by: (Signature) Alan Nelson

Date: 11/5/19

Time: 1800

Received by: (Signature)

Temp: 3.0, 1.3, 1.3  
Bottles Received: 21

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 11/6

Hold: Condition: NCF / OK

Jared Morrison  
December 16, 2022

**ATTACHMENT 2**  
**Statistical Analyses**

Jared Morrison  
December 16, 2022

**ATTACHMENT 2-1**  
**Fall 2018 Semiannual Detection Monitoring Statistical Analyses**

## MEMORANDUM

March 22, 2019

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



From: SCS Engineers

RE: **Determination of Statistically Significant Increases - CCR Landfill  
Fall 2018 Semiannual Detection Monitoring 40 CFR 257.94**

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Iatan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated October 12, 2017. Groundwater samples were collected on November 12, 2018. Review and validation of the results from the November 2018 Detection Monitoring Event was completed on December 21, 2018, 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 10, 2019 and March 14, 2019.

The completed statistical evaluation identified two Appendix III constituents above their respective prediction limits. The prediction limit for calcium in monitoring well MW-10 is 131.1 mg/L. The detection monitoring sample was reported at 138 mg/L. The first verification re-sample was collected on January 10, 2019 with a result of 157 mg/L. The second verification re-sample was collected on March 14, 2019 with a result of 151 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring sample for calcium from monitoring well MW-10 exceeds its prediction limit and is a confirmed statistically significant increase (SSI) over background.

The prediction limit for sulfate in monitoring well MW-10 is 27.78 mg/L. The detection monitoring sample was reported at 32.9 mg/L. The first verification re-sample was collected on January 10, 2019 with a result of 38.0 mg/L. The second verification re-sample was collected on March 14, 2019 with a result of 40.1 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring sample for sulfate from monitoring well MW-10 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**



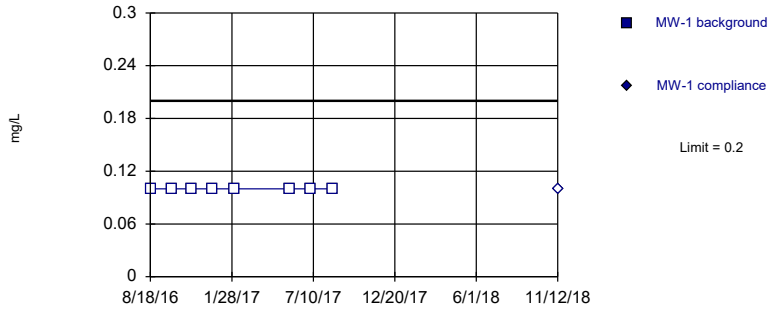
Iatan Generating Station  
Determination of Statistically Significant Increases  
CCR Landfill  
March 22, 2019

## **ATTACHMENT 1**

**Sanitas™ Output**

Within Limit

### Prediction Limit Intrawell Non-parametric

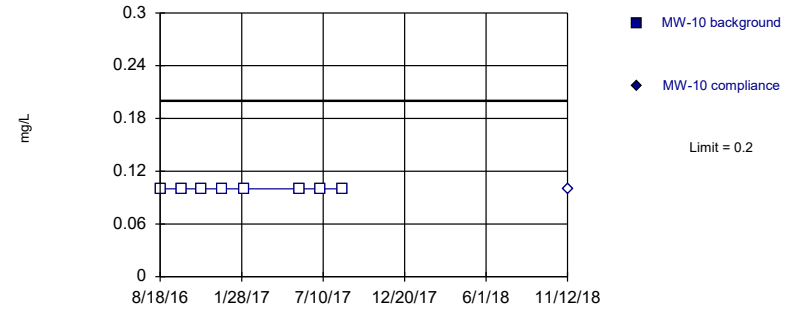


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Non-parametric

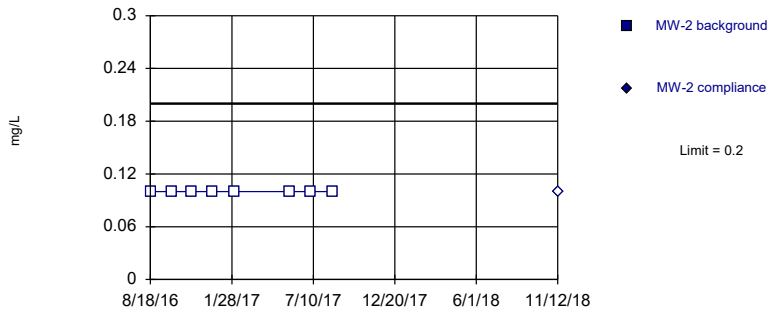


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Non-parametric

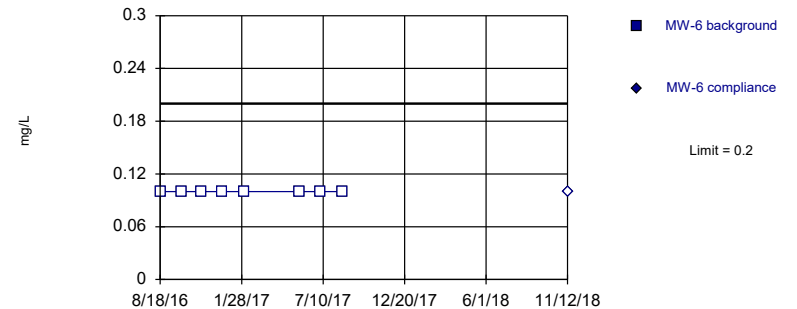


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

---

	MW-1	MW-1
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2



# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

---

	MW-10	MW-10
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

---

	MW-2	MW-2
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

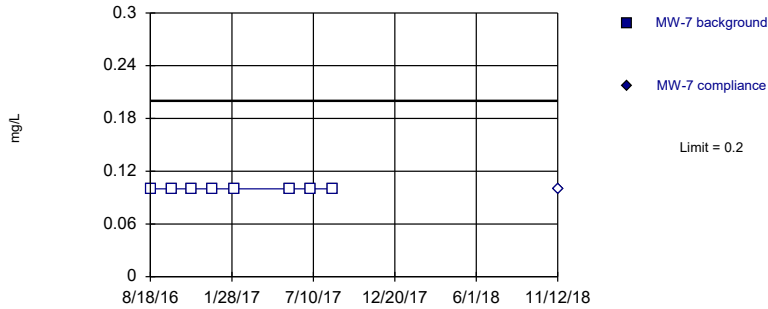
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-6	MW-6
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2

Within Limit

Prediction Limit  
Intrawell Non-parametric

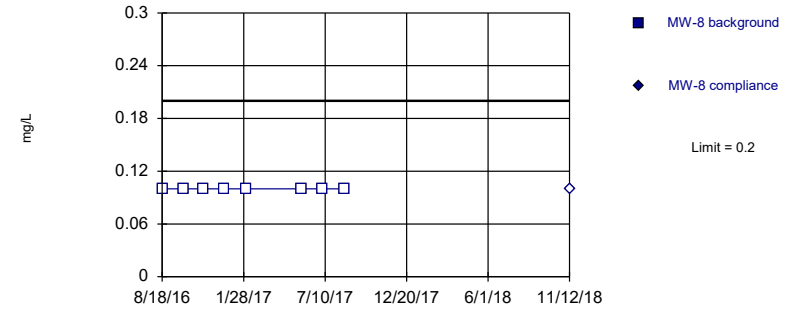


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Non-parametric

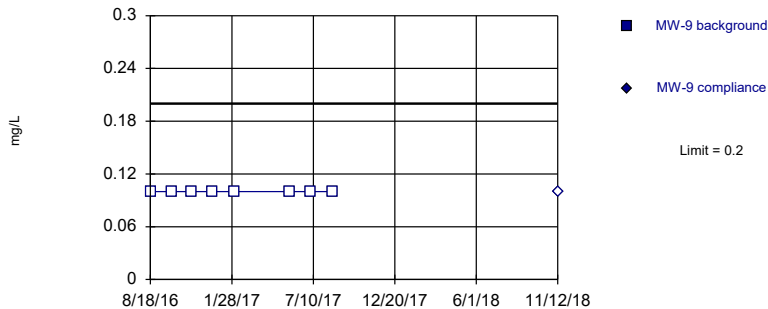


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Non-parametric

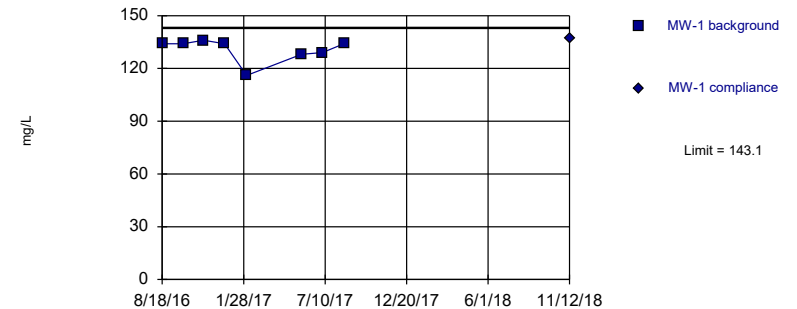


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary (based on square transformation): Mean=17100, Std. Dev.=1642, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7554, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

---

	MW-7	MW-7
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

---

	MW-8	MW-8
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
11/12/2018		<0.2

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

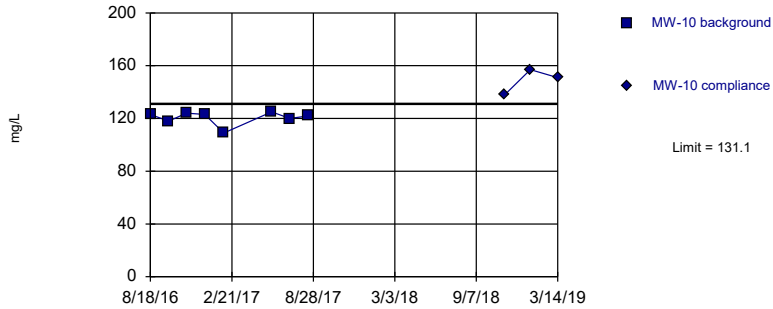
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	MW-1	MW-1
8/18/2016	134	
9/29/2016	134	
11/9/2016	136	
12/21/2016	134	
2/3/2017	116	
5/24/2017	128	
7/5/2017	129	
8/17/2017	134	
11/12/2018		137



Exceeds Limit

Prediction Limit  
Intrawell Parametric

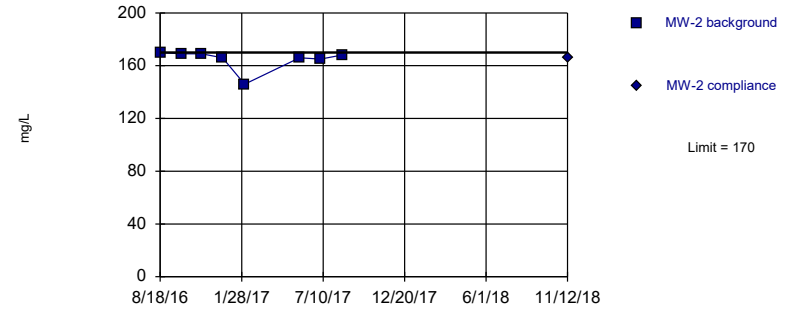


Background Data Summary: Mean=120.5, Std. Dev.=5.155, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7951, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Non-parametric

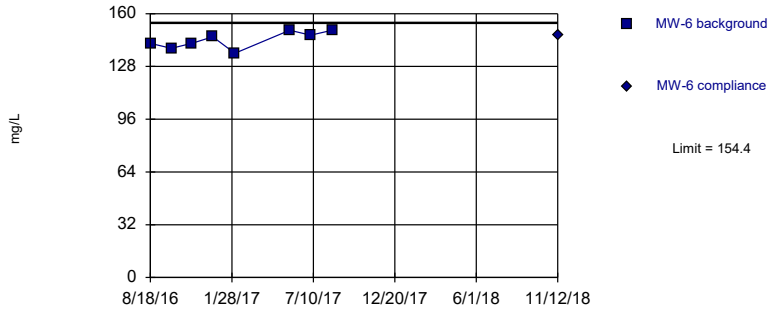


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

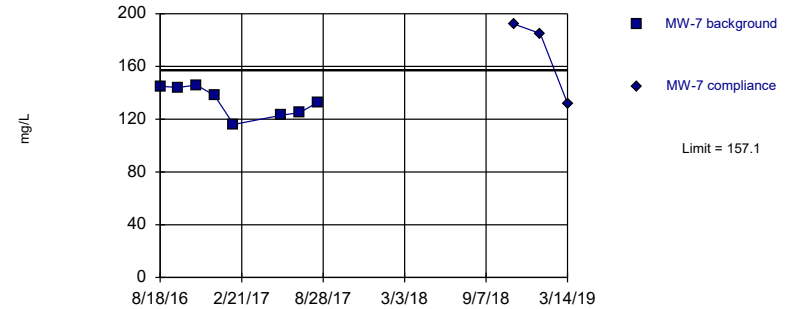


Background Data Summary: Mean=144, Std. Dev.=5.099, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9356, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=133.8, Std. Dev.=11.39, 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 = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-10	MW-10
8/18/2016	123	
9/29/2016	118	
11/9/2016	124	
12/21/2016	123	
2/3/2017	109	
5/24/2017	125	
7/5/2017	120	
8/17/2017	122	
11/12/2018		138
1/10/2019		157 1st verification re-sample
3/14/2019		151 2nd verification re-sample

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-2	MW-2
8/18/2016	170	
9/29/2016	169	
11/9/2016	169	
12/21/2016	166	
2/3/2017	146	
5/24/2017	166	
7/5/2017	165	
8/17/2017	168	
11/12/2018		166

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

---

	MW-6	MW-6
8/18/2016	142	
9/29/2016	139	
11/9/2016	142	
12/21/2016	146	
2/3/2017	136	
5/24/2017	150	
7/5/2017	147	
8/17/2017	150	
11/12/2018		147

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

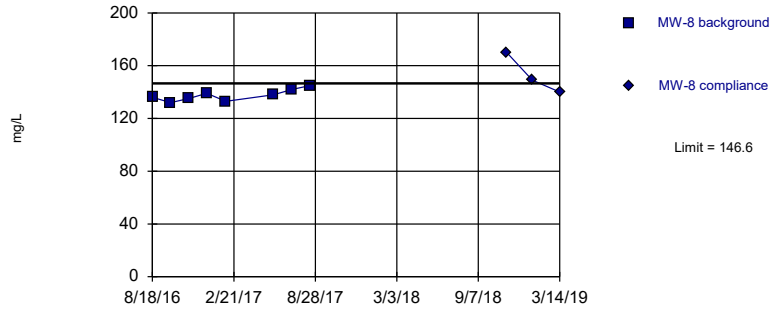
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-7	MW-7
8/18/2016	145	
9/29/2016	144	
11/9/2016	146	
12/21/2016	138	
2/3/2017	116	
5/24/2017	123	
7/5/2017	125	
8/17/2017	133	
11/12/2018		192
1/10/2019		185 1st verification re-sample
3/14/2019		132 2nd verification re-sample

Within Limit

Prediction Limit  
Intrawell Parametric

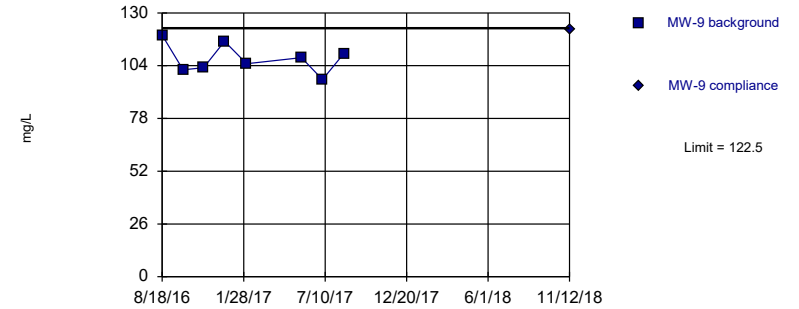


Background Data Summary: Mean=137.5, Std. Dev.=4.44, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9624, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

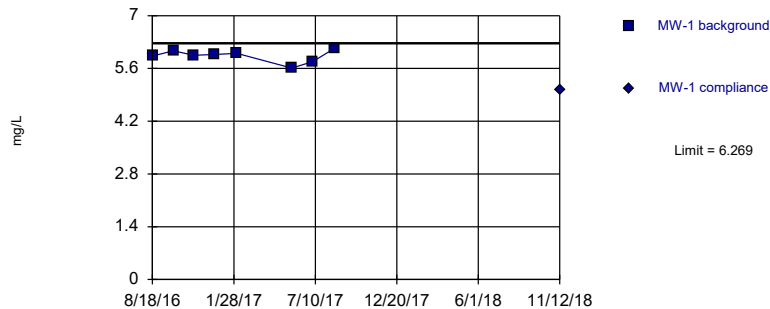


Background Data Summary: Mean=107.5, Std. Dev.=7.308, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9668, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

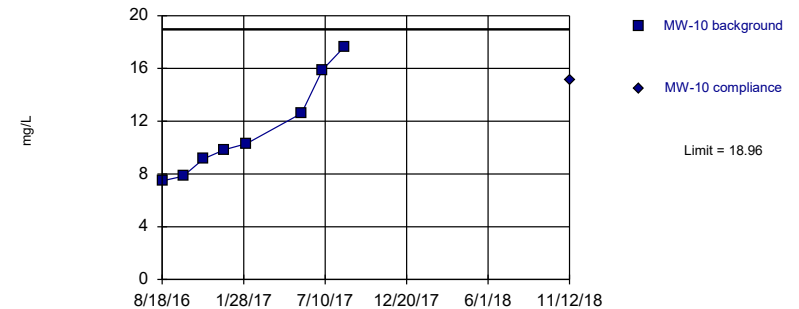


Background Data Summary: Mean=5.93, Std. Dev.=0.1654, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9207, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=11.34, Std. Dev.=3.722, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8939, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-8	MW-8
8/18/2016	136	
9/29/2016	132	
11/9/2016	135	
12/21/2016	139	
2/3/2017	133	
5/24/2017	138	
7/5/2017	142	
8/17/2017	145	
11/12/2018		170
1/10/2019	149	1st verification re-sample
3/14/2019	140	2nd verification re-sample

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	119	
9/29/2016	102	
11/9/2016	103	
12/21/2016	116	
2/3/2017	105	
5/24/2017	108	
7/5/2017	97.2	
8/17/2017	110	
11/12/2018		122



# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	5.93	
9/29/2016	6.07	
11/9/2016	5.95	
12/21/2016	5.97	
2/3/2017	6	
5/24/2017	5.61	
7/5/2017	5.78	
8/17/2017	6.13	
11/12/2018		5.04

# Prediction Limit

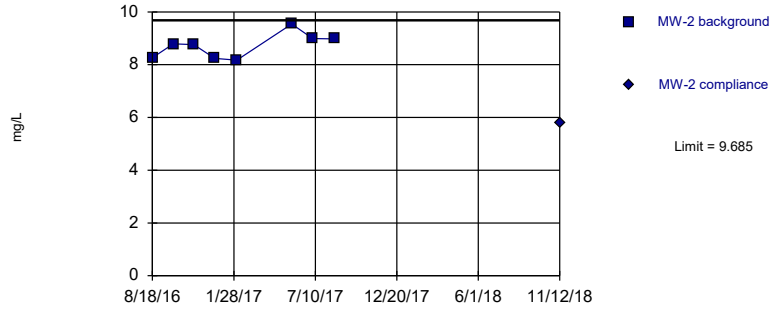
Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-10	MW-10
8/18/2016	7.47	
9/29/2016	7.83	
11/9/2016	9.15	
12/21/2016	9.84	
2/3/2017	10.3	
5/24/2017	12.6	
7/5/2017	15.9	
8/17/2017	17.6	
11/12/2018		15.1

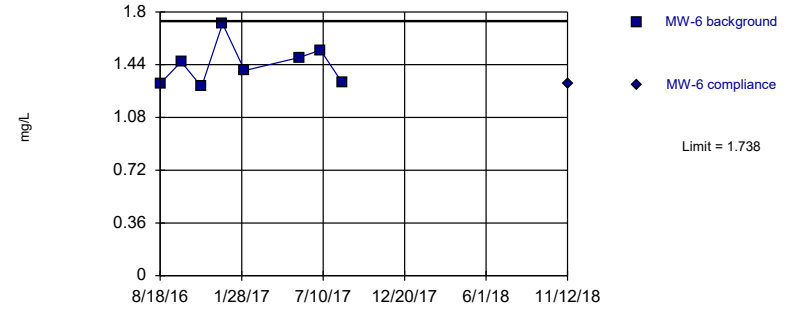
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=8.716, Std. Dev.=0.4727, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.911, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

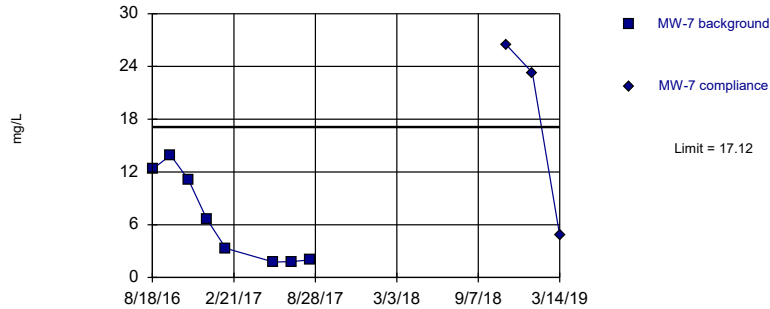
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=1.441, Std. Dev.=0.1448, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9132, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

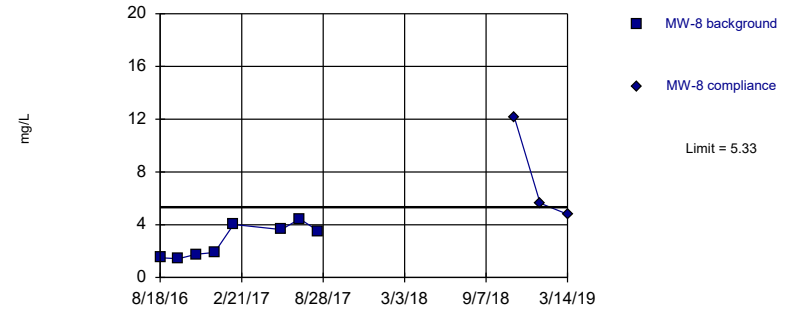
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=6.604, Std. Dev.=5.131, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8394, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:11 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=2.774, Std. Dev.=1.248, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8496, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-2	MW-2
8/18/2016	8.26	
9/29/2016	8.79	
11/9/2016	8.76	
12/21/2016	8.24	
2/3/2017	8.17	
5/24/2017	9.54	
7/5/2017	8.99	
8/17/2017	8.98	
11/12/2018		5.79

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-6	MW-6
8/18/2016	1.31	
9/29/2016	1.46	
11/9/2016	1.29	
12/21/2016	1.72	
2/3/2017	1.4	
5/24/2017	1.49	
7/5/2017	1.54	
8/17/2017	1.32	
11/12/2018		1.31

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-7	MW-7
8/18/2016	12.3	
9/29/2016	13.9	
11/9/2016	11.1	
12/21/2016	6.64	
2/3/2017	3.32	
5/24/2017	1.76	
7/5/2017	1.81	
8/17/2017	2	
11/12/2018		26.4
1/10/2019		23.3 1st verification re-sample
3/14/2019		4.77 2nd verification re-sample

# Prediction Limit

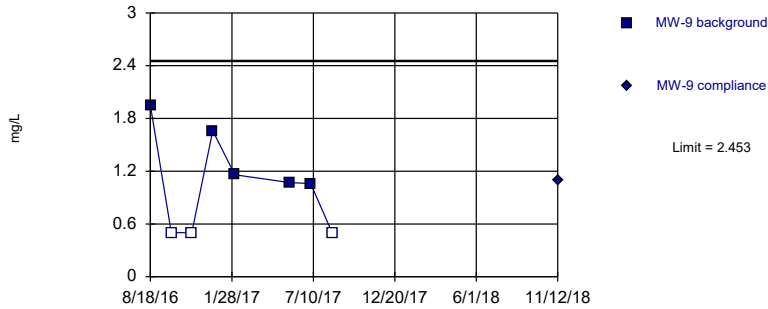
Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-8	MW-8
8/18/2016	1.5	
9/29/2016	1.42	
11/9/2016	1.76	
12/21/2016	1.89	
2/3/2017	4.02	
5/24/2017	3.63	
7/5/2017	4.44	
8/17/2017	3.53	
11/12/2018		12.1
1/10/2019	5.63	1st verification re-sample
3/14/2019	4.79	2nd verification re-sample

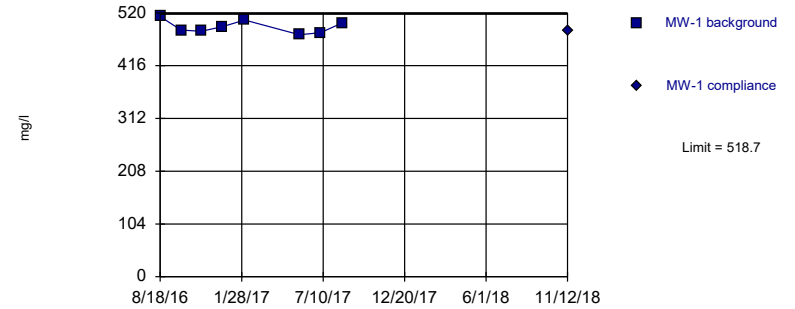
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary (after Aitchison's Adjustment): Mean=0.8625, Std. Dev.=0.7765, n=8, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8801, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

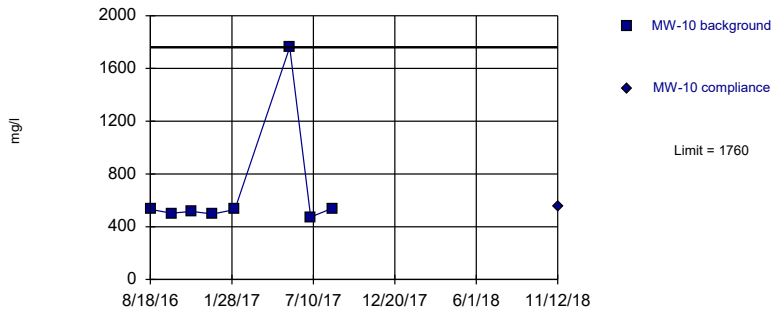
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=492.5, Std. Dev.=12.8, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9433, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

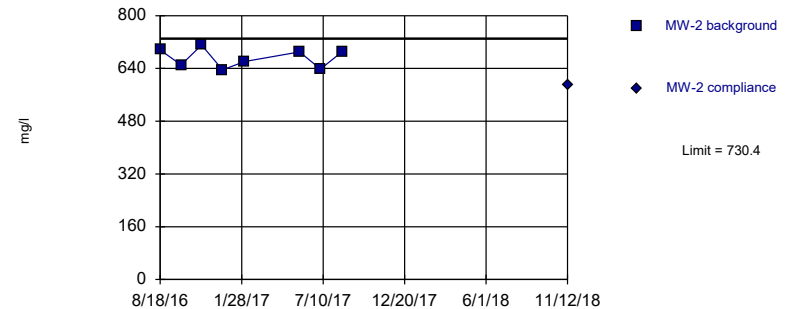
Within Limit Prediction Limit  
Intrawell Non-parametric



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.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=671.6, Std. Dev.=28.68, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9045, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	1.95	
9/29/2016	<1	
11/9/2016	<1	
12/21/2016	1.66	
2/3/2017	1.16	
5/24/2017	1.07	
7/5/2017	1.06	
8/17/2017	<1	
11/12/2018		1.1

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-1	MW-1
8/18/2016	513	
9/29/2016	486	
11/9/2016	484	
12/21/2016	493	
2/3/2017	506	
5/24/2017	477	
7/5/2017	481	
8/17/2017	500	
11/12/2018		485

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-10	MW-10
8/18/2016	532	
9/29/2016	502	
11/9/2016	516	
12/21/2016	497	
2/3/2017	531	
5/24/2017	1760	
7/5/2017	474	
8/17/2017	539	
11/12/2018		554

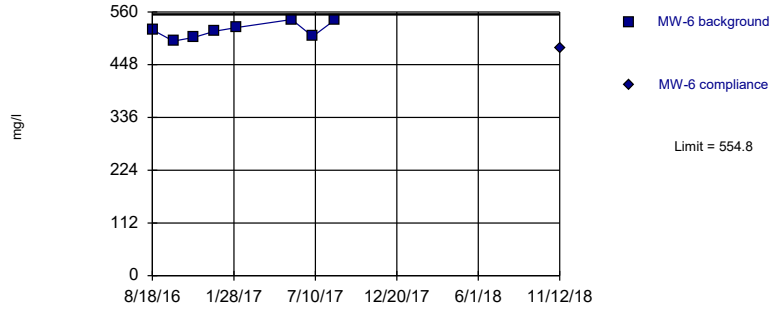
# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-2	MW-2
8/18/2016	696	
9/29/2016	651	
11/9/2016	711	
12/21/2016	636	
2/3/2017	661	
5/24/2017	690	
7/5/2017	638	
8/17/2017	690	
11/12/2018		590

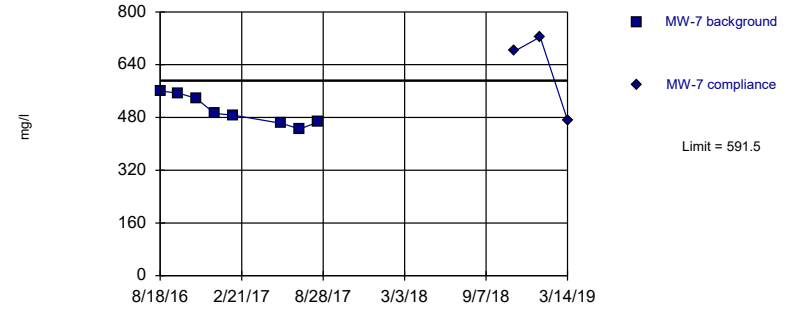
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=520.8, Std. Dev.=16.62, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9434, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

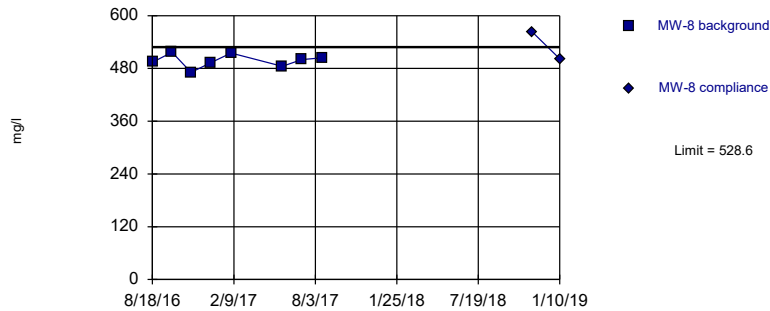
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=500.5, Std. Dev.=44.43, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9004, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

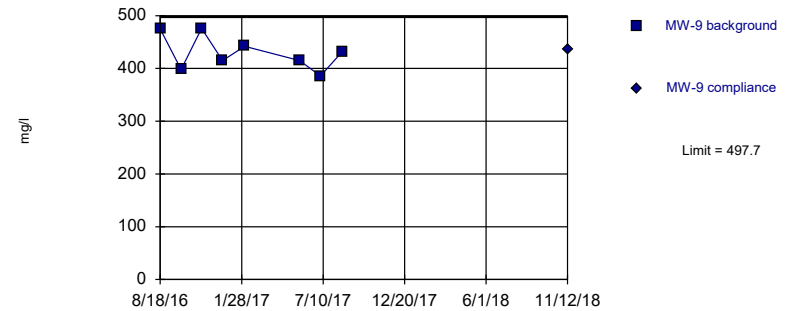
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=497.4, Std. Dev.=15.24, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9638, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=429.8, Std. Dev.=33.16, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9264, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-6	MW-6
8/18/2016	522	
9/29/2016	498	
11/9/2016	506	
12/21/2016	519	
2/3/2017	527	
5/24/2017	544	
7/5/2017	508	
8/17/2017	542	
11/12/2018		484

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-7	MW-7
8/18/2016	560	
9/29/2016	554	
11/9/2016	538	
12/21/2016	492	
2/3/2017	487	
5/24/2017	462	
7/5/2017	445	
8/17/2017	466	
11/12/2018		681
1/10/2019		724 1st verification re-sample
3/14/2019		472 2nd verification re-sample

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-8	MW-8
8/18/2016	494	
9/29/2016	517	
11/9/2016	471	
12/21/2016	493	
2/3/2017	515	
5/24/2017	485	
7/5/2017	500	
8/17/2017	504	
11/12/2018		563
1/10/2019		502 1st verification re-sample



# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

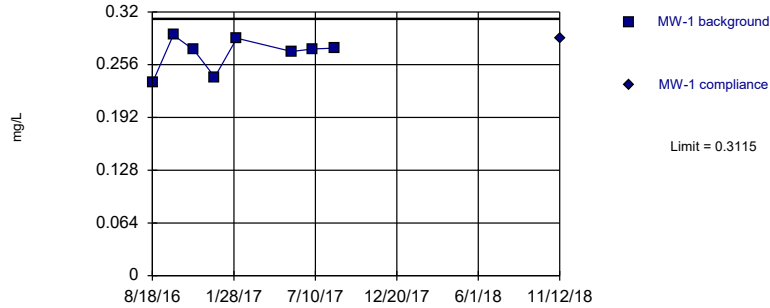
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-9	MW-9
8/18/2016	475	
9/29/2016	398	
11/9/2016	476	
12/21/2016	415	
2/3/2017	442	
5/24/2017	415	
7/5/2017	386	
8/17/2017	431	
11/12/2018		435

Within Limit

### Prediction Limit Intrawell Parametric

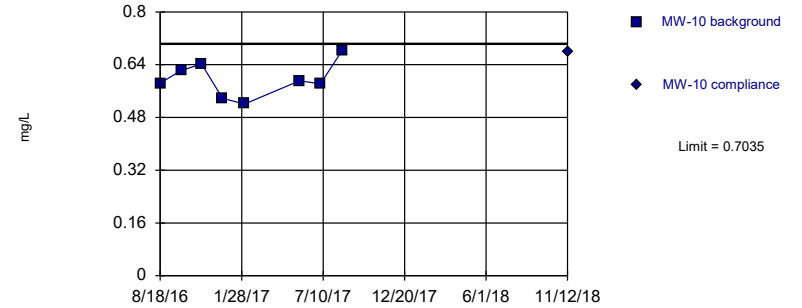


Background Data Summary: Mean=0.269, Std. Dev.=0.02076, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8526, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Parametric

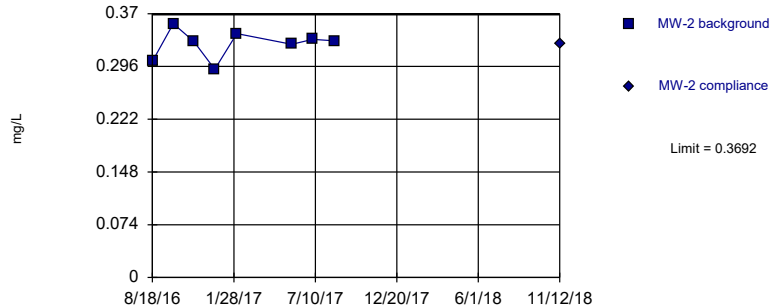


Background Data Summary: Mean=0.5953, Std. Dev.=0.05283, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9706, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Parametric

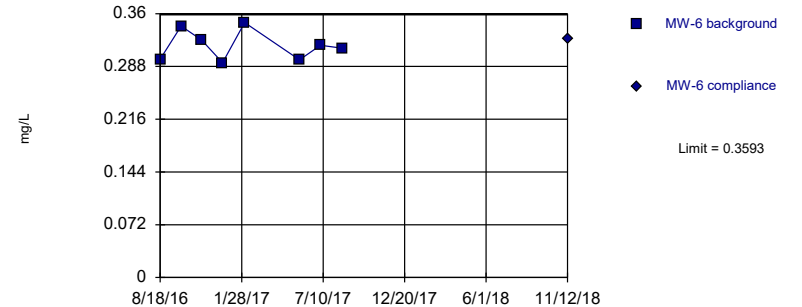


Background Data Summary: Mean=0.3271, Std. Dev.=0.02055, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9268, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.3166, Std. Dev.=0.02083, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9106, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	0.234	
9/29/2016	0.292	
11/9/2016	0.274	
12/21/2016	0.241	
2/3/2017	0.288	
5/24/2017	0.272	
7/5/2017	0.275	
8/17/2017	0.276	
11/12/2018		0.288

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-10	MW-10
8/18/2016	0.584	
9/29/2016	0.622	
11/9/2016	0.642	
12/21/2016	0.538	
2/3/2017	0.521	
5/24/2017	0.591	
7/5/2017	0.582	
8/17/2017	0.682	
11/12/2018		0.68

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-2	MW-2
8/18/2016	0.303	
9/29/2016	0.356	
11/9/2016	0.331	
12/21/2016	0.292	
2/3/2017	0.342	
5/24/2017	0.327	
7/5/2017	0.334	
8/17/2017	0.332	
11/12/2018		0.327

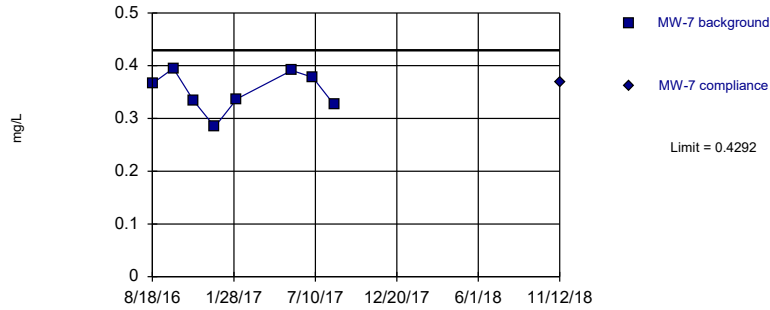
# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-6	MW-6
8/18/2016	0.298	
9/29/2016	0.343	
11/9/2016	0.324	
12/21/2016	0.293	
2/3/2017	0.348	
5/24/2017	0.297	
7/5/2017	0.317	
8/17/2017	0.313	
11/12/2018		0.325

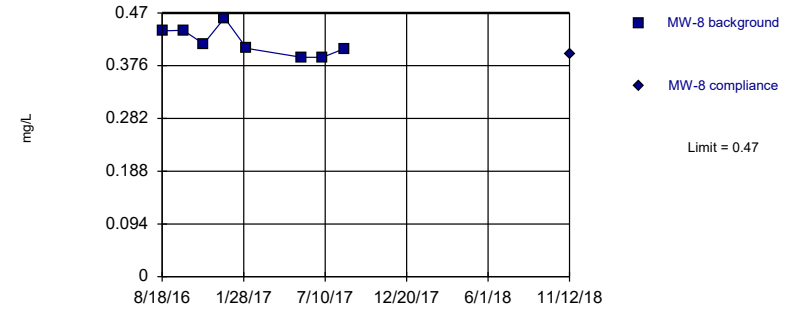
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.3513, Std. Dev.=0.03803, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9335, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

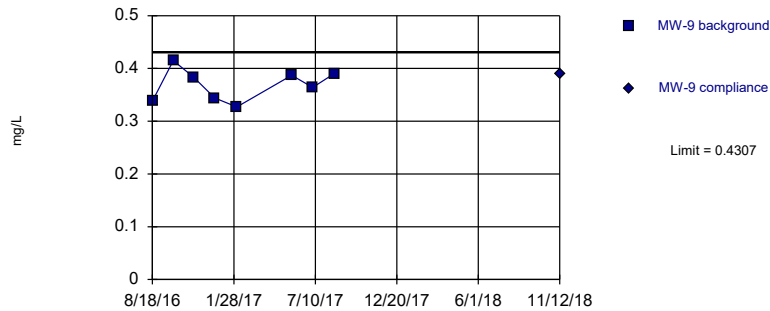
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.4185, Std. Dev.=0.02513, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9145, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

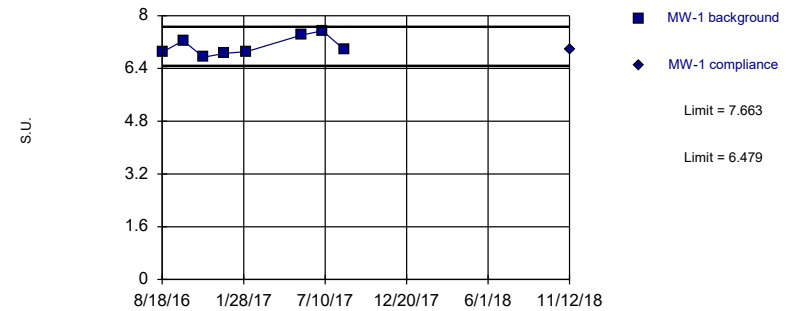
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.3685, Std. Dev.=0.03036, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9498, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limits Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=7.071, Std. Dev.=0.289, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8946, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-7	MW-7
8/18/2016	0.366	
9/29/2016	0.395	
11/9/2016	0.333	
12/21/2016	0.284	
2/3/2017	0.337	
5/24/2017	0.391	
7/5/2017	0.378	
8/17/2017	0.326	
11/12/2018		0.369



# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-8	MW-8
8/18/2016	0.438	
9/29/2016	0.439	
11/9/2016	0.415	
12/21/2016	0.461	
2/3/2017	0.407	
5/24/2017	0.391	
7/5/2017	0.391	
8/17/2017	0.406	
11/12/2018		0.396

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-9	MW-9
8/18/2016	0.338	
9/29/2016	0.415	
11/9/2016	0.383	
12/21/2016	0.344	
2/3/2017	0.327	
5/24/2017	0.387	
7/5/2017	0.364	
8/17/2017	0.39	
11/12/2018		0.39

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

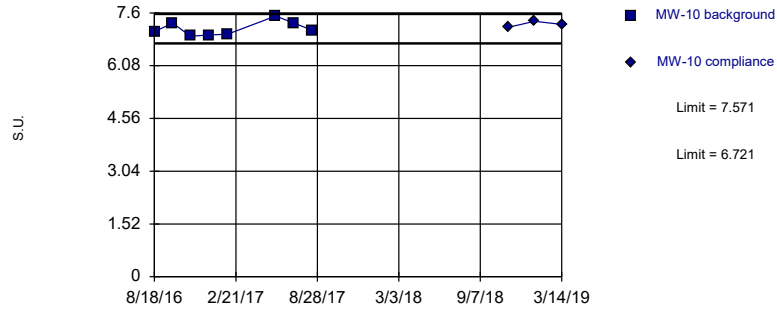
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	6.89	
9/29/2016	7.24	
11/9/2016	6.74	
12/21/2016	6.86	
2/3/2017	6.91	
5/24/2017	7.41	
7/5/2017	7.54	
8/17/2017	6.98	
11/12/2018		6.99

Within Limits

Prediction Limit  
Intrawell Parametric

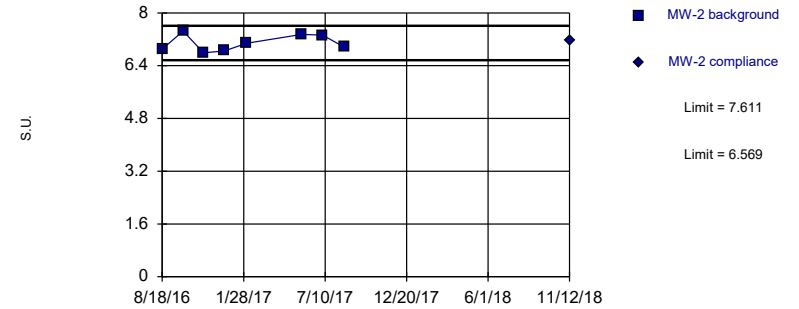


Background Data Summary: Mean=7.146, Std. Dev.=0.2075, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8964, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limits

Prediction Limit  
Intrawell Parametric

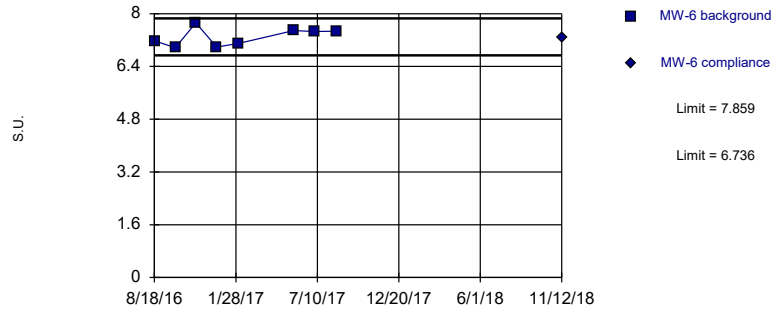


Background Data Summary: Mean=7.09, Std. Dev.=0.2544, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9007, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limits

Prediction Limit  
Intrawell Parametric

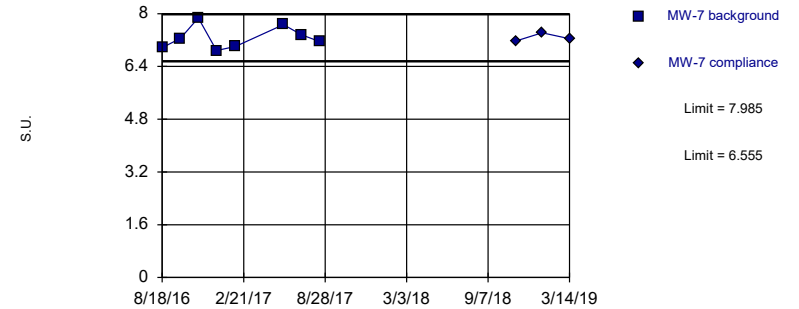


Background Data Summary: Mean=7.298, Std. Dev.=0.2742, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9106, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limits

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=7.27, Std. Dev.=0.349, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9233, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-10	MW-10
8/18/2016	7.06	
9/29/2016	7.31	
11/9/2016	6.93	
12/21/2016	6.96	
2/3/2017	6.99	
5/24/2017	7.51	
7/5/2017	7.31	
8/17/2017	7.1	
11/12/2018		7.19
1/10/2019		7.36 extra sample
3/14/2019		7.27 extra sample

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-2	MW-2
8/18/2016	6.9	
9/29/2016	7.45	
11/9/2016	6.79	
12/21/2016	6.85	
2/3/2017	7.08	
5/24/2017	7.35	
7/5/2017	7.33	
8/17/2017	6.97	
11/12/2018		7.15

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-6	MW-6
8/18/2016	7.18	
9/29/2016	6.97	
11/9/2016	7.72	
12/21/2016	6.99	
2/3/2017	7.1	
5/24/2017	7.49	
7/5/2017	7.46	
8/17/2017	7.47	
11/12/2018		7.27

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

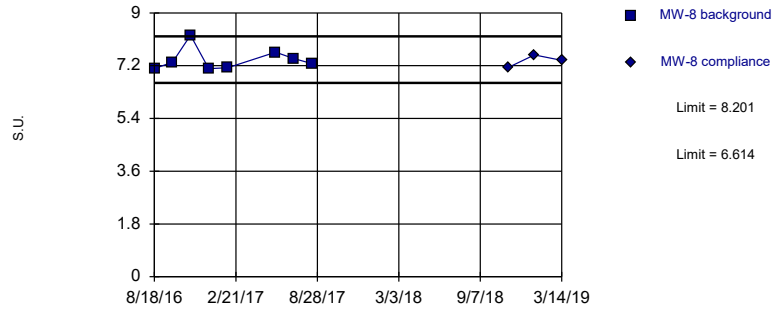
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	MW-7	MW-7
8/18/2016	6.97	
9/29/2016	7.25	
11/9/2016	7.87	
12/21/2016	6.88	
2/3/2017	7.01	
5/24/2017	7.67	
7/5/2017	7.36	
8/17/2017	7.15	
11/12/2018		7.18
1/10/2019		7.42 extra sample
3/14/2019		7.24 extra sample



Within Limits

Prediction Limit  
Intrawell Parametric

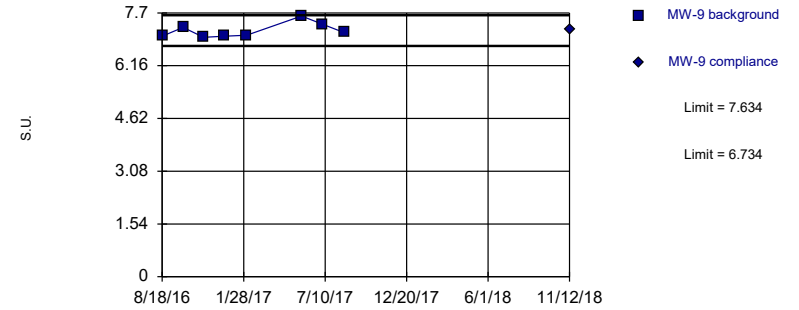


Background Data Summary: Mean=7.408, Std. Dev.=0.3874, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8126, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limits

Prediction Limit  
Intrawell Parametric

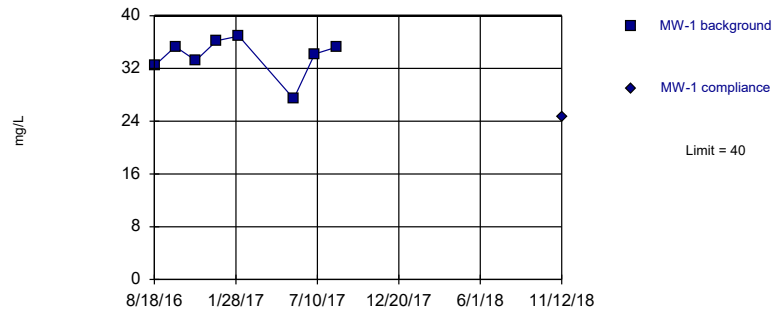


Background Data Summary: Mean=7.184, Std. Dev.=0.2196, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8503, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

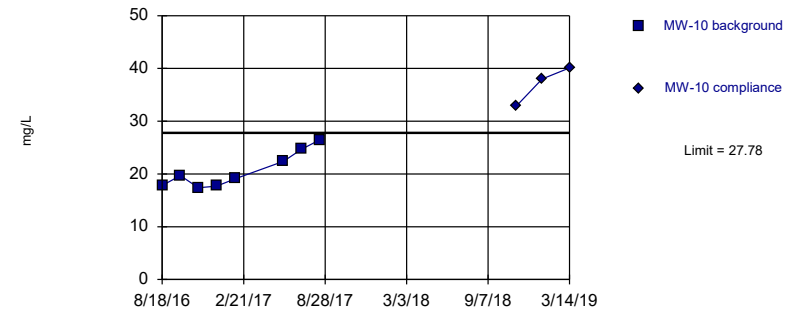


Background Data Summary: Mean=33.85, Std. Dev.=3, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8631, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Exceeds Limit

Prediction Limit  
Intrawell Parametric



# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-8	MW-8	
8/18/2016	7.1		
9/29/2016	7.32		
11/9/2016	8.24		
12/21/2016	7.1		
2/3/2017	7.13		
5/24/2017	7.66		
7/5/2017	7.44		
8/17/2017	7.27		
11/12/2018		7.15	
1/10/2019		7.57	extra sample
3/14/2019		7.38	extra sample

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	7.02	
9/29/2016	7.28	
11/9/2016	6.99	
12/21/2016	7.02	
2/3/2017	7.05	
5/24/2017	7.61	
7/5/2017	7.37	
8/17/2017	7.13	
11/12/2018		7.21

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-1	MW-1
8/18/2016	32.4	
9/29/2016	35.3	
11/9/2016	33.2	
12/21/2016	36.2	
2/3/2017	36.9	
5/24/2017	27.4	
7/5/2017	34.2	
8/17/2017	35.2	
11/12/2018		24.6

# Prediction Limit

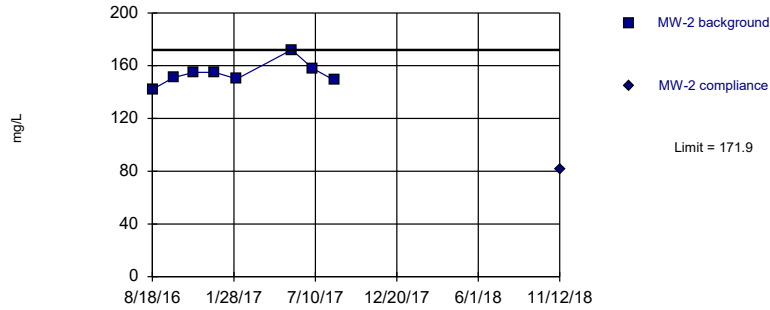
Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-10	MW-10
8/18/2016	17.8	
9/29/2016	19.7	
11/9/2016	17.4	
12/21/2016	17.7	
2/3/2017	19.1	
5/24/2017	22.4	
7/5/2017	24.7	
8/17/2017	26.5	
11/12/2018		32.9
1/10/2019		38 1st verification re-sample
3/14/2019		40.1 2nd verification re-sample

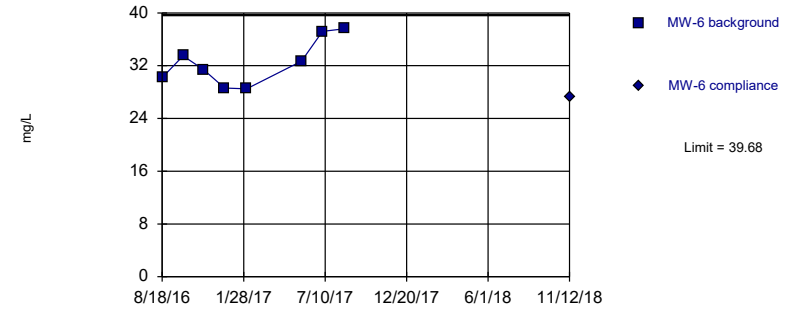
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=154, Std. Dev.=8.751, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9112, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

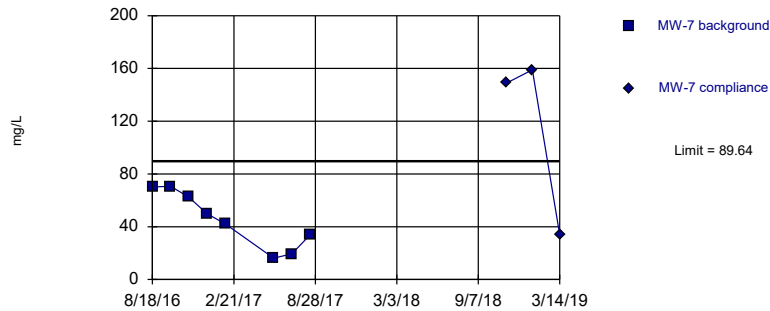
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=32.46, Std. Dev.=3.522, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9073, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

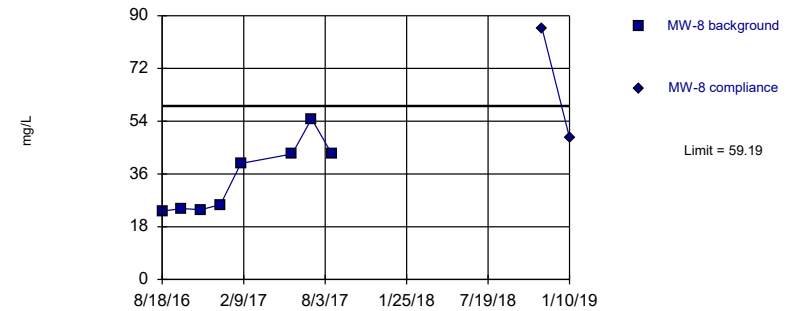
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=45.64, Std. Dev.=21.48, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9157, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=34.63, Std. Dev.=11.99, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8458, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 3/22/2019 5:12 PM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-2	MW-2
8/18/2016	142	
9/29/2016	151	
11/9/2016	155	
12/21/2016	155	
2/3/2017	150	
5/24/2017	172	
7/5/2017	158	
8/17/2017	149	
11/12/2018		81.5

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-6	MW-6
8/18/2016	30.2	
9/29/2016	33.5	
11/9/2016	31.4	
12/21/2016	28.6	
2/3/2017	28.5	
5/24/2017	32.7	
7/5/2017	37.2	
8/17/2017	37.6	
11/12/2018		27.3



# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-7	MW-7	
8/18/2016	70.2		
9/29/2016	70.6		
11/9/2016	62.6		
12/21/2016	50		
2/3/2017	41.9		
5/24/2017	16.2		
7/5/2017	19.5		
8/17/2017	34.1		
11/12/2018		149	
1/10/2019		159	1st verification re-sample
3/14/2019		33.9	2nd verification re-sample

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

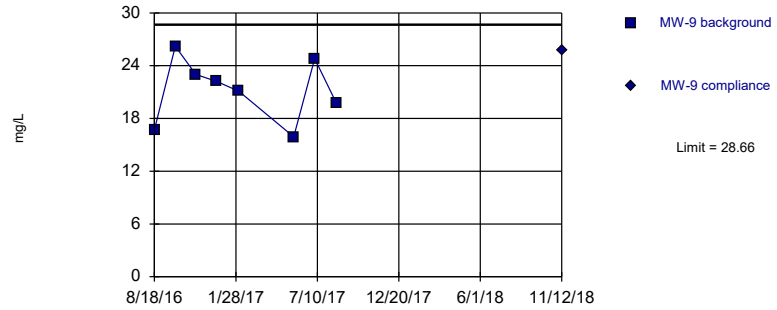
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-8	MW-8
8/18/2016	23.3	
9/29/2016	24.2	
11/9/2016	23.8	
12/21/2016	25.5	
2/3/2017	39.6	
5/24/2017	42.8	
7/5/2017	54.8	
8/17/2017	43	
11/12/2018		85.8
1/10/2019	48.4	1st verification re-sample

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=21.21, Std. Dev.=3.635, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9584, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 3/22/2019 5:12 PM View: CCR LF III

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

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 3/22/2019 5:15 PM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	16.7	
9/29/2016	26.2	
11/9/2016	23	
12/21/2016	22.2	
2/3/2017	21.1	
5/24/2017	15.9	
7/5/2017	24.8	
8/17/2017	19.8	
11/12/2018		25.8

# Prediction Limit

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Printed 3/22/2019, 5:15 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	MW-1	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-10	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-2	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-6	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-7	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-8	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-9	0.2	n/a	11/12/2018	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Calcium (mg/L)	MW-1	143.1	n/a	11/12/2018	137	No	8	0	x^2	0.001075	Param Intra 1 of 3
<b>Calcium (mg/L)</b>	<b>MW-10</b>	<b>131.1</b>	<b>n/a</b>	<b>3/14/2019</b>	<b>151</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Calcium (mg/L)	MW-2	170	n/a	11/12/2018	166	No	8	0	n/a	0.005912	NP Intra (normality) ...
Calcium (mg/L)	MW-6	154.4	n/a	11/12/2018	147	No	8	0	No	0.001075	Param Intra 1 of 3
Calcium (mg/L)	MW-7	157.1	n/a	3/14/2019	132	No	8	0	No	0.001075	Param Intra 1 of 3
Calcium (mg/L)	MW-8	146.6	n/a	3/14/2019	140	No	8	0	No	0.001075	Param Intra 1 of 3
Calcium (mg/L)	MW-9	122.5	n/a	11/12/2018	122	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-1	6.269	n/a	11/12/2018	5.04	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-10	18.96	n/a	11/12/2018	15.1	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-2	9.685	n/a	11/12/2018	5.79	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-6	1.738	n/a	11/12/2018	1.31	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-7	17.12	n/a	3/14/2019	4.77	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-8	5.33	n/a	3/14/2019	4.79	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-9	2.453	n/a	11/12/2018	1.1	No	8	37.5	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-1	518.7	n/a	11/12/2018	485	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-10	1760	n/a	11/12/2018	554	No	8	0	n/a	0.005912	NP Intra (normality) ...
Dissolved Solids (mg/l)	MW-2	730.4	n/a	11/12/2018	590	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-6	554.8	n/a	11/12/2018	484	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-7	591.5	n/a	3/14/2019	472	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-8	528.6	n/a	1/10/2019	502	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-9	497.7	n/a	11/12/2018	435	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-1	0.3115	n/a	11/12/2018	0.288	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-10	0.7035	n/a	11/12/2018	0.68	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-2	0.3692	n/a	11/12/2018	0.327	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-6	0.3593	n/a	11/12/2018	0.325	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-7	0.4292	n/a	11/12/2018	0.369	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-8	0.47	n/a	11/12/2018	0.396	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-9	0.4307	n/a	11/12/2018	0.39	No	8	0	No	0.001075	Param Intra 1 of 3
pH (S.U.)	MW-1	7.663	6.479	11/12/2018	6.99	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-10	7.571	6.721	3/14/2019	7.27	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-2	7.611	6.569	11/12/2018	7.15	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-6	7.859	6.736	11/12/2018	7.27	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-7	7.985	6.555	3/14/2019	7.24	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-8	8.201	6.614	3/14/2019	7.38	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-9	7.634	6.734	11/12/2018	7.21	No	8	0	No	0.000...	Param Intra 1 of 3
Sulfate (mg/L)	MW-1	40	n/a	11/12/2018	24.6	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Sulfate (mg/L)</b>	<b>MW-10</b>	<b>27.78</b>	<b>n/a</b>	<b>3/14/2019</b>	<b>40.1</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Sulfate (mg/L)	MW-2	171.9	n/a	11/12/2018	81.5	No	8	0	No	0.001075	Param Intra 1 of 3
Sulfate (mg/L)	MW-6	39.68	n/a	11/12/2018	27.3	No	8	0	No	0.001075	Param Intra 1 of 3
Sulfate (mg/L)	MW-7	89.64	n/a	3/14/2019	33.9	No	8	0	No	0.001075	Param Intra 1 of 3
Sulfate (mg/L)	MW-8	59.19	n/a	1/10/2019	48.4	No	8	0	No	0.001075	Param Intra 1 of 3
Sulfate (mg/L)	MW-9	28.66	n/a	11/12/2018	25.8	No	8	0	No	0.001075	Param Intra 1 of 3

Iatan Generating Station  
Determination of Statistically Significant Increases  
CCR Landfill  
March 22, 2019

## **ATTACHMENT 2**

### **Sanitas™ Configuration Settings**

Exclude data flags:

Data Reading Options

- Individual Observations
- Mean of Each:  Month
- Median of Each:  Season

Automatically Process Resamples...

- Black and White Output
- Four Plots Per Page
  - Always Combine Data Pages...
  - Include Tick Marks on Data Page
  - Use Constituent Name for Graph Title
- Draw Border Around Text Reports and Data Pages
- Enlarge/Reduce Fonts (Graphs):
- Enlarge/Reduce Fonts (Data/Text Reports):
- Wide Margins (on reports without explicit setting)
- Use CAS# (Not Const. Name)
- Truncate File Names to  Characters
- Include Limit Lines when found in Database...
- Show Deselected Data on Time Series  ▾
- Show Deselected Data on all Data Pages  ▾

- Prompt to Overwrite/Append Summary Tables
- Round Limits to  Sig. Digits (when not set in data file)
- User-Set Scale
- Indicate Background Data
- Show Exact Dates
- Thick Plot Lines

Zoom Factor:  ▾

- Output Decimal Precision
- Less Precision
  - Normal Precision
  - More Precision

Store Print Jobs in Multiple Constituent Mode

Printer:  ▾



Test for Normality using Shapiro-Wilk/Francia at Alpha = 0.01

Use Non-Parametric Test when Non-Detects Percent > 50

Use Aitchison's Adjustment when Non-Detects Percent > 15

Optional Further Refinement: Use when NDs % > 50

Use Poisson Prediction Limit when Non-Detects Percent > 90

Transformation

Use Ladder of Powers

Natural Log or No Transformation

Never Transform

Use Specific Transformation: Natural Log

Use Best W Statistic

Plot Transformed Values

Deseasonalize (Intra- and InterWell)

If Seasonality Is Detected

If Seasonality Is Detected Or Insufficient to Test

Always (When Sufficient Data)  Never

Always Use Non-Parametric

Facility

Statistical Evaluations per Year:

Constituents Analyzed:

Downgradient (Compliance) Wells:

Sampling Plan

Comparing Individual Observations

1 of 1  1 of 2  1 of 3  1 of 4

2 of 4 ("Modified California")

IntraWell Other

Stop if Background Trend Detected at Alpha = 0.05

Plot Background Data

Override Standard Deviation:

Override DF:  Override Kappa:

Automatically Remove Background Outliers

2-Tailed Test Mode...

Show Deselected Data Lighter

Non-Parametric Limit = Highest Background Value

Non-Parametric Limit when 100% Non-Detects:

Highest/Second Highest Background Value

Most Recent PQL if available, or MDL

Most Recent Background Value (subst. method)

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- Use Modified Alpha...  2-Tailed Test Mode...

Outlier Tests

- EPA 1989 Outlier Screening (fixed alpha of 0.05)  
 Dixon's at  $\alpha=$  0.05 or if  $n >$  22 Rosner's at  $\alpha=$  0.01  Use EPA Screening to establish Suspected Outliers  
 Tukey's Outlier Screening, with IQR Multiplier = 3.0  Use Ladder of Powers to achieve Best W Stat  
 Test For Normality using Shapiro-Wilk/Francia at Alpha = 0.1  
 Stop if Non-Normal  
 Continue with Parametric Test if Non-Normal  
 Tukey's if Non-Normal, with IQR Multiplier = 3.0  Use Ladder of Powers to achieve Best W Stat  
 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)  
 Use Constituent Definition File

Jared Morrison  
December 16, 2022

## **ATTACHMENT 2-2**

### **Spring 2019 Semiannual Detection Monitoring Statistical Analyses**

## MEMORANDUM

September 19, 2019

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



From: SCS Engineers

RE: Determination of Statistically Significant Increases - CCR Landfill  
Spring 2019 Semiannual Detection Monitoring 40 CFR 257.94

Statistical analysis of monitoring data from the groundwater monitoring system for the CCR Landfill at the Iatan Generating Station has been completed in substantial compliance with the "Statistical Method Certification by A Qualified Professional Engineer" dated October 12, 2017. Groundwater samples were collected on May 20, 2019. Review and validation of the results from the May 2019 Detection Monitoring Event was completed on June 28, 2019, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on July 11, 2019 and August 20, 2019.

The completed statistical evaluation identified four Appendix III constituents (calcium, chloride, total dissolved solids, sulfate) above their respective prediction limits.

The prediction limit for calcium in monitoring well MW-7 is 157.1 mg/L. The detection monitoring sample was reported at 184 mg/L. The first verification re-sample was collected on July 11, 2019 with a result of 199 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 183 mg/L.

The prediction limit for calcium in monitoring well MW-10 is 131.1 mg/L. The detection monitoring sample was reported at 151 mg/L. The first verification re-sample was collected on July 11, 2019 with a result of 153 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 143 mg/L.

The prediction limit for chloride in monitoring well MW-7 is 17.12 mg/L. The detection monitoring sample was reported at 26 mg/L. The first verification re-sample was collected on July 11, 2019 with a result of 31.9 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 28.7 mg/L.

The prediction limit for chloride in monitoring well MW-10 is 18.96 mg/L. The detection monitoring sample was reported at 21.0 mg/L. The first verification re-sample was collected on

July 11, 2019 with a result of 22.5 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 20.3 mg/L.

The prediction limit for total dissolved solids in monitoring well MW-7 is 591.5 mg/L. The detection monitoring sample was reported at 737 mg/L. The first verification re-sample was collected on July 11, 2019 with a result of 761 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 743 mg/L.

The prediction limit for sulfate in monitoring well MW-7 is 89.64 mg/L. The detection monitoring sample was reported at 166 mg/L. The first verification re-sample was collected on July 11, 2019 with a result of 186 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 166 mg/L.

The prediction limit for sulfate in monitoring well MW-10 is 27.78 mg/L. The detection monitoring sample was reported at 37.3 mg/L. The first verification re-sample was collected on July 11, 2019 with a result of 33.0 mg/L. The second verification re-sample was collected on August 20, 2019 with a result of 34.6 mg/L.

Therefore, in accordance with the Statistical Method Certification, the detection monitoring samples for calcium, chloride, total dissolved solids, and sulfate from monitoring well MW-7 exceed their prediction limits and are confirmed SSIs over background. Additionally, the detection monitoring samples for calcium, chloride, and sulfate from monitoring well MW-10 exceed their prediction limits and are confirmed SSIs 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 SSIs above the background prediction limits for calcium, chloride, total dissolved solids and sulfate in monitoring well MW-7 and for calcium, chloride, and sulfate in monitoring well MW-10.**

Attached to this memorandum are the following backup information:

Attachment 1: Sanitas™ Output:

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

Attachment 2: Sanitas™ Configuration Settings:

Screen shots of the applicable Sanitas™ configuration settings for the statistical prediction limit analysis. This includes data configuration, output configuration, prediction limit configuration and other tests configuration.

Revision Number	Revision Date	Attachment Revised	Summary of Revisions

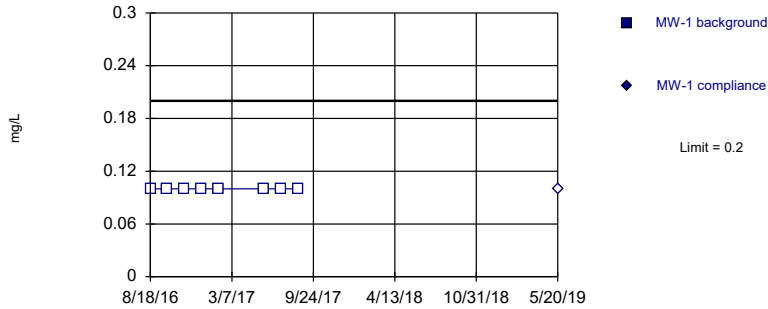
Iatan Generating Station  
Determination of Statistically Significant Increases  
CCR Landfill  
September 19, 2019

## **ATTACHMENT 1**

**Sanitas™ Output**

Within Limit

### Prediction Limit Intrawell Non-parametric

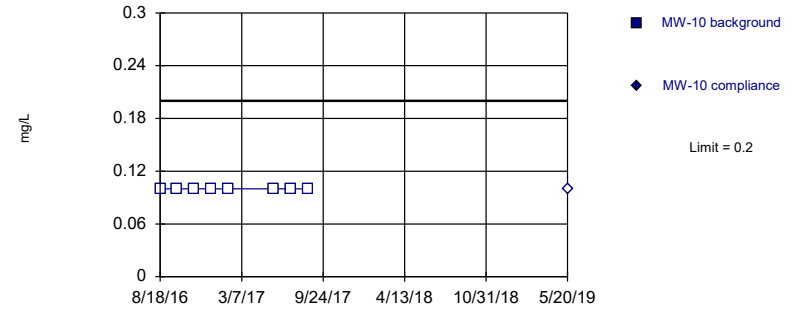


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:38 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Non-parametric

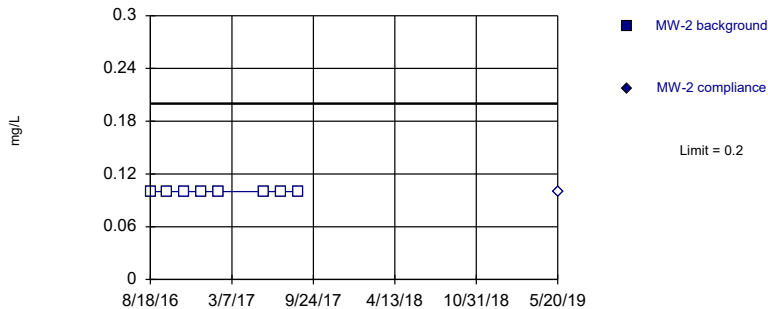


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:38 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Non-parametric

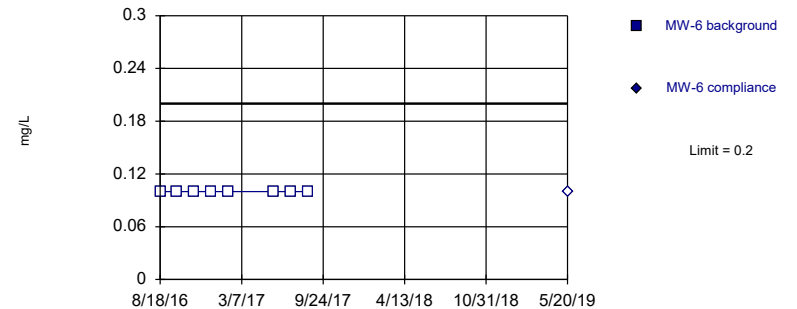


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

### Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr



# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-1	MW-1
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-10	MW-10
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-2	MW-2
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2

# Prediction Limit

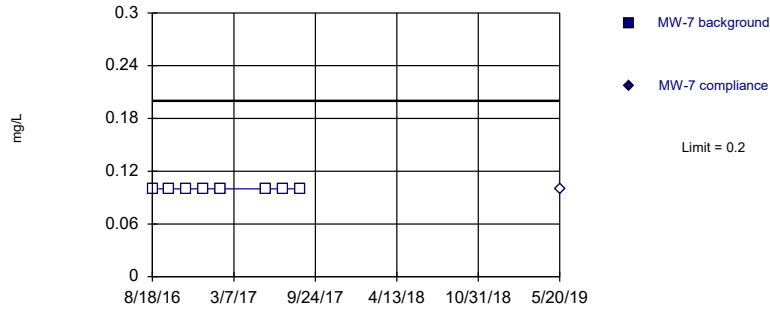
Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-6	MW-6
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2

Within Limit

Prediction Limit  
Intrawell Non-parametric

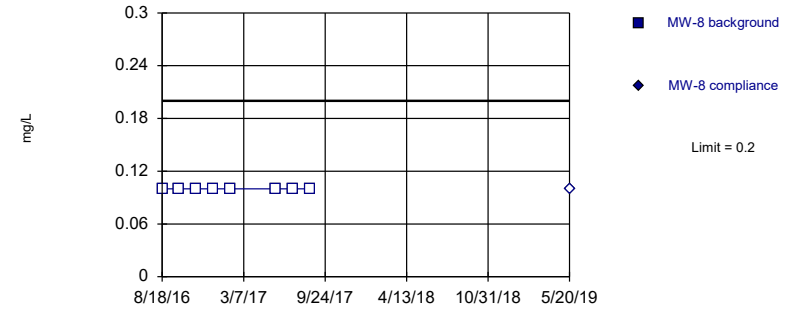


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Non-parametric

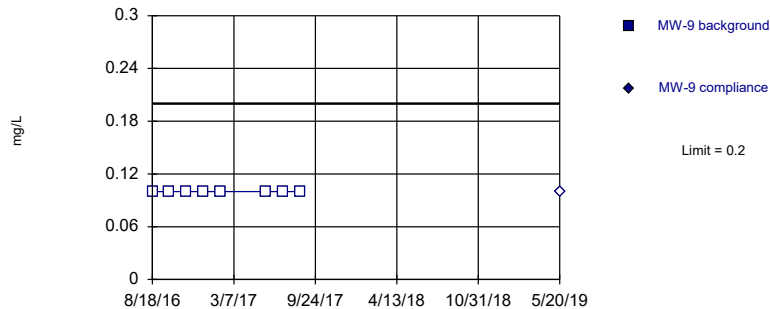


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Non-parametric

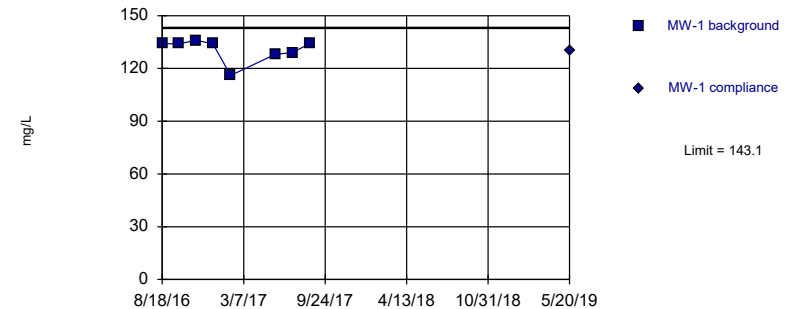


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary (based on square transformation): Mean=17100, Std. Dev.=1642, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7554, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-7	MW-7
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-8	MW-8
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/20/2019		<0.2



# Prediction Limit

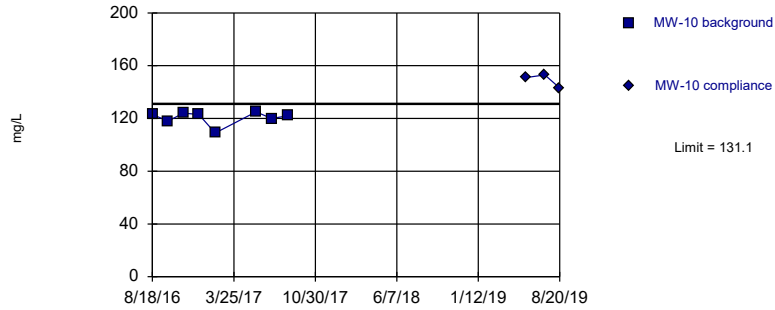
Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	134	
9/29/2016	134	
11/9/2016	136	
12/21/2016	134	
2/3/2017	116	
5/24/2017	128	
7/5/2017	129	
8/17/2017	134	
5/20/2019		130

Exceeds Limit

Prediction Limit  
Intrawell Parametric

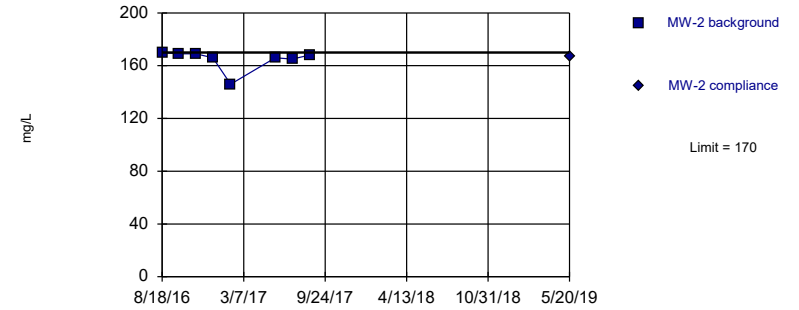


Background Data Summary: Mean=120.5, Std. Dev.=5.155, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7951, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Non-parametric

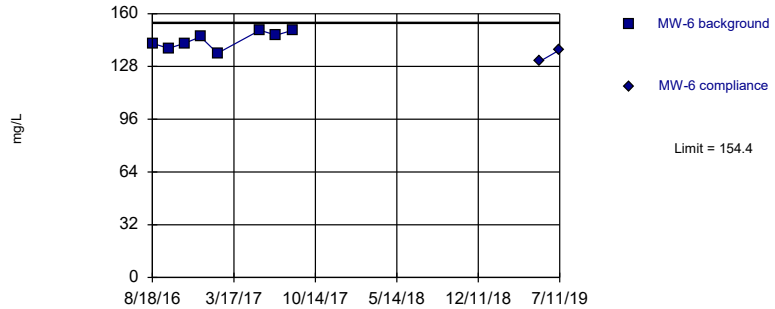


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005912 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Calcium Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-10	MW-10
8/18/2016	123	
9/29/2016	118	
11/9/2016	124	
12/21/2016	123	
2/3/2017	109	
5/24/2017	125	
7/5/2017	120	
8/17/2017	122	
5/20/2019		151
7/11/2019		153 1st Verification Sample
8/20/2019		143 2nd Verification Sample

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-2	MW-2
8/18/2016	170	
9/29/2016	169	
11/9/2016	169	
12/21/2016	166	
2/3/2017	146	
5/24/2017	166	
7/5/2017	165	
8/17/2017	168	
5/20/2019		167

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-6	MW-6
8/18/2016	142	
9/29/2016	139	
11/9/2016	142	
12/21/2016	146	
2/3/2017	136	
5/24/2017	150	
7/5/2017	147	
8/17/2017	150	
5/20/2019		131
7/11/2019		138 Extra Sample

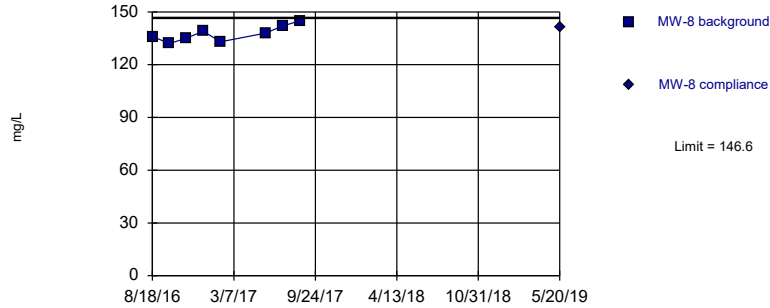
# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-7	MW-7
8/18/2016	145	
9/29/2016	144	
11/9/2016	146	
12/21/2016	138	
2/3/2017	116	
5/24/2017	123	
7/5/2017	125	
8/17/2017	133	
5/20/2019		184
7/11/2019		199 1st verification sample
8/20/2019		183 2nd verification sample

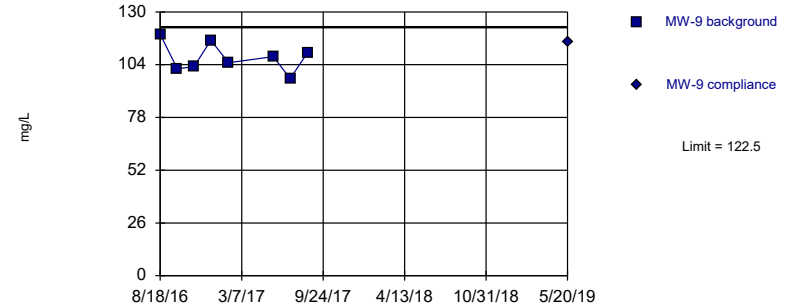
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=137.5, Std. Dev.=4.44, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9624, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

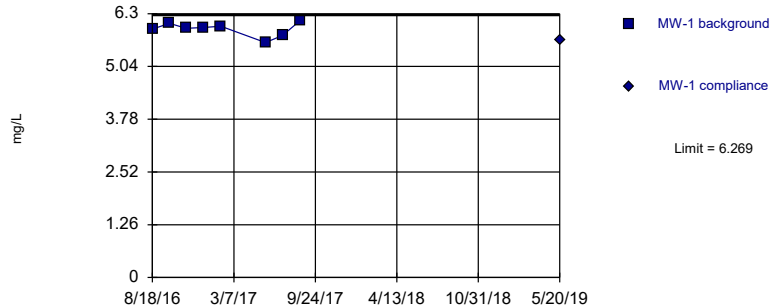
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=107.5, Std. Dev.=7.308, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9668, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

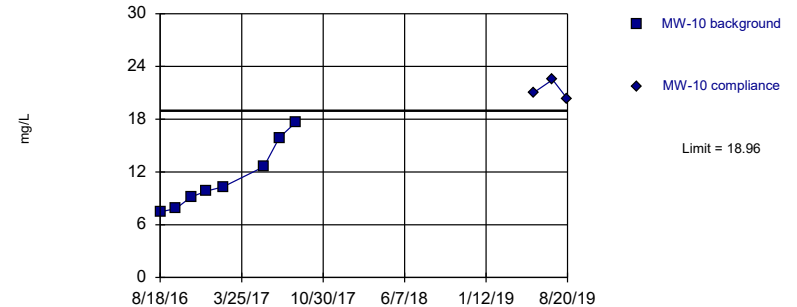
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=5.93, Std. Dev.=0.1654, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9207, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Exceeds Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=11.34, Std. Dev.=3.722, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8939, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-8	MW-8
8/18/2016	136	
9/29/2016	132	
11/9/2016	135	
12/21/2016	139	
2/3/2017	133	
5/24/2017	138	
7/5/2017	142	
8/17/2017	145	
5/20/2019		141



# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-9	MW-9
8/18/2016	119	
9/29/2016	102	
11/9/2016	103	
12/21/2016	116	
2/3/2017	105	
5/24/2017	108	
7/5/2017	97.2	
8/17/2017	110	
5/20/2019		115

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	5.93	
9/29/2016	6.07	
11/9/2016	5.95	
12/21/2016	5.97	
2/3/2017	6	
5/24/2017	5.61	
7/5/2017	5.78	
8/17/2017	6.13	
5/20/2019		5.66

# Prediction Limit

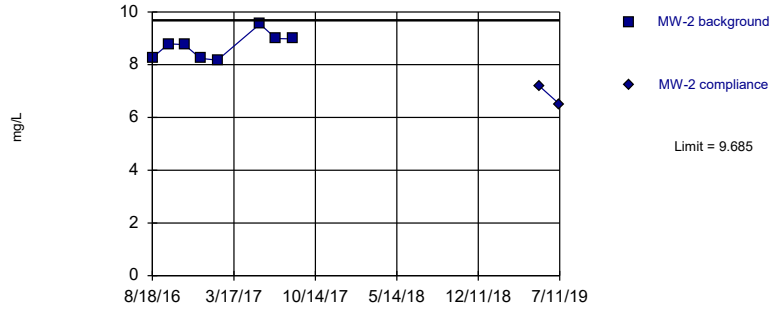
Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-10	MW-10	
8/18/2016	7.47		
9/29/2016	7.83		
11/9/2016	9.15		
12/21/2016	9.84		
2/3/2017	10.3		
5/24/2017	12.6		
7/5/2017	15.9		
8/17/2017	17.6		
5/20/2019		21	
7/11/2019		22.5	1st verification sample
8/20/2019		20.3	2nd verification sample

Within Limit

Prediction Limit  
Intrawell Parametric



# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-2	MW-2
8/18/2016	8.26	
9/29/2016	8.79	
11/9/2016	8.76	
12/21/2016	8.24	
2/3/2017	8.17	
5/24/2017	9.54	
7/5/2017	8.99	
8/17/2017	8.98	
5/20/2019		7.18
7/11/2019		6.5 extra sample

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-6	MW-6
8/18/2016	1.31	
9/29/2016	1.46	
11/9/2016	1.29	
12/21/2016	1.72	
2/3/2017	1.4	
5/24/2017	1.49	
7/5/2017	1.54	
8/17/2017	1.32	
5/20/2019		1.21
7/11/2019		1.2 extra sample

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-7	MW-7
8/18/2016	12.3	
9/29/2016	13.9	
11/9/2016	11.1	
12/21/2016	6.64	
2/3/2017	3.32	
5/24/2017	1.76	
7/5/2017	1.81	
8/17/2017	2	
5/20/2019		26
7/11/2019		31.9 1st verification sample
8/20/2019		28.7 2nd verification sample

# Prediction Limit

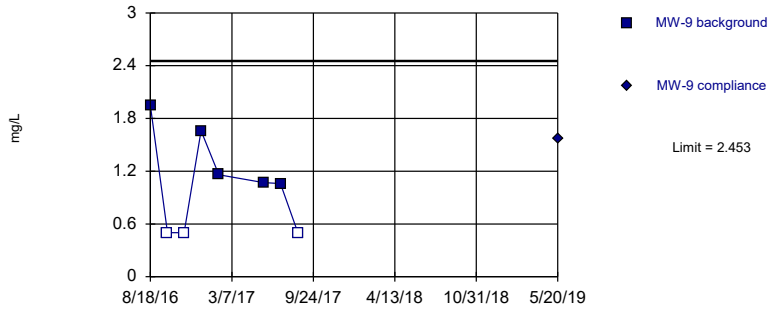
Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-8	MW-8
8/18/2016	1.5	
9/29/2016	1.42	
11/9/2016	1.76	
12/21/2016	1.89	
2/3/2017	4.02	
5/24/2017	3.63	
7/5/2017	4.44	
8/17/2017	3.53	
5/20/2019		3.98



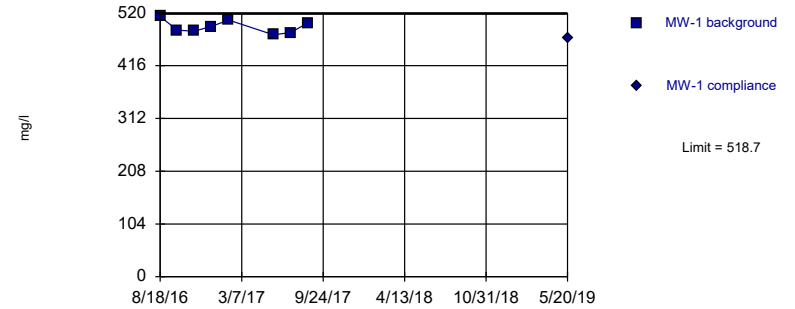
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary (after Aitchison's Adjustment): Mean=0.8625, Std. Dev.=0.7765, n=8, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8801, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

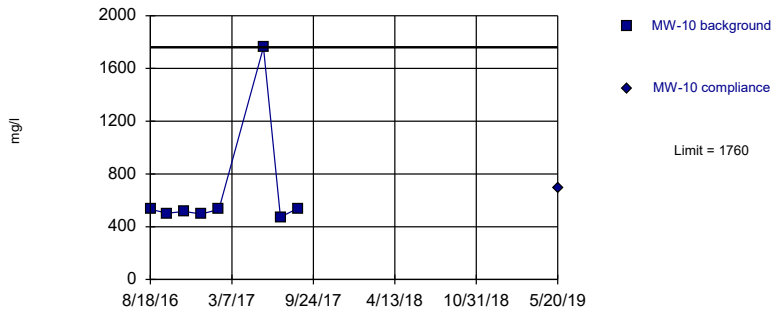
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=492.5, Std. Dev.=12.8, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9433, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

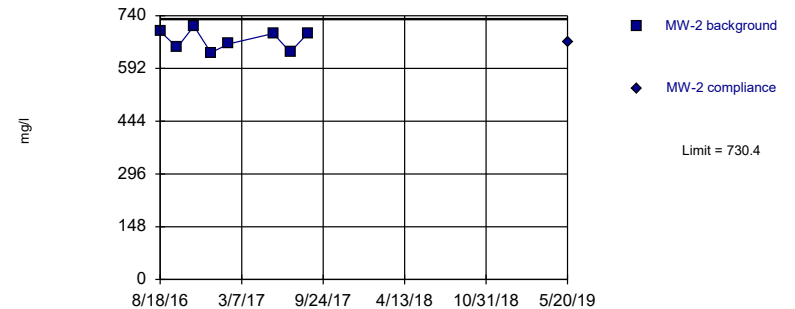
Within Limit Prediction Limit  
Intrawell Non-parametric



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.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=671.6, Std. Dev.=28.68, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9045, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	1.95	
9/29/2016	<1	
11/9/2016	<1	
12/21/2016	1.66	
2/3/2017	1.16	
5/24/2017	1.07	
7/5/2017	1.06	
8/17/2017	<1	
5/20/2019		1.57

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	513	
9/29/2016	486	
11/9/2016	484	
12/21/2016	493	
2/3/2017	506	
5/24/2017	477	
7/5/2017	481	
8/17/2017	500	
5/20/2019		470

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-10	MW-10
8/18/2016	532	
9/29/2016	502	
11/9/2016	516	
12/21/2016	497	
2/3/2017	531	
5/24/2017	1760	
7/5/2017	474	
8/17/2017	539	
5/20/2019		697

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

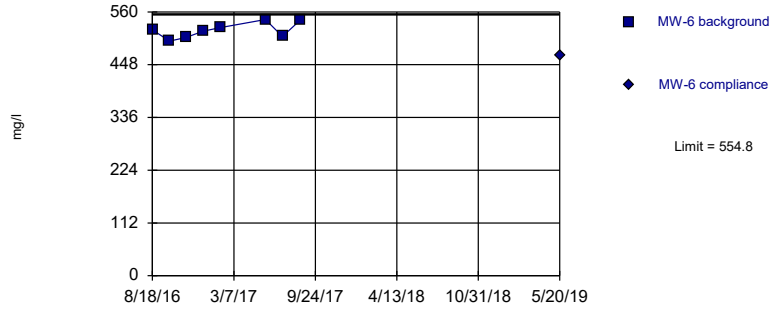
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-2	MW-2
8/18/2016	696	
9/29/2016	651	
11/9/2016	711	
12/21/2016	636	
2/3/2017	661	
5/24/2017	690	
7/5/2017	638	
8/17/2017	690	
5/20/2019		666

Within Limit

Prediction Limit  
Intrawell Parametric

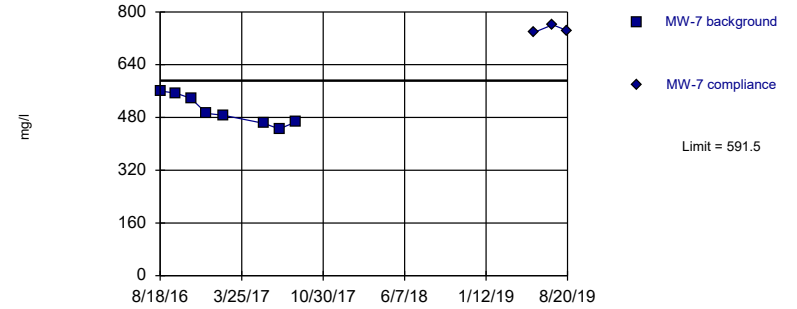


Background Data Summary: Mean=520.8, Std. Dev.=16.62, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9434, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Exceeds Limit

Prediction Limit  
Intrawell Parametric

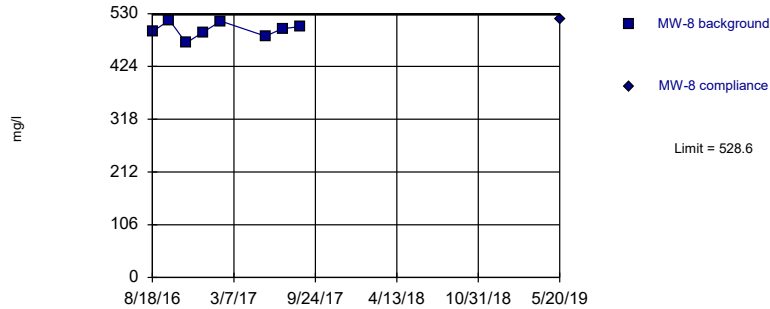


Background Data Summary: Mean=500.5, Std. Dev.=44.43, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9004, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

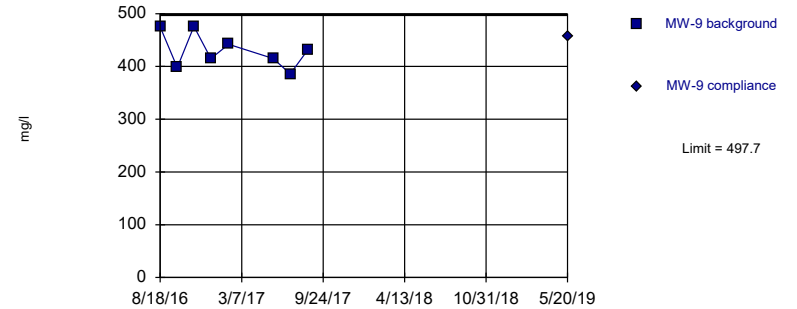


Background Data Summary: Mean=497.4, Std. Dev.=15.24, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9638, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=429.8, Std. Dev.=33.16, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9264, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Dissolved Solids Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-6	MW-6
8/18/2016	522	
9/29/2016	498	
11/9/2016	506	
12/21/2016	519	
2/3/2017	527	
5/24/2017	544	
7/5/2017	508	
8/17/2017	542	
5/20/2019		468

# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-7	MW-7
8/18/2016	560	
9/29/2016	554	
11/9/2016	538	
12/21/2016	492	
2/3/2017	487	
5/24/2017	462	
7/5/2017	445	
8/17/2017	466	
5/20/2019		737
7/11/2019		761 1st verification sample
8/20/2019		743 2nd verification sample



# Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-8	MW-8
8/18/2016	494	
9/29/2016	517	
11/9/2016	471	
12/21/2016	493	
2/3/2017	515	
5/24/2017	485	
7/5/2017	500	
8/17/2017	504	
5/20/2019		518

# Prediction Limit

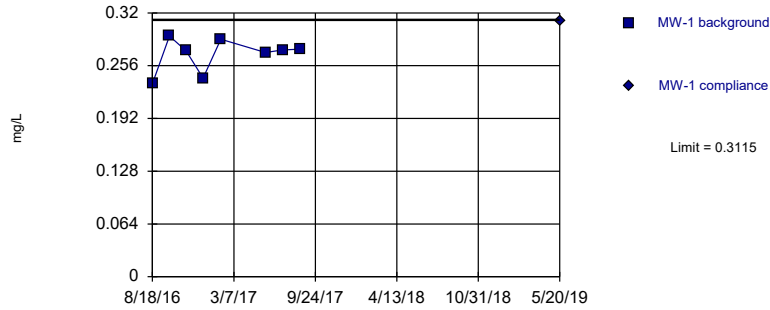
Constituent: Dissolved Solids (mg/l) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	475	
9/29/2016	398	
11/9/2016	476	
12/21/2016	415	
2/3/2017	442	
5/24/2017	415	
7/5/2017	386	
8/17/2017	431	
5/20/2019		457

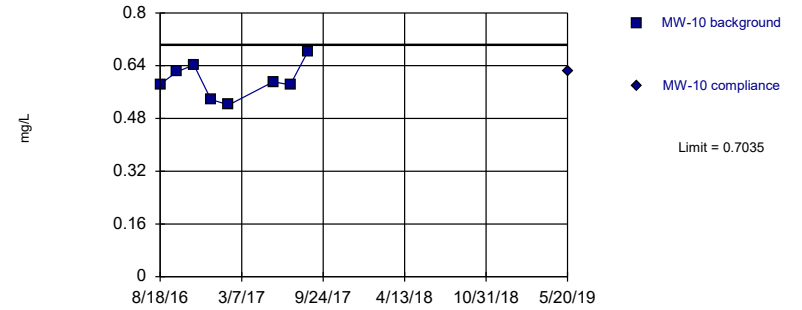
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.269, Std. Dev.=0.02076, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8526, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

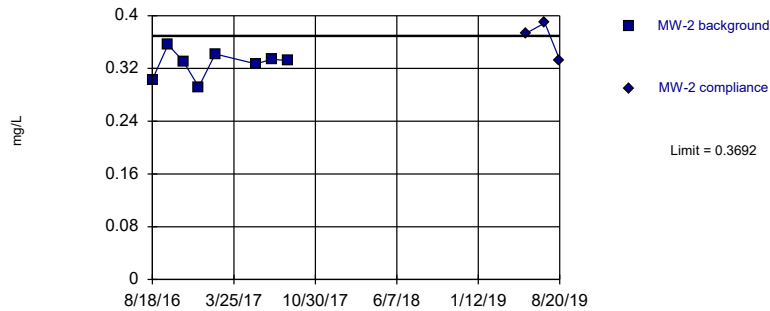
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.5953, Std. Dev.=0.05283, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9706, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

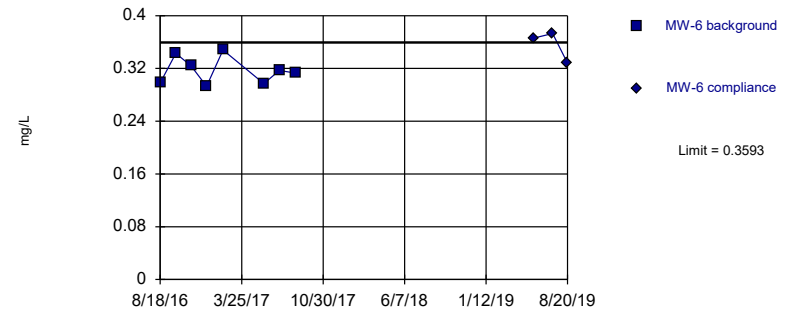
Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.3271, Std. Dev.=0.02055, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9268, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limit Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=0.3166, Std. Dev.=0.02083, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9106, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	0.234	
9/29/2016	0.292	
11/9/2016	0.274	
12/21/2016	0.241	
2/3/2017	0.288	
5/24/2017	0.272	
7/5/2017	0.275	
8/17/2017	0.276	
5/20/2019		0.311

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-10	MW-10
8/18/2016	0.584	
9/29/2016	0.622	
11/9/2016	0.642	
12/21/2016	0.538	
2/3/2017	0.521	
5/24/2017	0.591	
7/5/2017	0.582	
8/17/2017	0.682	
5/20/2019		0.623

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-2	MW-2
8/18/2016	0.303	
9/29/2016	0.356	
11/9/2016	0.331	
12/21/2016	0.292	
2/3/2017	0.342	
5/24/2017	0.327	
7/5/2017	0.334	
8/17/2017	0.332	
5/20/2019		0.373
7/11/2019	0.389	1st verification sample
8/20/2019	0.333	2nd verification sample

# Prediction Limit

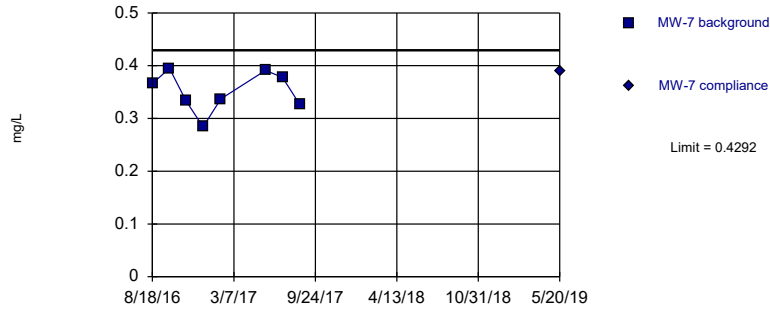
Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-6	MW-6	
8/18/2016	0.298		
9/29/2016	0.343		
11/9/2016	0.324		
12/21/2016	0.293		
2/3/2017	0.348		
5/24/2017	0.297		
7/5/2017	0.317		
8/17/2017	0.313		
5/20/2019		0.366	
7/11/2019		0.373	1st verification sample
8/20/2019		0.328	2nd verification sample

Within Limit

Prediction Limit  
Intrawell Parametric

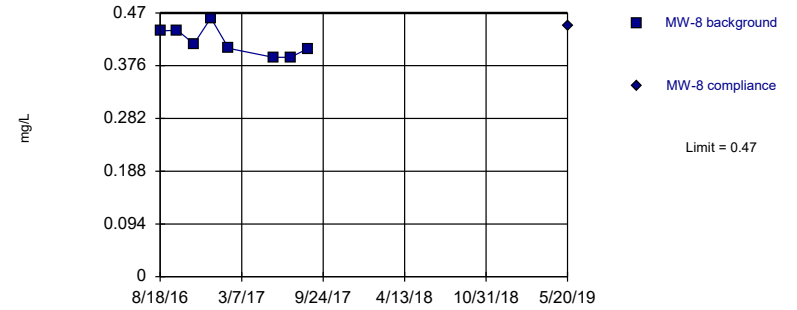


Background Data Summary: Mean=0.3513, Std. Dev.=0.03803, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9335, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

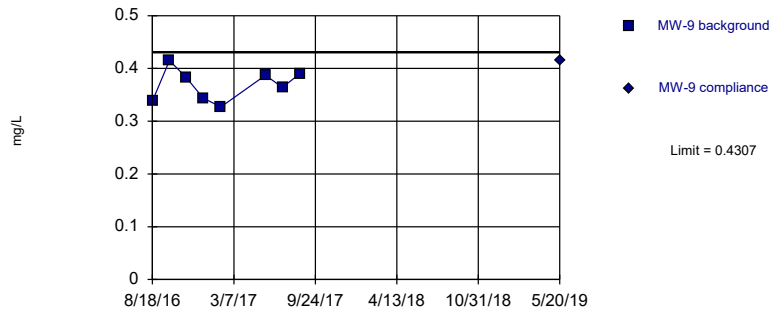


Background Data Summary: Mean=0.4185, Std. Dev.=0.02513, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9145, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

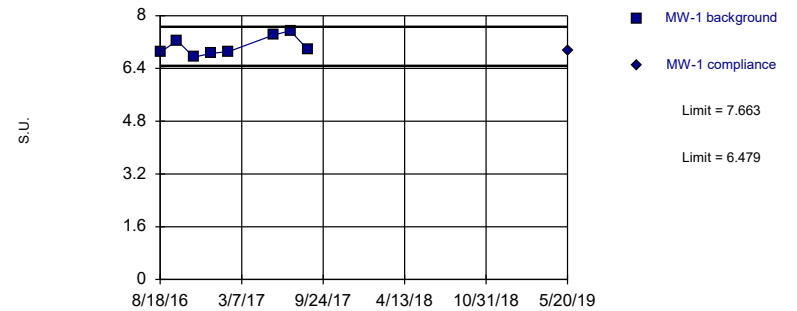


Background Data Summary: Mean=0.3685, Std. Dev.=0.03036, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9498, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limits

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=7.071, Std. Dev.=0.289, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8946, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr



# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-7	MW-7
8/18/2016	0.366	
9/29/2016	0.395	
11/9/2016	0.333	
12/21/2016	0.284	
2/3/2017	0.337	
5/24/2017	0.391	
7/5/2017	0.378	
8/17/2017	0.326	
5/20/2019		0.389

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-8	MW-8
8/18/2016	0.438	
9/29/2016	0.439	
11/9/2016	0.415	
12/21/2016	0.461	
2/3/2017	0.407	
5/24/2017	0.391	
7/5/2017	0.391	
8/17/2017	0.406	
5/20/2019		0.446

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III  
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-9	MW-9
8/18/2016	0.338	
9/29/2016	0.415	
11/9/2016	0.383	
12/21/2016	0.344	
2/3/2017	0.327	
5/24/2017	0.387	
7/5/2017	0.364	
8/17/2017	0.39	
5/20/2019		0.415

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

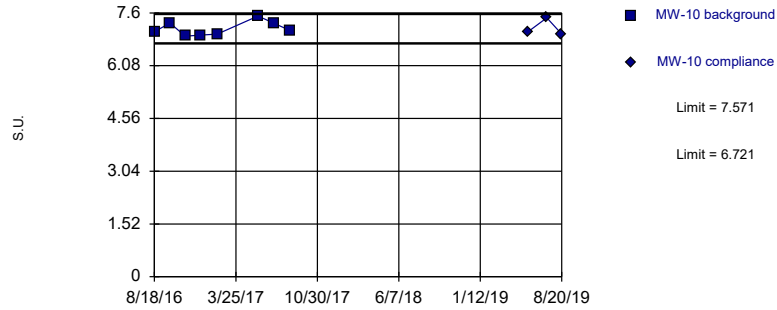
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-1	MW-1
8/18/2016	6.89	
9/29/2016	7.24	
11/9/2016	6.74	
12/21/2016	6.86	
2/3/2017	6.91	
5/24/2017	7.41	
7/5/2017	7.54	
8/17/2017	6.98	
5/20/2019		6.93

Within Limits

Prediction Limit  
Intrawell Parametric

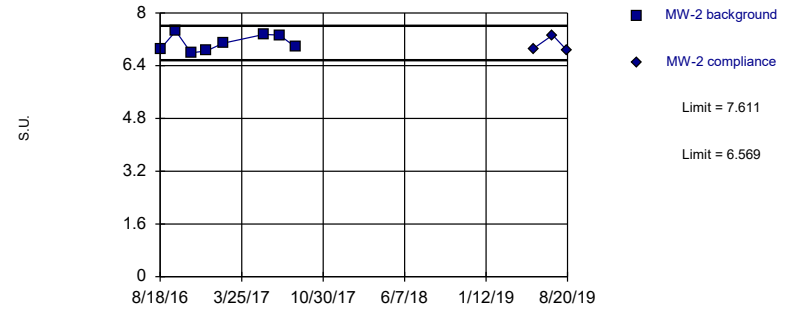


Background Data Summary: Mean=7.146, Std. Dev.=0.2075, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8964, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limits

Prediction Limit  
Intrawell Parametric

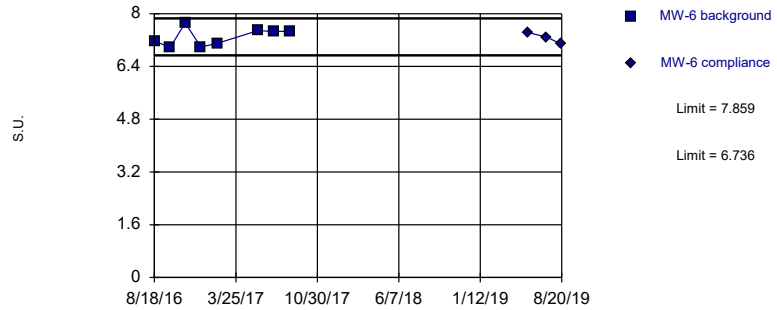


Background Data Summary: Mean=7.09, Std. Dev.=0.2544, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9007, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limits

Prediction Limit  
Intrawell Parametric

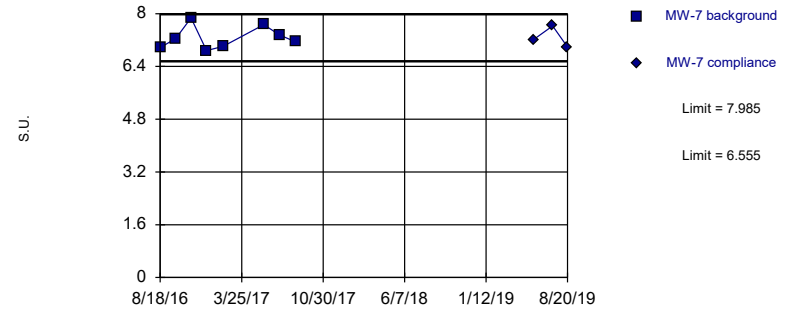


Background Data Summary: Mean=7.298, Std. Dev.=0.2742, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9106, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Within Limits

Prediction Limit  
Intrawell Parametric



# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-10	MW-10	
8/18/2016	7.06		
9/29/2016	7.31		
11/9/2016	6.93		
12/21/2016	6.96		
2/3/2017	6.99		
5/24/2017	7.51		
7/5/2017	7.31		
8/17/2017	7.1		
5/20/2019		7.05	
7/11/2019		7.46	extra sample
8/20/2019		6.99	extra sample

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-2	MW-2	
8/18/2016	6.9		
9/29/2016	7.45		
11/9/2016	6.79		
12/21/2016	6.85		
2/3/2017	7.08		
5/24/2017	7.35		
7/5/2017	7.33		
8/17/2017	6.97		
5/20/2019		6.92	
7/11/2019		7.33	extra sample
8/20/2019		6.85	extra sample

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-6	MW-6	
8/18/2016	7.18		
9/29/2016	6.97		
11/9/2016	7.72		
12/21/2016	6.99		
2/3/2017	7.1		
5/24/2017	7.49		
7/5/2017	7.46		
8/17/2017	7.47		
5/20/2019		7.43	
7/11/2019		7.29	extra sample
8/20/2019		7.07	extra sample



# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

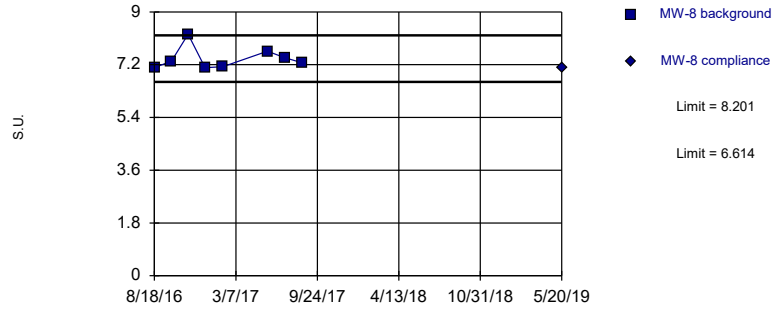
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-7	MW-7	
8/18/2016	6.97		
9/29/2016	7.25		
11/9/2016	7.87		
12/21/2016	6.88		
2/3/2017	7.01		
5/24/2017	7.67		
7/5/2017	7.36		
8/17/2017	7.15		
5/20/2019		7.21	
7/11/2019		7.63	extra sample
8/20/2019		6.99	extra sample

Within Limits

Prediction Limit  
Intrawell Parametric



# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-8	MW-8
8/18/2016	7.1	
9/29/2016	7.32	
11/9/2016	8.24	
12/21/2016	7.1	
2/3/2017	7.13	
5/24/2017	7.66	
7/5/2017	7.44	
8/17/2017	7.27	
5/20/2019		7.11

# Prediction Limit

Constituent: pH (S.U.) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	7.02	
9/29/2016	7.28	
11/9/2016	6.99	
12/21/2016	7.02	
2/3/2017	7.05	
5/24/2017	7.61	
7/5/2017	7.37	
8/17/2017	7.13	
5/20/2019		7.13

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-1	MW-1
8/18/2016	32.4	
9/29/2016	35.3	
11/9/2016	33.2	
12/21/2016	36.2	
2/3/2017	36.9	
5/24/2017	27.4	
7/5/2017	34.2	
8/17/2017	35.2	
5/20/2019		28.9

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

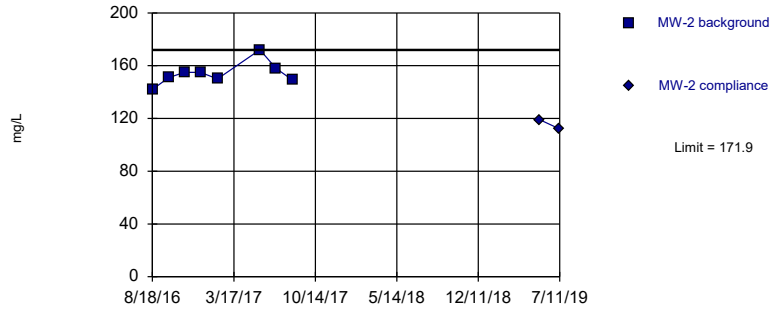
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-10	MW-10	
8/18/2016	17.8		
9/29/2016	19.7		
11/9/2016	17.4		
12/21/2016	17.7		
2/3/2017	19.1		
5/24/2017	22.4		
7/5/2017	24.7		
8/17/2017	26.5		
5/20/2019		37.3	
7/11/2019		33	1st verification sample
8/20/2019		34.6	2nd verification sample

Within Limit

Prediction Limit  
Intrawell Parametric

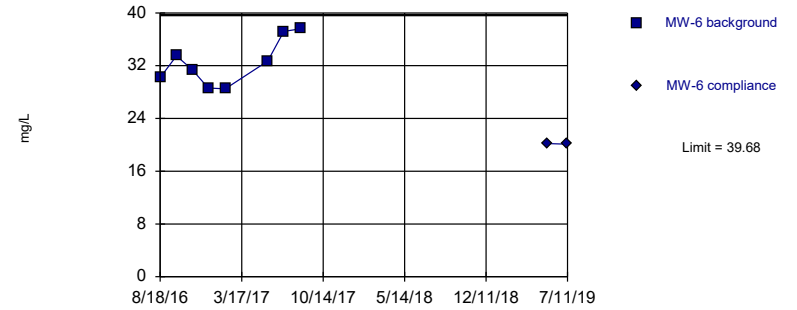


Background Data Summary: Mean=154, Std. Dev.=8.751, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9112, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric

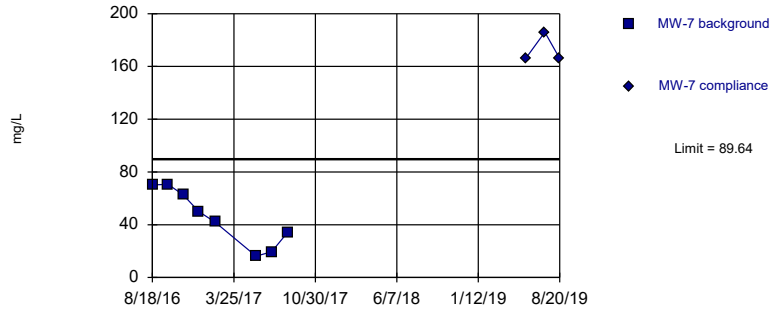


Background Data Summary: Mean=32.46, Std. Dev.=3.522, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9073, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 9/17/2019 8:39 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Exceeds Limit

Prediction Limit  
Intrawell Parametric

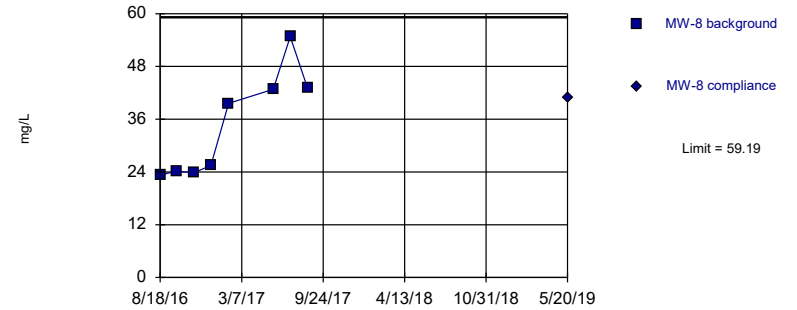


Background Data Summary: Mean=45.64, Std. Dev.=21.48, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9157, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 9/17/2019 8:40 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=34.63, Std. Dev.=11.99, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8458, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 9/17/2019 8:40 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-2	MW-2
8/18/2016	142	
9/29/2016	151	
11/9/2016	155	
12/21/2016	155	
2/3/2017	150	
5/24/2017	172	
7/5/2017	158	
8/17/2017	149	
5/20/2019		119
7/11/2019		112 extra sample



# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-6	MW-6	
8/18/2016	30.2		
9/29/2016	33.5		
11/9/2016	31.4		
12/21/2016	28.6		
2/3/2017	28.5		
5/24/2017	32.7		
7/5/2017	37.2		
8/17/2017	37.6		
5/20/2019		20.2	
7/11/2019		20.1	extra sample

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-7	MW-7
8/18/2016	70.2	
9/29/2016	70.6	
11/9/2016	62.6	
12/21/2016	50	
2/3/2017	41.9	
5/24/2017	16.2	
7/5/2017	19.5	
8/17/2017	34.1	
5/20/2019		166
7/11/2019		186 1st verification sample
8/20/2019		166 2nd verification sample

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

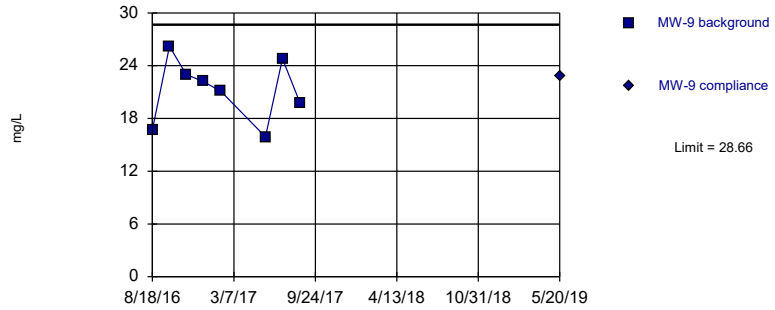
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr

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	MW-8	MW-8
8/18/2016	23.3	
9/29/2016	24.2	
11/9/2016	23.8	
12/21/2016	25.5	
2/3/2017	39.6	
5/24/2017	42.8	
7/5/2017	54.8	
8/17/2017	43	
5/20/2019		40.9

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=21.21, Std. Dev.=3.635, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9584, critical = 0.749. Kappa = 2.049 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 9/17/2019 8:40 AM View: CCR LF III  
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 9/17/2019 9:09 AM View: CCR LF III

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

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	MW-9	MW-9
8/18/2016	16.7	
9/29/2016	26.2	
11/9/2016	23	
12/21/2016	22.2	
2/3/2017	21.1	
5/24/2017	15.9	
7/5/2017	24.8	
8/17/2017	19.8	
5/20/2019		22.8

# Prediction Limit

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Printed 9/17/2019, 9:09 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	MW-1	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-10	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-2	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-6	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-7	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-8	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-9	0.2	n/a	5/20/2019	0.1ND	No	8	100	n/a	0.005912	NP Intra (NDs) 1 of 3
Calcium (mg/L)	MW-1	143.1	n/a	5/20/2019	130	No	8	0	x^2	0.001075	Param Intra 1 of 3
<b>Calcium (mg/L)</b>	<b>MW-10</b>	<b>131.1</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>143</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Calcium (mg/L)	MW-2	170	n/a	5/20/2019	167	No	8	0	n/a	0.005912	NP Intra (normality) ...
Calcium (mg/L)	MW-6	154.4	n/a	7/11/2019	138	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Calcium (mg/L)</b>	<b>MW-7</b>	<b>157.1</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>183</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Calcium (mg/L)	MW-8	146.6	n/a	5/20/2019	141	No	8	0	No	0.001075	Param Intra 1 of 3
Calcium (mg/L)	MW-9	122.5	n/a	5/20/2019	115	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-1	6.269	n/a	5/20/2019	5.66	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Chloride (mg/L)</b>	<b>MW-10</b>	<b>18.96</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>20.3</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Chloride (mg/L)	MW-2	9.685	n/a	7/11/2019	6.5	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-6	1.738	n/a	7/11/2019	1.2	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Chloride (mg/L)</b>	<b>MW-7</b>	<b>17.12</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>28.7</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Chloride (mg/L)	MW-8	5.33	n/a	5/20/2019	3.98	No	8	0	No	0.001075	Param Intra 1 of 3
Chloride (mg/L)	MW-9	2.453	n/a	5/20/2019	1.57	No	8	37.5	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-1	518.7	n/a	5/20/2019	470	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-10	1760	n/a	5/20/2019	697	No	8	0	n/a	0.005912	NP Intra (normality) ...
Dissolved Solids (mg/l)	MW-2	730.4	n/a	5/20/2019	666	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-6	554.8	n/a	5/20/2019	468	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Dissolved Solids (mg/l)</b>	<b>MW-7</b>	<b>591.5</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>743</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Dissolved Solids (mg/l)	MW-8	528.6	n/a	5/20/2019	518	No	8	0	No	0.001075	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-9	497.7	n/a	5/20/2019	457	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-1	0.3115	n/a	5/20/2019	0.311	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-10	0.7035	n/a	5/20/2019	0.623	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-2	0.3692	n/a	8/20/2019	0.333	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-6	0.3593	n/a	8/20/2019	0.328	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-7	0.4292	n/a	5/20/2019	0.389	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-8	0.47	n/a	5/20/2019	0.446	No	8	0	No	0.001075	Param Intra 1 of 3
Fluoride (mg/L)	MW-9	0.4307	n/a	5/20/2019	0.415	No	8	0	No	0.001075	Param Intra 1 of 3
pH (S.U.)	MW-1	7.663	6.479	5/20/2019	6.93	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-10	7.571	6.721	8/20/2019	6.99	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-2	7.611	6.569	8/20/2019	6.85	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-6	7.859	6.736	8/20/2019	7.07	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-7	7.985	6.555	8/20/2019	6.99	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-8	8.201	6.614	5/20/2019	7.11	No	8	0	No	0.000...	Param Intra 1 of 3
pH (S.U.)	MW-9	7.634	6.734	5/20/2019	7.13	No	8	0	No	0.000...	Param Intra 1 of 3
Sulfate (mg/L)	MW-1	40	n/a	5/20/2019	28.9	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Sulfate (mg/L)</b>	<b>MW-10</b>	<b>27.78</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>34.6</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Sulfate (mg/L)	MW-2	171.9	n/a	7/11/2019	112	No	8	0	No	0.001075	Param Intra 1 of 3
Sulfate (mg/L)	MW-6	39.68	n/a	7/11/2019	20.1	No	8	0	No	0.001075	Param Intra 1 of 3
<b>Sulfate (mg/L)</b>	<b>MW-7</b>	<b>89.64</b>	<b>n/a</b>	<b>8/20/2019</b>	<b>166</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Intra 1 of 3</b>
Sulfate (mg/L)	MW-8	59.19	n/a	5/20/2019	40.9	No	8	0	No	0.001075	Param Intra 1 of 3
Sulfate (mg/L)	MW-9	28.66	n/a	5/20/2019	22.8	No	8	0	No	0.001075	Param Intra 1 of 3

Iatan Generating Station  
Determination of Statistically Significant Increases  
CCR Landfill  
September 19, 2019

## **ATTACHMENT 2**

### **Sanitas™ Configuration Settings**

Exclude data flags:

Data Reading Options

- Individual Observations
- Mean of Each:  Month
- Median of Each:  Season

Automatically Process Resamples...



- Black and White Output
- Four Plots Per Page
  - Always Combine Data Pages...
  - Include Tick Marks on Data Page
  - Use Constituent Name for Graph Title
- Draw Border Around Text Reports and Data Pages
- Enlarge/Reduce Fonts (Graphs):
- Enlarge/Reduce Fonts (Data/Text Reports):
- Wide Margins (on reports without explicit setting)
- Use CAS# (Not Const. Name)
- Truncate File Names to  Characters
- Include Limit Lines when found in Database...
- Show Deselected Data on Time Series  ▾
- Show Deselected Data on all Data Pages  ▾

- Prompt to Overwrite/Append Summary Tables
- Round Limits to  Sig. Digits (when not set in data file)
- User-Set Scale
- Indicate Background Data
- Show Exact Dates
- Thick Plot Lines

Zoom Factor:  ▾

- Output Decimal Precision
- Less Precision
  - Normal Precision
  - More Precision

Store Print Jobs in Multiple Constituent Mode

Printer:  ▾

Test for Normality using Shapiro-Wilk/Francia at Alpha = 0.01

Use Non-Parametric Test when Non-Detects Percent > 50

Use Aitchison's Adjustment when Non-Detects Percent > 15

Optional Further Refinement: Use when NDs % > 50

Use Poisson Prediction Limit when Non-Detects Percent > 90

Transformation

Use Ladder of Powers

Natural Log or No Transformation

Never Transform

Use Specific Transformation: Natural Log

Use Best W Statistic

Plot Transformed Values

Deseasonalize (Intra- and InterWell)

If Seasonality Is Detected

If Seasonality Is Detected Or Insufficient to Test

Always (When Sufficient Data)  Never

Always Use Non-Parametric

Facility

Statistical Evaluations per Year:

Constituents Analyzed:

Downgradient (Compliance) Wells:

Sampling Plan

Comparing Individual Observations

1 of 1  1 of 2  1 of 3  1 of 4

2 of 4 ("Modified California")

IntraWell Other

Stop if Background Trend Detected at Alpha = 0.05

Plot Background Data

Override Standard Deviation:

Override DF:  Override Kappa:

Automatically Remove Background Outliers

2-Tailed Test Mode...

Show Deselected Data Lighter

Non-Parametric Limit = Highest Background Value

Non-Parametric Limit when 100% Non-Detects:

Highest/Second Highest Background Value

Most Recent PQL if available, or MDL

Most Recent Background Value (subst. method)

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- Use Modified Alpha...  2-Tailed Test Mode...

Outlier Tests

- EPA 1989 Outlier Screening (fixed alpha of 0.05)  
 Dixon's at  $\alpha=$  0.05 or if  $n >$  22 Rosner's at  $\alpha=$  0.01  Use EPA Screening to establish Suspected Outliers  
 Tukey's Outlier Screening, with IQR Multiplier = 3.0  Use Ladder of Powers to achieve Best W Stat  
 Test For Normality using Shapiro-Wilk/Francia at Alpha = 0.1  
 Stop if Non-Normal  
 Continue with Parametric Test if Non-Normal  
 Tukey's if Non-Normal, with IQR Multiplier = 3.0  Use Ladder of Powers to achieve Best W Stat  
 No Outlier If Less Than 3.0 Times Median  
 Apply Rules found in Ohio Guidance Document 0715  
 Combine Background Wells on the Outlier Report...

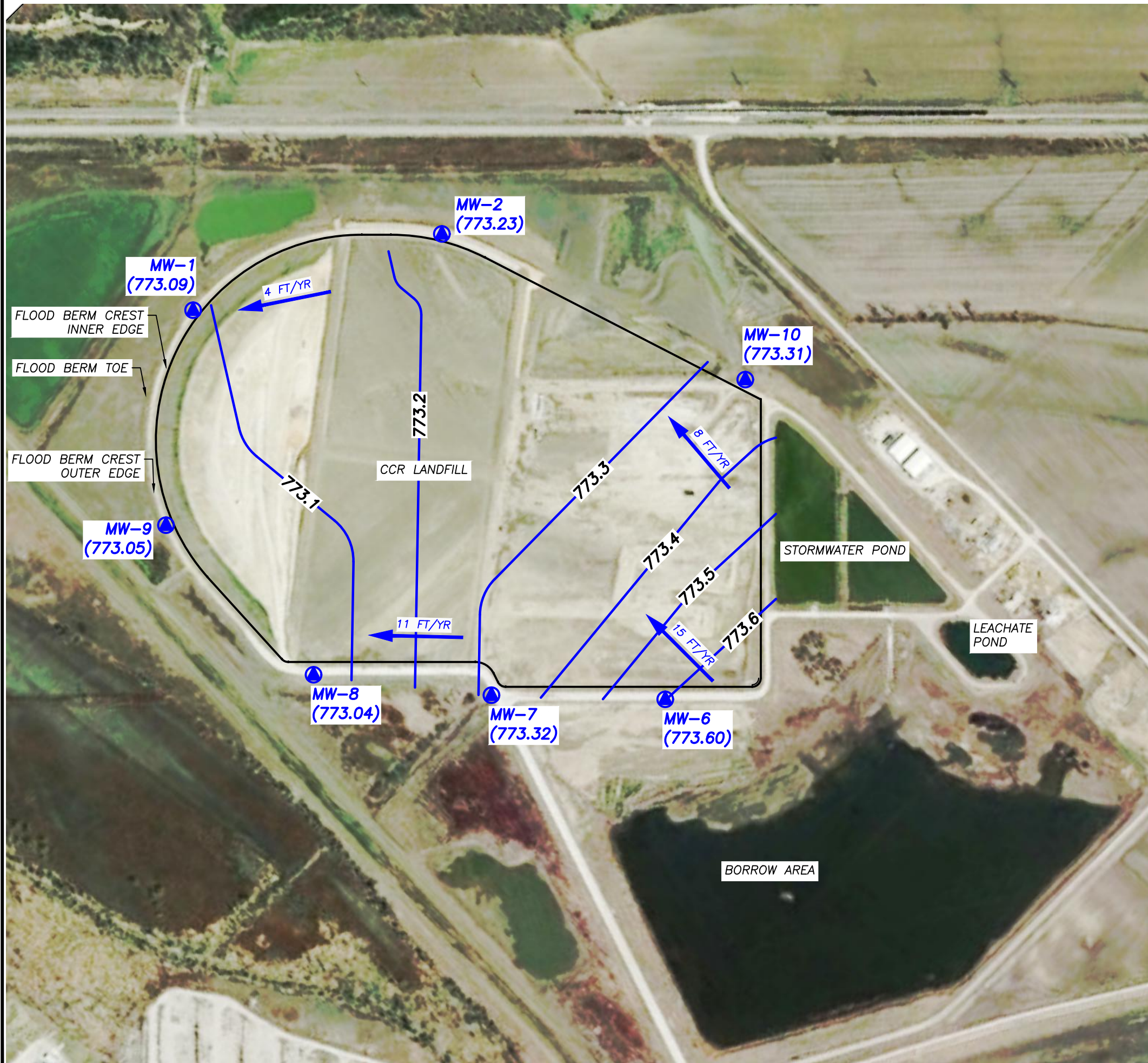
Piper, Stiff Diagram

- Combine Wells  Label Constituents  
 Combine Dates  Label Axes  
 Use Default Constituent Names  Note Cation-Anion Balance (Piper only)  
 Use Constituent Definition File

Jared Morrison  
December 16, 2022

**ATTACHMENT 3**  
**Groundwater Potentiometric Surface Maps**

C:\Users\5412\Documents\Temp\AcPublish\17080\Iatan LF CCR MDNR Fig 2 MAY19 V1.dwg Dec 12, 2022 - 9:45am Layout Name: Fig 2-CCR By: 5412jds

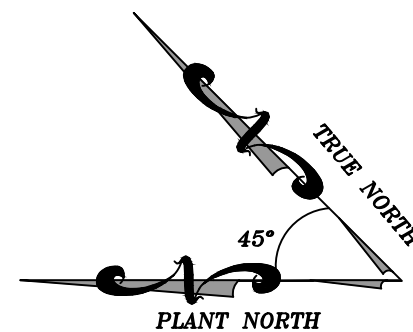


**LEGEND**

- CCR UNIT BOUNDARY (APPROXIMATE LIMITS)
- MW-704 (869.52) CCR GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
- 875- GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS
- 16 FT/YR DIRECTION OF GROUNDWATER FLOW AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)

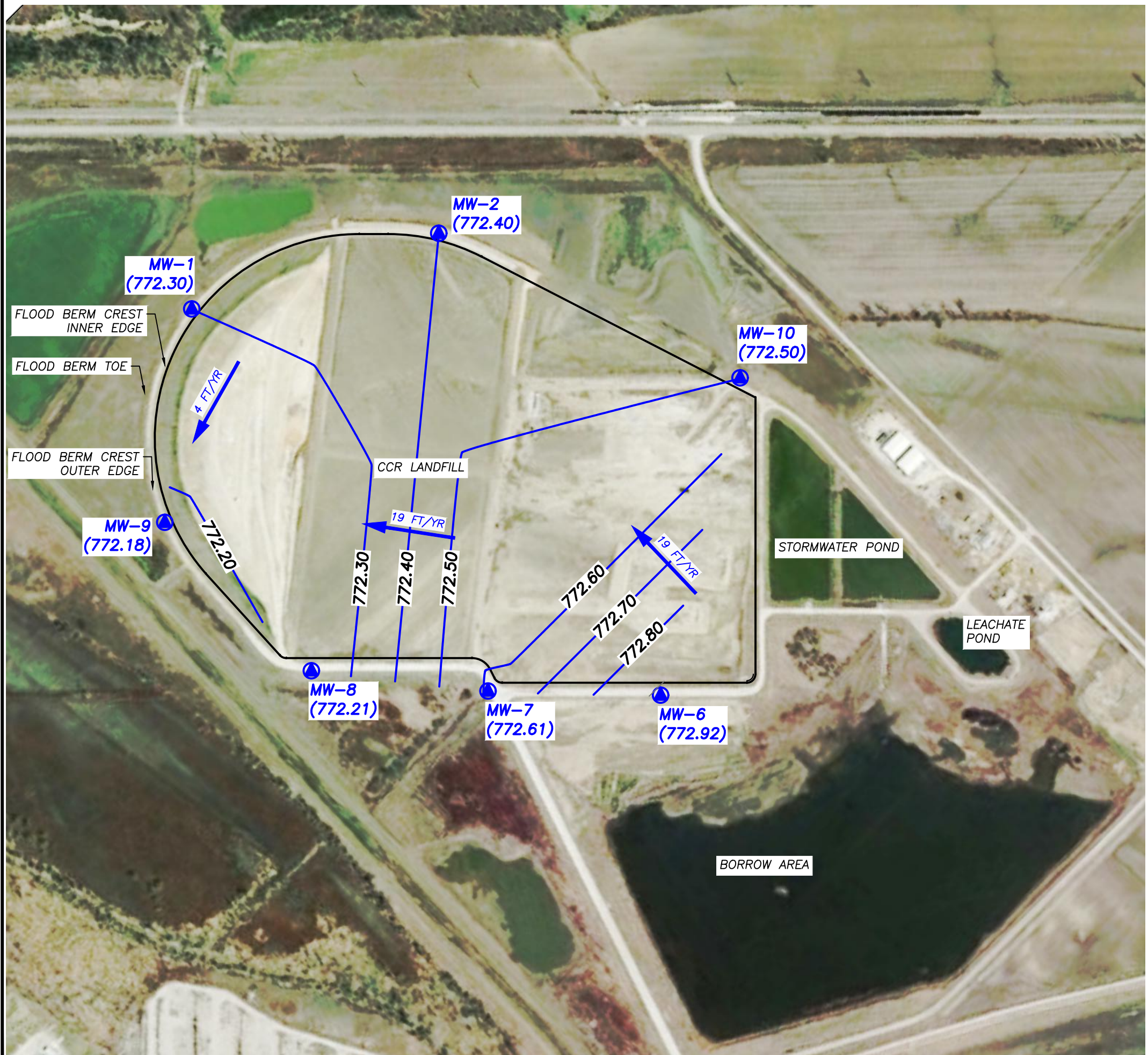
**NOTES:**

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED MARCH 27, 2017
4. APPROXIMATE BOUNDARY LOCATION PROVIDED BY BURNS & MCDONNELL
5. MONITORING WELL LOCATIONS PROVIDED BY SHAFFER, KLINE, & WARREN
6. WATER LEVEL MEASUREMENTS COMPLETED ON MAY 20, 2019



CK: BY:	-	-	-	-	-
	-	-	-	-	-
REV:	△	△	△	△	△
DATE:	-	-	-	-	-
SHEET TITLE:	POTENTIOMETRIC SURFACE MAP (MAY 2019) CCR LANDFILL				
PROJECT TITLE:	2019 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM				
CLIENT:	EVERGY METRO IATAN GENERATING STATION IATAN, MISSOURI				
SCS ENGINEERS	6575 W. 110th St., Ste. 100 Overland Park, MO 66210 PH: (813) 681-0030 FAX: (813) 681-0012 PROJ. NO. 27213167.19 DSK: BY: TCW    DWN: BY: TGV    CHK: BY: JRR    Q/A: BY: JRR    PHOT. BY: JRR				
CADD FILE:	IATAN LF CCR MONR FIG 2 MAY19 V1.DWG				
DATE:	12/2/22				
FIGURE NO.:	1				

C:\Users\5412\OneDrive\Temp\AcPublish\17080\Iatan LF CCR MDNR Fig 2 NOV19 V1.dwg Dec 12, 2022 - 9:46am Layout Name: Fig 2-CCR By: 5412/gds

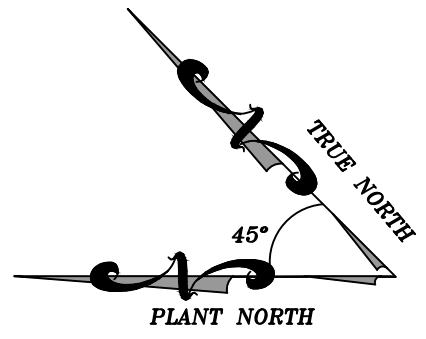


**LEGEND**

- CCR UNIT BOUNDARY (APPROXIMATE LIMITS)
- MW-704 CCR GROUNDWATER MONITORING SYSTEM WELLS (869.52) (GROUNDWATER ELEVATION)
- 875- GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS
- 16 FT/YR DIRECTION OF GROUNDWATER FLOW AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)

**NOTES:**

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED MARCH 27, 2017
4. APPROXIMATE BOUNDARY LOCATION PROVIDED BY BURNS & MCDONNELL
5. MONITORING WELL LOCATIONS PROVIDED BY SHAFFER, KLINE, & WARREN
6. WATER LEVEL MEASUREMENTS COMPLETED ON NOVEMBER 4, 2019



CK: BY	-	REV	-	DATE	-
	-		-		-
SHEET TITLE		POTENTIOMETRIC SURFACE MAP (NOVEMBER 2019) CCR LANDFILL			
PROJECT TITLE		2019 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM			
CLIENT					
EVERGY METRO IATAN GENERATING STATION IATAN, MISSOURI					
SCS ENGINEERS 6575 W. 110th St., Ste. 100 Overland Park, MO 66210 PH: (813) 681-0030 FAX: (813) 681-0012 PROJ. NO. 27213167.19 DWN. BY: DAW CHK. BY: JRR TCK. BY: TCW Q/A RW BY: JRR PROJ. MGR. JRR					
CADD FILE: IATAN LF CCR MONR FIG 2 NOV19 V1.DWG					
DATE: 12/2/22					
FIGURE NO. 2					