2018 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CCR LANDFILL
IATAN GENERATING STATION
IATAN, MISSOURI

Presented To:
Kansas City Power & Light Company

SCS ENGINEERS

27213167.18 | January 2019, Revised December 16, 2022

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

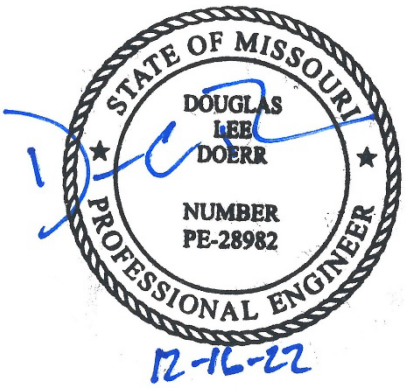
CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2018 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).

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 2018 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).



Douglas L. Doerr, P.E.

SCS Engineers

Revision Number	Revision Date	Revision Section	Summary of Revisions
0	January 2019	NA	Original Report.
1	December 16, 2022	Addendum 1	Added Addendum 1

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Section **Page**

Appendices

1 INTRODUCTION

This 2018 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 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 2018 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 2018.

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

2.5 § 257.90(e)(5) OTHER REQUIREMENTS

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

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

2.5.1 § 257.90(e) Program Status

Status of Groundwater Monitoring and Corrective Action Program.

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

Summary of Key Actions Completed.

a. completion of the statistical evaluation of the initial Fall 2017 semiannual detection monitoring event per the certified statistical method,

b. completion of the 2017 Annual Groundwater Monitoring and Corrective Action Report,

c. completion of a successful alternative source demonstration for the Fall 2017 semiannual detection monitoring event,

d. completion of the Spring 2018 semiannual detection monitoring sampling and analysis event, and subsequent verification sampling per the certified statistical method,

e. completion of the statistical evaluation of the Spring 2018 semiannual detection monitoring event per the certified statistical method, and

f. initiation of the Fall 2018 semiannual detection monitoring sampling and analysis event.

Description of Any Problems Encountered.

No noteworthy problems were encountered.

Discussion of Actions to Resolve the Problems.

Not applicable because no noteworthy problems were encountered.

Projection of Key Activities for the Upcoming Year (2019).

Semiannual Spring and Fall 2019 groundwater sampling and analysis. Completion of verification sampling and analyses and statistical evaluation of Fall 2018 and Spring 2019 detection monitoring data 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 report is included as **Appendix C**:

C.1 Groundwater Monitoring Alternative Source Demonstration Report October 2017 Groundwater Monitoring Event, CCR Landfill, Iatan Generating Station (April 2018).

C.2. Supplemental Data for Groundwater Monitoring Alternative Source Demonstration Report October 2017 Groundwater Monitoring Event, CCR Landfill, Iatan Generating Station (April 2018).

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

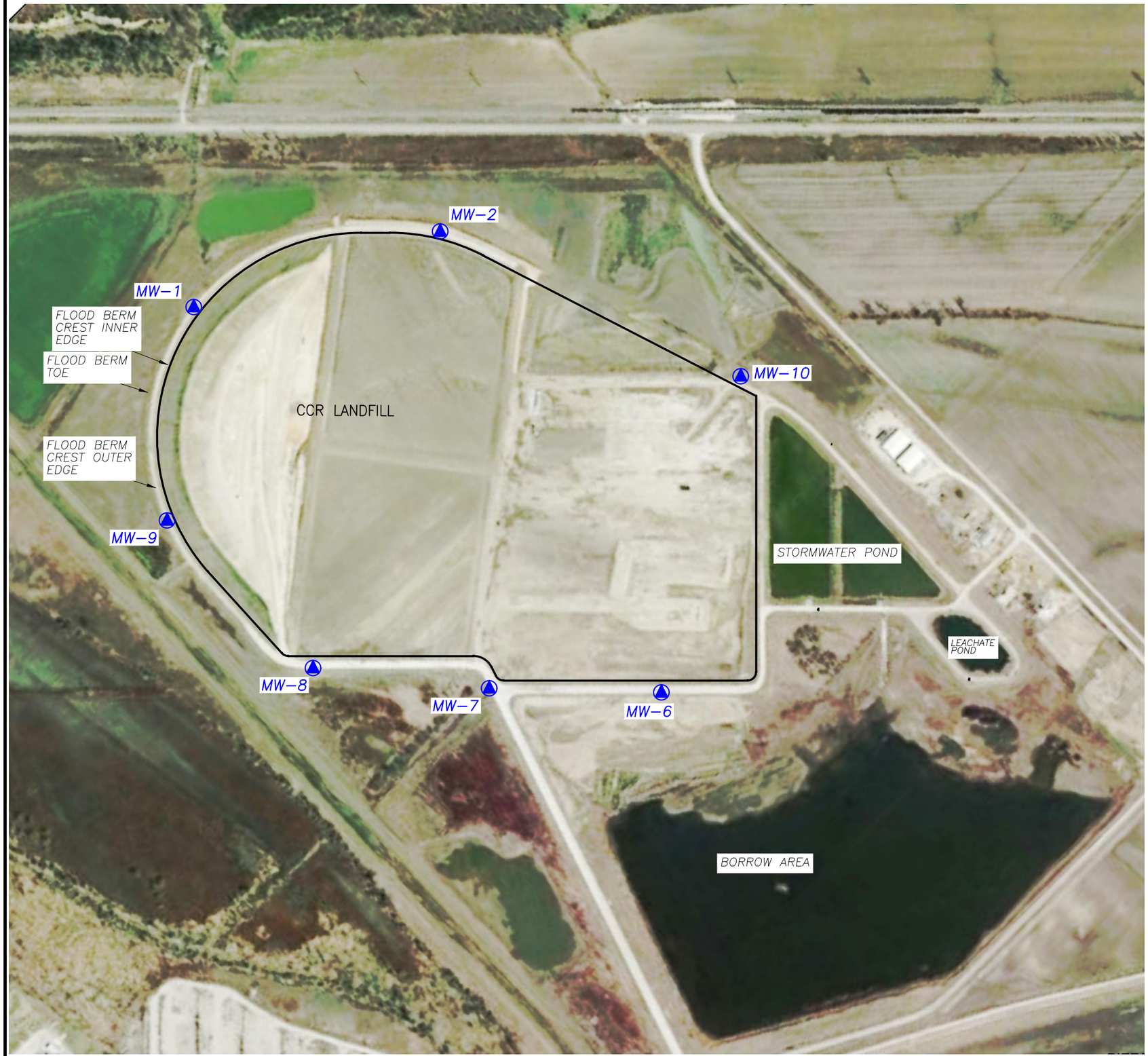
This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. The information contained in this report is a reflection of the conditions encountered at the Iatan Generating Station at the time of fieldwork. This report includes 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 Kansas City Power & Light Company 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

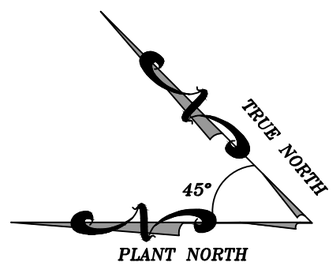


LEGEND:

- 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.*



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SCALE FEET

REV.	DATE	CK. BY
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2	-	-
3	-	-
4	-	-
5	-	-

SHEET TITLE: *SITE MAP CCR LANDFILL CCR GROUNDWATER MONITORING SYSTEM*

PROJECT TITLE: *2018 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT*

CLIENT: KANSAS CITY POWER & LIGHT COMPANY
IATAN GENERATING STATION
WESTON, MISSOURI

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

PROJ. NO. 27213167.18 | DSN. BY: TGW | DWN. BY: TGW | CHK. BY: JRR | Q/A RVW BY: JRR | PROJ. MGR: JRR

CADD FILE: FIG 1_IATAN SITE MAP_2018 CCR.DWG

DATE: 1/21/19

FIGURE NO. 1

N:\KCPL\Projects\Groundwater\DWG\Iatan\Annual CCR Reporting\2018\Fig 1_Iatan Site Map_2018 CCR.dwg Jan 21, 2019 - 1:05pm Layout Name: Fig 1 By: 4338t_w

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
KCP&L Iatan Generating Station

Well Number	Sample Date	Appendix III Constituents						
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
MW-1	05/21/18	<0.200	131	5.63	0.327	6.93	32.6	496
MW-1	06/26/18	---	---	---	*0.263	**6.99	---	---
MW-1	11/12/18	<0.200	137	5.04	0.288	6.99	24.6	485
MW-2	05/21/18	<0.200	164	8.14	0.383	6.90	137	648
MW-2	06/26/18	---	---	---	*0.320	**6.99	---	---
MW-2	11/12/18	<0.200	166	5.79	0.327	7.15	81.5	590
MW-6	05/21/18	<0.200	150	1.45	0.354	7.08	30.9	540
MW-6	11/12/18	<0.200	147	1.31	0.325	7.27	27.3	484
MW-7	05/21/18	<0.200	123	1.54	0.414	7.04	23.8	439
MW-7	11/12/18	<0.200	192	26.4	0.369	7.18	149	681
MW-8	05/21/18	<0.200	130	1.50	0.441	7.17	25.4	437
MW-8	11/12/18	<0.200	170	12.10	0.396	7.15	85.8	563
MW-9	05/21/18	<0.200	105	<1.00	0.426	7.05	18.3	412
MW-9	11/12/18	<0.200	122	1.1	0.390	7.21	25.8	435
MW-10	05/21/18	<0.200	115	14.1	0.654	7.04	23.6	509
MW-10	11/12/18	<0.200	138	15.1	0.680	7.19	32.9	554

* Verification sample obtained per certified statistical method and Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009.
**Extra Sample for Quality Control Validation or per Standard Sampling Procedure
mg/L - miligrams per liter
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	05/21/18	6.93	873	15.78	0.0	208	0.83	23.35	765.34
MW-1	06/26/18	**6.99	802	15.98	0.0	128	0.10	23.74	764.95
MW-1	11/12/18	6.99	875	8.84	2.2	-60	6.90	23.78	764.91
MW-2	05/21/18	6.90	995	15.96	0.0	-111	1.01	24.34	765.27
MW-2	06/26/18	**6.99	871	16.58	0.0	114	0.28	24.59	765.02
MW-2	11/12/18	7.15	876	6	4.2	-2	4.50	24.85	764.76
MW-6	05/21/18	7.08	951	16.18	0.0	211	0.58	25.15	764.50
MW-6	11/12/18	7.27	880	10.81	0.0	-84	3.25	20.28	769.37
MW-7	05/21/18	7.04	783	15.4	0.0	218	0.55	24.85	764.80
MW-7	11/12/18	7.18	1140	12.43	6.5	-84	0.00	19.46	770.19
MW-8	05/21/18	7.17	800	15.53	0.0	216	1.75	24.62	765.09
MW-8	11/12/18	7.15	799	6.92	5.4	-72	4.85	19.84	769.87
MW-9	05/21/18	7.05	710	15.78	0.0	-126	1.11	24.60	765.30
MW-9	11/12/18	7.21	808	9.77	0.0	-94	2.13	18.73	771.17
MW-10	05/21/18	7.04	917	14.83	1.2	236	0.00	24.48	764.98
MW-10	11/12/18	7.19	925	9.91	0.0	-50	0.00	19.67	769.79

**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 Groundwater Monitoring Alternative Source Demonstration Report October 2017 Groundwater Monitoring Event

C.2. Supplemental Data, Groundwater Monitoring Alternative Source Demonstration Report October 2017 Groundwater Monitoring Event

C.1 Groundwater Monitoring Alternative Source Demonstration Report October 2017 Groundwater Monitoring Event

CCR GROUNDWATER MONITORING
ALTERNATIVE SOURCE DEMONSTRATION REPORT
OCTOBER 2017 GROUNDWATER MONITORING EVENT

CCR LANDFILL
IATAN GENERATING STATION
PLATTE COUNTY, MISSOURI

Presented To:

Kansas City Power & Light Company

Presented By:

SCS ENGINEERS
7311 West 130th Street, Suite 100
Overland Park, Kansas 66213
(913) 681-0030

April 2018
File No. 27213167.17

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.

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

1 REGULATORY FRAMEWORK

In accordance with the Coal Combustion Residuals (CCR) Final Rule § 257.94(e)(2), the owner or operator of the CCR unit may demonstrate 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. 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 and analyzed by October 17, 2017. A statistical analysis was conducted to determine whether there is a SSI over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring.

If an SSI is preliminarily identified by the prediction limit analysis, verification retesting will be performed in accordance with the certified statistical method and the resampling plan to verify the result is not due to an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Up to two rounds of verification sampling and retesting may be conducted. Verification retesting with a "1 of 2" or "1 of 3" resampling plan is performed by collecting a verification sample(s) and comparing it to the calculated prediction limit. If the resulting concentration of any verification sample is not above the prediction limit, then an SSI has not occurred.

Determinations of SSIs for the CCR Landfill at the Iatan Generating Station were completed no later than January 15, 2018 and placed into the CCR Operating Record.

The completed statistical evaluation identified one Appendix III constituent above its prediction limit. The prediction limit for chloride in monitoring well MW-1 is 6.27 mg/L. The detection monitoring sample was reported at 6.75 mg/L. The first verification sample was collected on November 14, 2017 with a result of 6.73 mg/L. The second verification sample was collected on December 29, 2017 with a result of 6.27 mg/L. However the, Sanitas™ Output identified the 6.27 mg/L chloride concentration in MW-1 as a confirmed SSI above background, due to numerical rounding. Therefore, in accordance with the Statistical Method Certification, the detection

monitoring sample for chloride from monitoring well MW-1 exceeds its prediction limit and is a confirmed SSI over background.

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 and near the CCR Landfill at the time of sampling. Monitoring well MW-1 is generally located upgradient from the CCR Landfill depending on river stage. During this detection monitoring sampling event, MW-1 was upgradient to crossgradient from the CCR Landfill indicating the SSI is 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 chloride, or that the SSI 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, 25th and 75th percentiles of the data set; the "whiskers" extend to the minimum and maximum values of the data set. The range between the ends of a box plot represents the Interquartile Range, which can be used as an estimate of spread or variability. The mean is denoted by a "+".

When comparing multiple wells or well groups, box plots for each well can be lined up on the same axes 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-1, box and whiskers plots for chloride in the CCR groundwater monitoring system wells were prepared to allow comparison of chloride concentrations between wells. The comparison between wells indicates the chloride concentrations in upgradient well MW-1 are within the range of concentrations from the other wells. This demonstrates that a source other than the CCR Landfill caused the SSI over background levels for chloride, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. 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 analysis. They may be used to visually compare the chemical composition of water quality across wells, and aid in determining whether the waters are similar or dis-similar, and can over time indicate whether the waters are mixing.

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

A piper diagram generated for MW-1 and landfill leachate is provided in **Appendix C** and indicates the groundwater from this well 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 SSI over background levels for chloride 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 chloride concentrations in MW-1 are within the range of concentration of chloride from the other wells. This demonstrates that a source other than the CCR Landfill caused the SSI over background levels for chloride, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. 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 SSI over background levels, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater

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

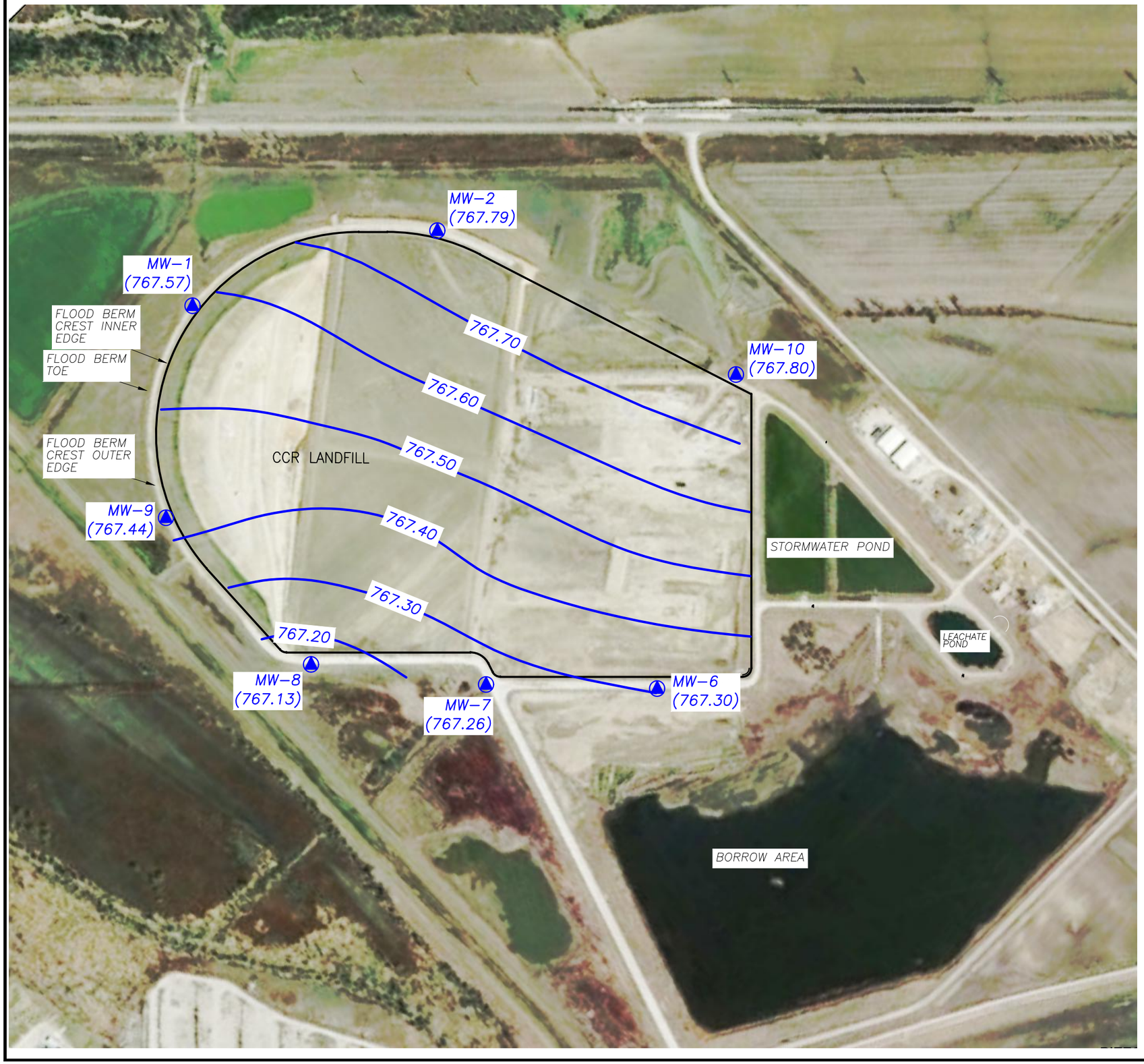
5 GENERAL COMMENTS

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

Appendix A

Figure 1



LEGEND:

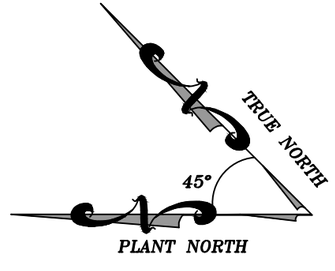
—769.00— GROUNDWATER SURFACE ELEVATIONS

MW-1 (767.57) CCR GROUNDWATER MONITORING WELL SYSTEM (GROUNDWATER ELEVATION)

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



500 0 500 1000

SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP (OCT 2017)
CCR LANDFILL

PROJECT TITLE
CCR ALTERNATIVE SOURCE DEMONSTRATION

CLIENT
KANSAS CITY POWER & LIGHT COMPANY
IATAN GENERATING STATION
IATAN, MISSOURI

SCS ENGINEERS
7311 W. 130th St. Ste. 100
Overland Park, Kansas 66213
PH. (913) 681-0030 FAX (913) 681-0012

PROJ. NO.	DSN. BY:	Q/A REW BY:	PROJ. MGR
27213167.17	LAM	JRR	JRR
DSN. BY:	CHK. BY:		
LAM	JRR		

CADD FILE:
IATAN LF CCR ASD FIG 1.DWG

DATE:
4/16/18

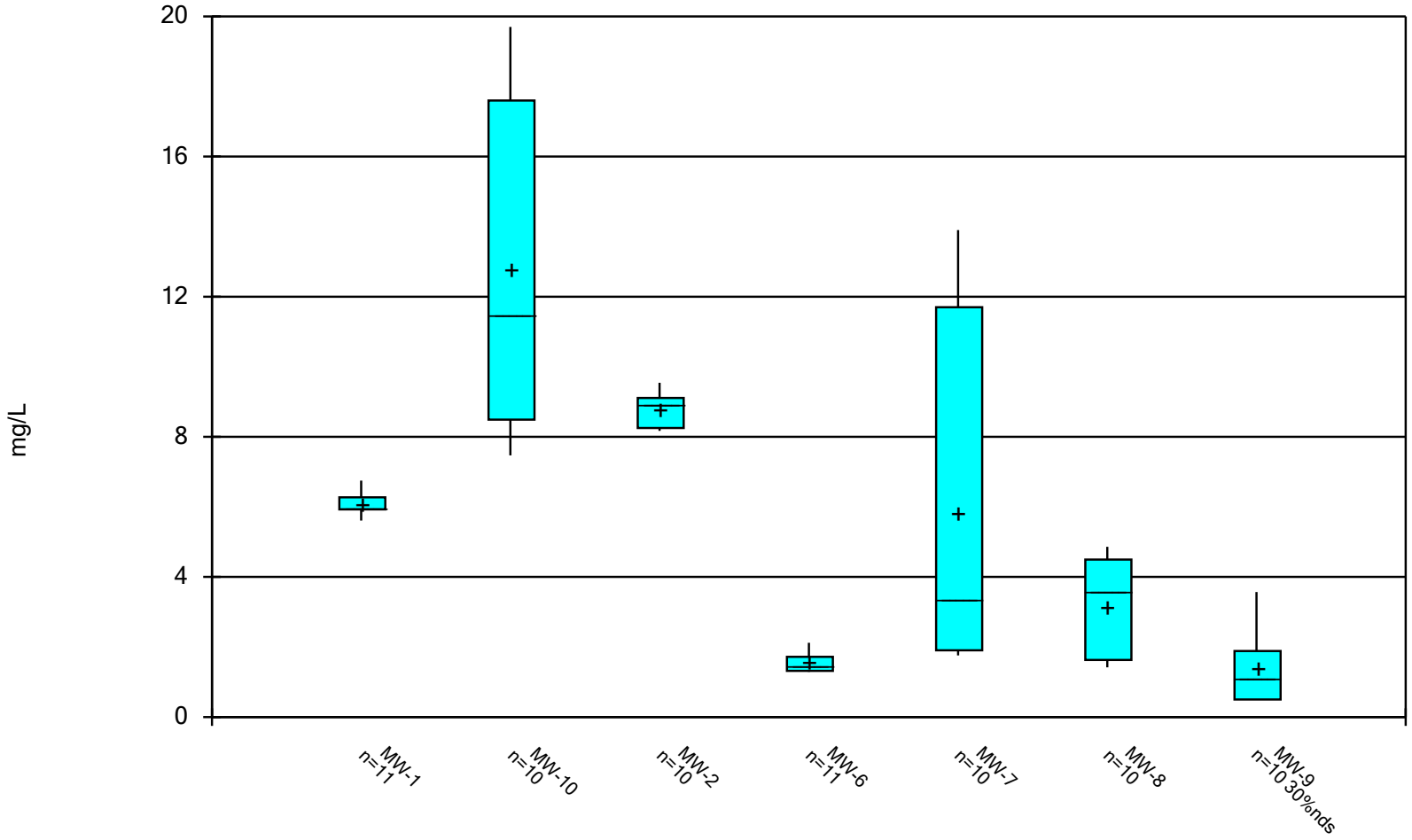
FIGURE NO.
1

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\CCR Alternative Source Demonstration\Iatan LF CCR ASD Fig 1.dwg Apr 16, 2018 - 10:27am Layout Name: Fig 1 By: 4121rcw

Appendix B

Box and Whiskers Plots

Box & Whiskers Plot



%nds = percent non-detects
n = number of samples

Constituent: Chloride Analysis Run 3/6/2018 2:24 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

The basic box plot graphically locates the median, 25th and 75th percentiles of the data set; the "whiskers" extend to the minimum and maximum values of the data set. The range between the ends of a box plot represents the Interquartile Range. The mean is denoted by a "+".

Box & Whiskers Plot

Constituent: Chloride (mg/L) Analysis Run 3/6/2018 2:25 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9
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
10/5/2017	6.75	19.7	9.23	2.09	3.32	4.55	3.57
11/14/2017	6.73	17.6	8.97	2.12	2.58	4.86	1.82
12/29/2017	6.27			1.45			
Median	6	11.5	8.88	1.46	3.32	3.58	1.12
LowerQ.	5.93	8.49	8.25	1.32	1.91	1.63	0.5
UpperQ.	6.27	17.6	9.11	1.72	11.7	4.5	1.89
Min	5.61	7.47	8.17	1.29	1.76	1.42	0.5
Max	6.75	19.7	9.54	2.12	13.9	4.86	3.57
Mean	6.11	12.8	8.79	1.56	5.87	3.16	1.38

Box & Whiskers Plot

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan Printed 3/6/2018, 2:25 PM

Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Chloride (mg/L)	MW-1	11	6.11	0.356	0.107	6	5.61	6.75	0
Chloride (mg/L)	MW-10	10	12.8	4.53	1.43	11.5	7.47	19.7	0
Chloride (mg/L)	MW-2	10	8.79	0.451	0.143	8.88	8.17	9.54	0
Chloride (mg/L)	MW-6	11	1.56	0.294	0.0887	1.46	1.29	2.12	0
Chloride (mg/L)	MW-7	10	5.87	4.78	1.51	3.32	1.76	13.9	0
Chloride (mg/L)	MW-8	10	3.16	1.37	0.434	3.58	1.42	4.86	0
Chloride (mg/L)	MW-9	10	1.38	0.941	0.297	1.12	0.5	3.57	30

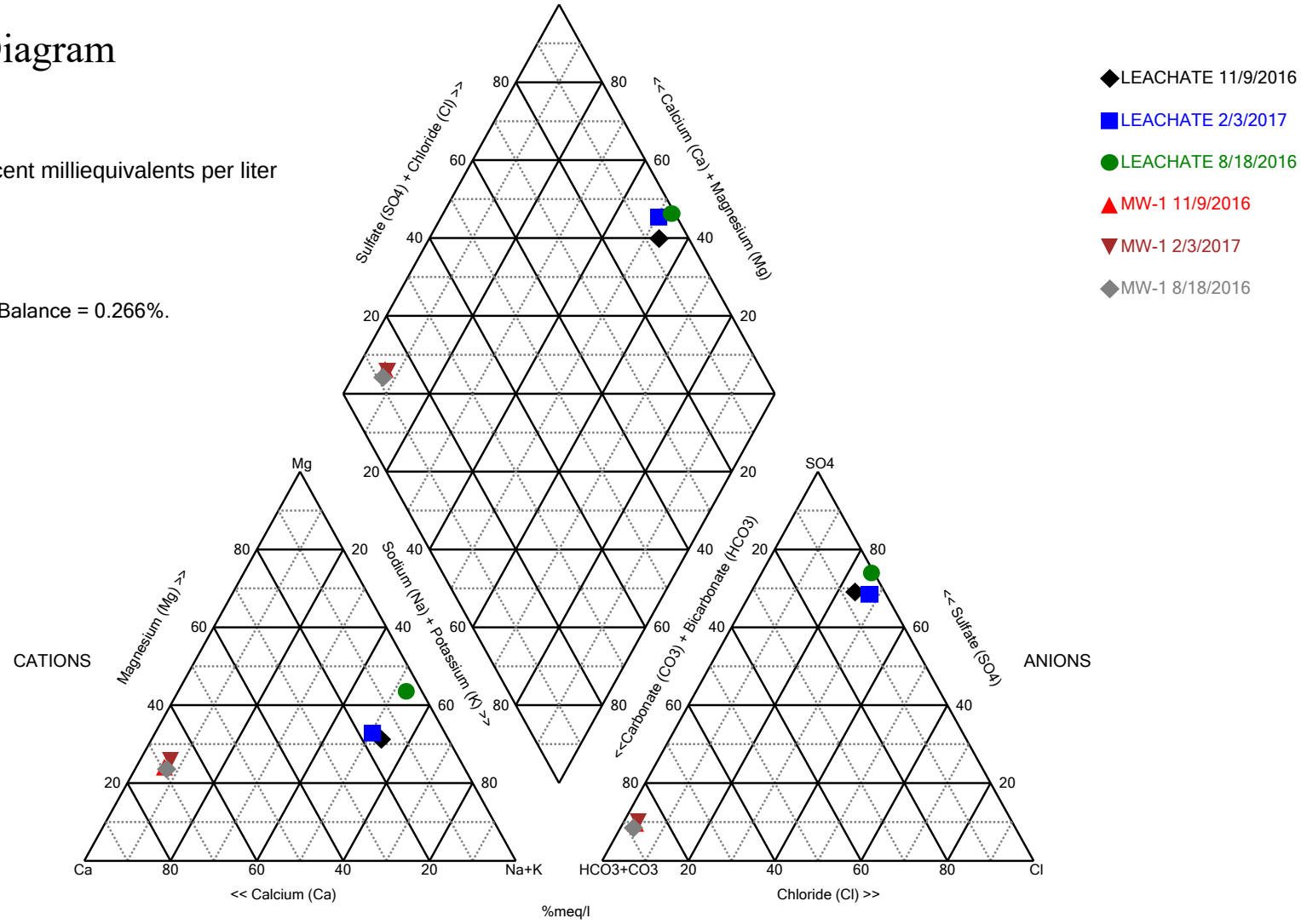
Appendix C

Piper Diagram

Piper Diagram

%meq/l = percent milliequivalents per liter

Cation-Anion Balance = 0.266%.



Analysis Run 4/10/2018 1:39 PM View: CCR III

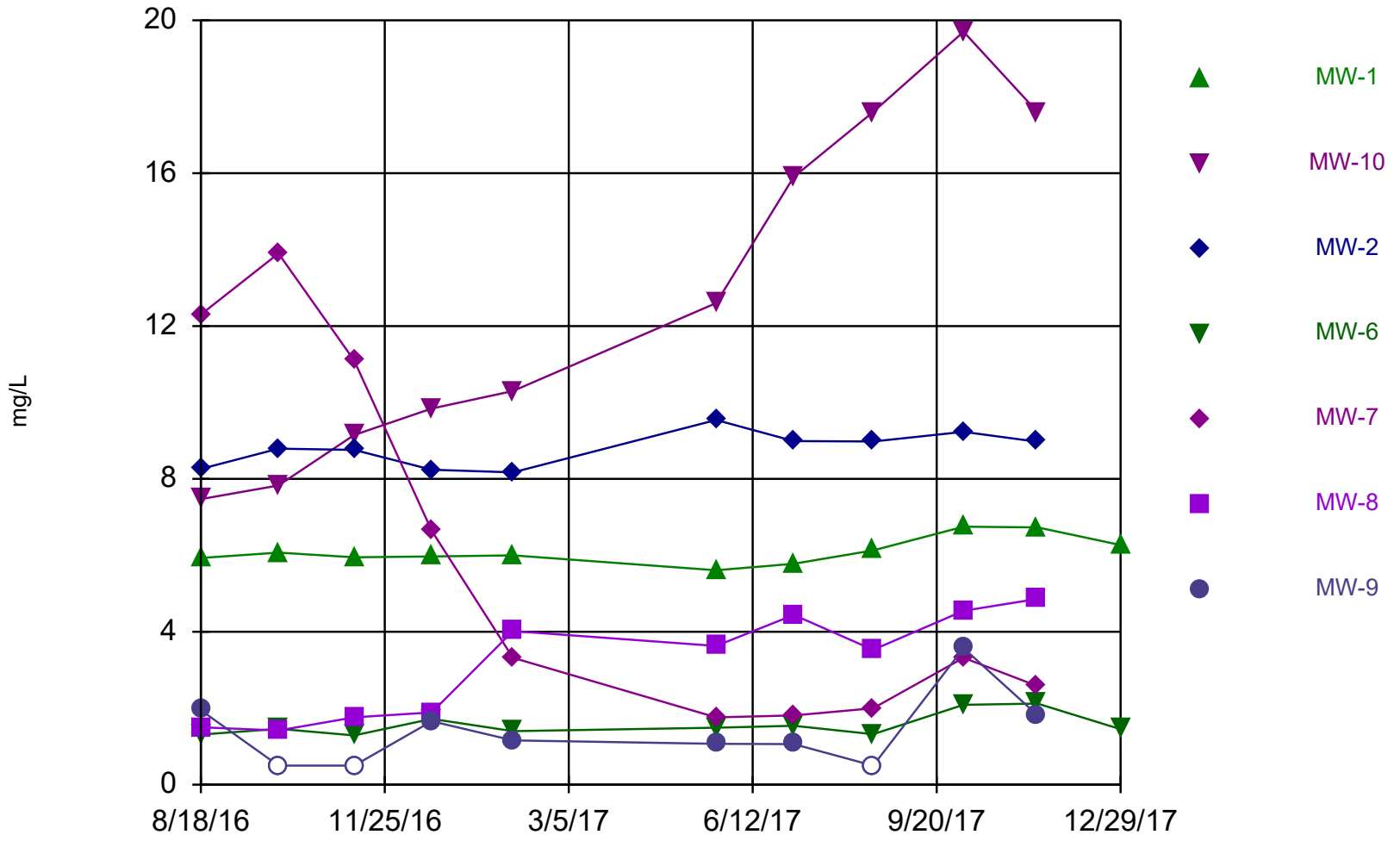
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Appendix D

Time Series Plots

Hollow symbols indicate censored values.

Time Series



Constituent: Chloride Analysis Run 4/11/2018 2:48 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Time Series

Constituent: Chloride (mg/L) Analysis Run 4/11/2018 2:48 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	MW-1	MW-10	MW-2	MW-6	MW-7	MW-8	MW-9
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
10/5/2017	6.75	19.7	9.23	2.09	3.32	4.55	3.57
11/14/2017	6.73	17.6	8.97	2.12	2.58	4.86	1.82
12/29/2017	6.27			1.45			

C.2. Supplemental Data, Groundwater Monitoring Alternative Source Demonstration Report October 2017 Groundwater Monitoring Event

Piper Diagram

Analysis Run 1/24/2019 1:58 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-1 8/18/2016	11.7	6.56	134	27.4	5.93	32.4	436	10
MW-1 11/9/2016	11.1	6	136	28.4	5.95	33.2	383	10
MW-1 2/3/2017	11	5.93	116	26.8	6	36.9	394	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

ADDENDUM 1

2018 Annual Groundwater Monitoring and Corrective Action Report
Addendum 1

December 16, 2022
File No. 27213167.18

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: 2018 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 2018 for the CCR Landfill was completed and placed in the facility's operating record on January 30, 2019, as required by the Rule. The Annual GWMCA report was to fulfill the requirements specified in 40 CFR 257.90(e).

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

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

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

The attachments to this addendum are as follows:

- Attachment 1 – Laboratory Analytical Reports:

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

  - May 2018 – Spring 2018 semiannual detection monitoring sampling event.
  - June 2018 – First verification sampling for the Spring 2018 detection monitoring sampling event.
  - November 2018 - Fall 2018 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 2018 included the following:

  - Fall 2017 semiannual detection monitoring statistical analyses.
  - Spring 2018 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 2018 - Spring 2018 semiannual detection monitoring sampling event.
  - November 2018 - Fall 2018 semiannual detection monitoring sampling event.

Jared Morrison
December 16, 2022

ATTACHMENT 1

Laboratory Analytical Reports

Jared Morrison
December 16, 2022

ATTACHMENT 1-1

May 2018 Sampling Event Laboratory Report

ANALYTICAL REPORT

May 31, 2018

SCS Engineers - KS

Sample Delivery Group:	L996203
Samples Received:	05/23/2018
Project Number:	27213167.18
Description:	KCP&L Iatan Generating Station

Report To: Jason Franks
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Entire Report Reviewed By:

Jeff Carr
Technical Service Representative

TABLE OF CONTENTS

MW-1 L996203-01 GW

Collected by: Jason Franks | Collected date/time: 05/21/18 14:20 | Received date/time: 05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115887	1	05/26/18 12:01	05/26/18 12:32	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 07:28	05/25/18 07:28	MAJ
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 13:45	TRB

MW-2 L996203-02 GW

Collected by: Jason Franks | Collected date/time: 05/21/18 13:35 | Received date/time: 05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115887	1	05/26/18 12:01	05/26/18 12:32	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/24/18 21:27	05/24/18 21:27	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 20:47	05/25/18 20:47	CSU
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 13:00	TRB

MW-6 L996203-03 GW

Collected by: Jason Franks | Collected date/time: 05/21/18 11:50 | Received date/time: 05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115887	1	05/26/18 12:01	05/26/18 12:32	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/24/18 22:28	05/24/18 22:28	MAJ
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 13:47	TRB

MW-7 L996203-04 GW

Collected by: Jason Franks | Collected date/time: 05/21/18 12:50 | Received date/time: 05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115887	1	05/26/18 12:01	05/26/18 12:32	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/24/18 22:44	05/24/18 22:44	MAJ
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 13:55	TRB

MW-8 L996203-05 GW

Collected by: Jason Franks | Collected date/time: 05/21/18 13:35 | Received date/time: 05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115887	1	05/26/18 12:01	05/26/18 12:32	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/24/18 22:59	05/24/18 22:59	MAJ
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 13:58	TRB

DUPLICATE L996203-06 GW

Collected by: Jason Franks | Collected date/time: 05/21/18 00:00 | Received date/time: 05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115888	1	05/26/18 08:52	05/26/18 10:17	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/24/18 23:45	05/24/18 23:45	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 21:03	05/25/18 21:03	CSU
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 14:00	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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	496000		10000	1	05/26/2018 12:32	WG1115887

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5630		1000	1	05/25/2018 07:28	WG1115314
Fluoride	327		100	1	05/25/2018 07:28	WG1115314
Sulfate	32600		5000	1	05/25/2018 07:28	WG1115314

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 13:45	WG1115373
Calcium	131000		1000	1	05/30/2018 13:45	WG1115373

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	648000		10000	1	05/26/2018 12:32	WG1115887

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8140		1000	1	05/24/2018 21:27	WG1115478
Fluoride	383		100	1	05/24/2018 21:27	WG1115478
Sulfate	137000		25000	5	05/25/2018 20:47	WG1116312

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 13:00	WG1115373
Calcium	164000		1000	1	05/30/2018 13:00	WG1115373

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	540000		10000	1	05/26/2018 12:32	WG1115887

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1450	B	1000	1	05/24/2018 22:28	WG1115478
Fluoride	354		100	1	05/24/2018 22:28	WG1115478
Sulfate	30900		5000	1	05/24/2018 22:28	WG1115478

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 13:47	WG1115373
Calcium	150000		1000	1	05/30/2018 13:47	WG1115373

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	439000		10000	1	05/26/2018 12:32	WG1115887

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1540	B	1000	1	05/24/2018 22:44	WG1115478
Fluoride	414		100	1	05/24/2018 22:44	WG1115478
Sulfate	23800		5000	1	05/24/2018 22:44	WG1115478

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 13:55	WG1115373
Calcium	123000		1000	1	05/30/2018 13:55	WG1115373

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	437000		10000	1	05/26/2018 12:32	WG1115887

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1500	B	1000	1	05/24/2018 22:59	WG1115478
Fluoride	441		100	1	05/24/2018 22:59	WG1115478
Sulfate	25400		5000	1	05/24/2018 22:59	WG1115478

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 13:58	WG1115373
Calcium	130000		1000	1	05/30/2018 13:58	WG1115373

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	650000		10000	1	05/26/2018 10:17	WG1115888

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8110		1000	1	05/24/2018 23:45	WG1115478
Fluoride	374		100	1	05/24/2018 23:45	WG1115478
Sulfate	134000		25000	5	05/25/2018 21:03	WG1116312

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 14:00	WG1115373
Calcium	163000		1000	1	05/30/2018 14:00	WG1115373

Method Blank (MB)

(MB) R3313627-1 05/26/18 12:32

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

L996199-08 Original Sample (OS) • Duplicate (DUP)

(OS) L996199-08 05/26/18 12:32 • (DUP) R3313627-4 05/26/18 12:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	743000	729000	1	1.81		5

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

(LCS) R3313627-2 05/26/18 12:32 • (LCSD) R3313627-3 05/26/18 12:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Dissolved Solids	8800000	8520000	8640000	96.8	98.2	85.0-115			1.40	5

Method Blank (MB)

(MB) R3313624-1 05/26/18 10:17

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

L996203-06 Original Sample (OS) • Duplicate (DUP)

(OS) L996203-06 05/26/18 10:17 • (DUP) R3313624-4 05/26/18 10:17

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	650000	651000	1	0.154		5

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

(LCS) R3313624-2 05/26/18 10:17 • (LCSD) R3313624-3 05/26/18 10:17

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 %
Dissolved Solids	8800000	8590000	8580000	97.6	97.5	85.0-115			0.116	5

Method Blank (MB)

(MB) R3313106-1 05/24/18 17:44

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		51.9	1000
Fluoride	16.2	J	9.90	100
Sulfate	U		77.4	5000

L996199-01 Original Sample (OS) • Duplicate (DUP)

(OS) L996199-01 05/25/18 01:27 • (DUP) R3313106-4 05/25/18 01:43

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	6520	6520	1	0.0521		15
Fluoride	300	406	1	30.0	P1	15
Sulfate	ND	0.000	1	0.000		15

L996199-11 Original Sample (OS) • Duplicate (DUP)

(OS) L996199-11 05/25/18 05:49 • (DUP) R3313106-7 05/25/18 06:39

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	9920	9940	1	0.180		15
Fluoride	646	643	1	0.372		15
Sulfate	64700	64600	1	0.170		15

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

(LCS) R3313106-2 05/24/18 18:01 • (LCSD) R3313106-3 05/24/18 18:17

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 %
Chloride	40000	39800	39600	99.4	99.1	80.0-120			0.305	15
Fluoride	8000	7870	7880	98.4	98.5	80.0-120			0.117	15
Sulfate	40000	40100	40100	100	100	80.0-120			0.147	15

L996199-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996199-01 05/25/18 01:27 • (MS) R3313106-5 05/25/18 01:59 • (MSD) R3313106-6 05/25/18 02:16

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	6520	59200	57900	105	103	1	80.0-120			2.26	15
Fluoride	5000	300	5330	5540	101	105	1	80.0-120			3.88	15
Sulfate	50000	ND	46600	49200	93.2	98.3	1	80.0-120			5.41	15

L996199-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L996199-11 05/25/18 05:49 • (MS) R3313106-8 05/25/18 06:55

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	9920	67400	115	1	80.0-120	
Fluoride	5000	646	5990	107	1	80.0-120	
Sulfate	50000	64700	113000	95.8	1	80.0-120	E

Method Blank (MB)

(MB) R3313109-1 05/24/18 11:59

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	224	J	51.9	1000
Fluoride	U		9.90	100
Sulfate	314	J	77.4	5000

L996203-02 Original Sample (OS) • Duplicate (DUP)

(OS) L996203-02 05/24/18 21:27 • (DUP) R3313109-4 05/24/18 21:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8140	8140	1	0.0823		15
Fluoride	383	373	1	2.86		15

L996207-02 Original Sample (OS) • Duplicate (DUP)

(OS) L996207-02 05/25/18 00:16 • (DUP) R3313109-7 05/25/18 00:32

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	14100	14100	1	0.412		15
Fluoride	654	652	1	0.383		15
Sulfate	23600	23600	1	0.212		15

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

(LCS) R3313109-2 05/24/18 12:15 • (LCSD) R3313109-3 05/24/18 12:30

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 %
Chloride	40000	39400	39400	98.4	98.5	80.0-120			0.0929	15
Fluoride	8000	7880	7890	98.5	98.7	80.0-120			0.103	15
Sulfate	40000	39400	39500	98.4	98.7	80.0-120			0.353	15

L996203-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996203-02 05/24/18 21:27 • (MS) R3313109-5 05/24/18 21:58 • (MSD) R3313109-6 05/24/18 22:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	8140	58200	60100	100	104	1	80.0-120			3.23	15
Fluoride	5000	383	5090	5680	94.2	106	1	80.0-120			10.9	15

L996207-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L996207-02 05/25/18 00:16 • (MS) R3313109-8 05/25/18 00:47

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	14100	65100	102	1	80.0-120	
Fluoride	5000	654	5420	95.4	1	80.0-120	
Sulfate	50000	23600	69000	90.7	1	80.0-120	

Method Blank (MB)

(MB) R3313240-1 05/25/18 12:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	89.8	J	77.4	5000

L996302-01 Original Sample (OS) • Duplicate (DUP)

(OS) L996302-01 05/25/18 21:33 • (DUP) R3313240-4 05/25/18 21:49

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	U	0.000	1	0.000		15

L996674-01 Original Sample (OS) • Duplicate (DUP)

(OS) L996674-01 05/26/18 00:23 • (DUP) R3313240-7 05/26/18 00:38

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	28900	28800	1	0.424		15

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

(LCS) R3313240-2 05/25/18 12:24 • (LCSD) R3313240-3 05/25/18 12:39

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 %
Sulfate	40000	39800	39800	99.6	99.5	80.0-120			0.111	15

L996302-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996302-01 05/25/18 21:33 • (MS) R3313240-5 05/25/18 22:04 • (MSD) R3313240-6 05/25/18 22:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50000	U	49600	49100	99.2	98.2	1	80.0-120			1.04	15

L996674-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L996674-01 05/26/18 00:23 • (MS) R3313240-8 05/26/18 00:54

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	28900	78200	98.7	1	80.0-120	

Method Blank (MB)

(MB) R3314062-1 05/30/18 12:52

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

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

(LCS) R3314062-2 05/30/18 12:55 • (LCSD) R3314062-3 05/30/18 12:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	988	971	98.8	97.1	80.0-120			1.68	20
Calcium	10000	9860	9840	98.6	98.4	80.0-120			0.227	20

L996203-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996203-02 05/30/18 13:00 • (MS) R3314062-5 05/30/18 13:05 • (MSD) R3314062-6 05/30/18 13:07

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	ND	1140	1150	98.0	99.2	1	75.0-125			0.977	20
Calcium	10000	164000	172000	172000	84.3	85.1	1	75.0-125			0.0485	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.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

ESC Lab Sciences 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 ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

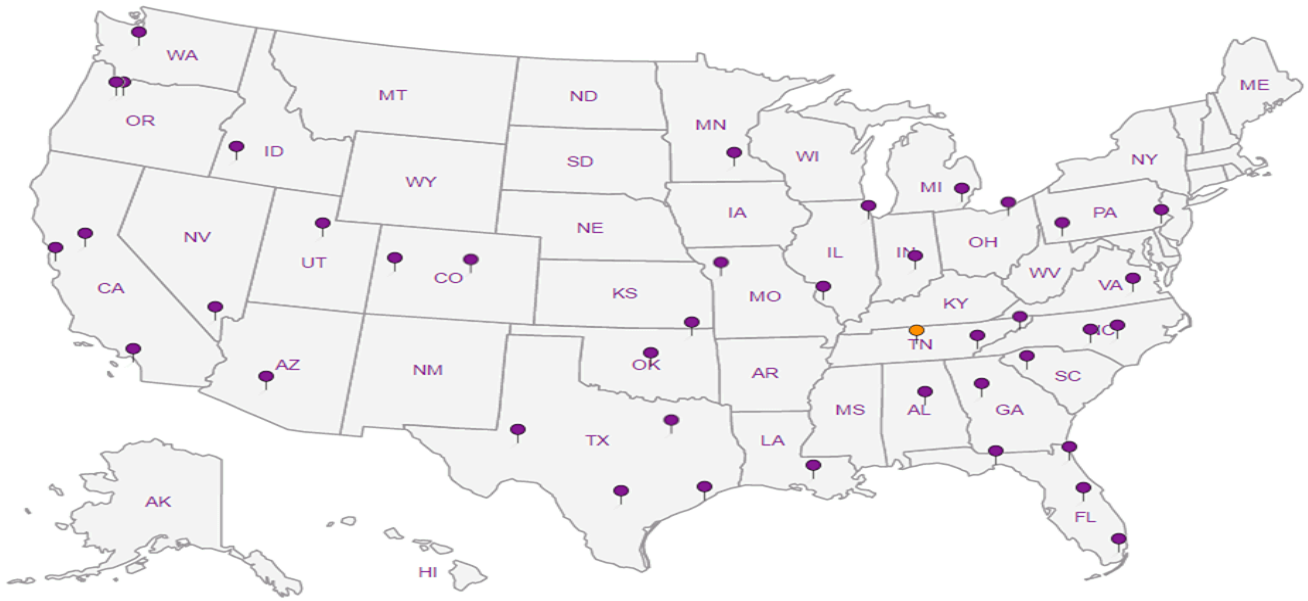
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences 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. ESC Lab Sciences performs all testing at our central laboratory.



SCS Engineers - KS

7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Billing Information:
Accounts Payable
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Pres Chk

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

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

Client Project # 27213167.18

Lab Project # AQUAOPKS-IATAN

Collected by (print): JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature): Jason R. Franks

Immediately Packed on Ice N ___ Y ✓

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

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions (Cld, F, SO4) 125mlHDPE-NoPres	B, Ca - 6010 250mlHDPE-HNO3	TDS 250mlHDPE-NoPres								Remarks	Sample # (lab only)
MW-1	GRAB	GW	-	5/21/18	1420	3	X	X	X									-01
MW-2		GW	-		1335	3	X	X	X									02
MW-6		GW	-		1150	3	X	X	X									03
MW-7		GW	-		1250	3	X	X	X									04
MW-8		GW	-		1335	3	X	X	X									05
DUPLICATE		GW	-		-	3	X	X	X									06
MW-2MS		GW	-		1345	3	X	X	X									02
MW-2 MSD		GW	-		1350	3	X	X	X									02

Chain of Custody Page 1 of 1

ESC

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

L# L996203

E116

Acctnum: AQUAOPKS
Template: T136059
Prelogin: P653113
TSR: 206 - Jeff Carr
PB:
Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Jason R. Franks	5/22/18	1211		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.0 °C Bottles Received: 24
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/23/18 Time: 10:15
				Hold: Condition: NCF / OK

ANALYTICAL REPORT

May 31, 2018

SCS Engineers - KS

Sample Delivery Group:	L996207
Samples Received:	05/23/2018
Project Number:	27213167.18
Description:	KCP&L Iatan Generating Station

Report To: Jason Franks
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Entire Report Reviewed By:

Jeff Carr
Technical Service Representative

TABLE OF CONTENTS

MW-9 L996207-01 GW

Collected by	Collected date/time	Received date/time
Jason Franks	05/21/18 12:55	05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115888	1	05/26/18 08:52	05/26/18 10:17	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/25/18 00:01	05/25/18 00:01	MAJ
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 14:03	TRB

MW-10 L996207-02 GW

Collected by	Collected date/time	Received date/time
Jason Franks	05/21/18 10:30	05/23/18 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1115888	1	05/26/18 08:52	05/26/18 10:17	MMF
Wet Chemistry by Method 9056A	WG1115478	1	05/25/18 00:16	05/25/18 00:16	MAJ
Metals (ICP) by Method 6010B	WG1115373	1	05/25/18 15:32	05/30/18 14:06	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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	412000		10000	1	05/26/2018 10:17	WG1115888

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	ND		1000	1	05/25/2018 00:01	WG1115478
Fluoride	426		100	1	05/25/2018 00:01	WG1115478
Sulfate	18300		5000	1	05/25/2018 00:01	WG1115478

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 14:03	WG1115373
Calcium	105000		1000	1	05/30/2018 14:03	WG1115373

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	509000		10000	1	05/26/2018 10:17	WG1115888

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	14100		1000	1	05/25/2018 00:16	WG1115478
Fluoride	654		100	1	05/25/2018 00:16	WG1115478
Sulfate	23600		5000	1	05/25/2018 00:16	WG1115478

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/30/2018 14:06	WG1115373
Calcium	115000		1000	1	05/30/2018 14:06	WG1115373

Method Blank (MB)

(MB) R3313624-1 05/26/18 10:17

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

L996203-06 Original Sample (OS) • Duplicate (DUP)

(OS) L996203-06 05/26/18 10:17 • (DUP) R3313624-4 05/26/18 10:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	650000	651000	1	0.154		5

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

(LCS) R3313624-2 05/26/18 10:17 • (LCSD) R3313624-3 05/26/18 10:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Dissolved Solids	8800000	8590000	8580000	97.6	97.5	85.0-115			0.116	5

Method Blank (MB)

(MB) R3313109-1 05/24/18 11:59

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	224	J	51.9	1000
Fluoride	U		9.90	100
Sulfate	314	J	77.4	5000

L996203-02 Original Sample (OS) • Duplicate (DUP)

(OS) L996203-02 05/24/18 21:27 • (DUP) R3313109-4 05/24/18 21:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8140	8140	1	0.0823		15
Fluoride	383	373	1	2.86		15

L996207-02 Original Sample (OS) • Duplicate (DUP)

(OS) L996207-02 05/25/18 00:16 • (DUP) R3313109-7 05/25/18 00:32

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	14100	14100	1	0.412		15
Fluoride	654	652	1	0.383		15
Sulfate	23600	23600	1	0.212		15

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

(LCS) R3313109-2 05/24/18 12:15 • (LCSD) R3313109-3 05/24/18 12:30

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 %
Chloride	40000	39400	39400	98.4	98.5	80.0-120			0.0929	15
Fluoride	8000	7880	7890	98.5	98.7	80.0-120			0.103	15
Sulfate	40000	39400	39500	98.4	98.7	80.0-120			0.353	15

L996203-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996203-02 05/24/18 21:27 • (MS) R3313109-5 05/24/18 21:58 • (MSD) R3313109-6 05/24/18 22:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	8140	58200	60100	100	104	1	80.0-120			3.23	15
Fluoride	5000	383	5090	5680	94.2	106	1	80.0-120			10.9	15

L996207-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L996207-02 05/25/18 00:16 • (MS) R3313109-8 05/25/18 00:47

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	14100	65100	102	1	80.0-120	
Fluoride	5000	654	5420	95.4	1	80.0-120	
Sulfate	50000	23600	69000	90.7	1	80.0-120	

Method Blank (MB)

(MB) R3314062-1 05/30/18 12:52

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

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

(LCS) R3314062-2 05/30/18 12:55 • (LCSD) R3314062-3 05/30/18 12:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	988	971	98.8	97.1	80.0-120			1.68	20
Calcium	10000	9860	9840	98.6	98.4	80.0-120			0.227	20

L996203-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996203-02 05/30/18 13:00 • (MS) R3314062-5 05/30/18 13:05 • (MSD) R3314062-6 05/30/18 13:07

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	ND	1140	1150	98.0	99.2	1	75.0-125			0.977	20
Calcium	10000	164000	172000	172000	84.3	85.1	1	75.0-125			0.0485	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.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

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

ESC Lab Sciences 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 ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

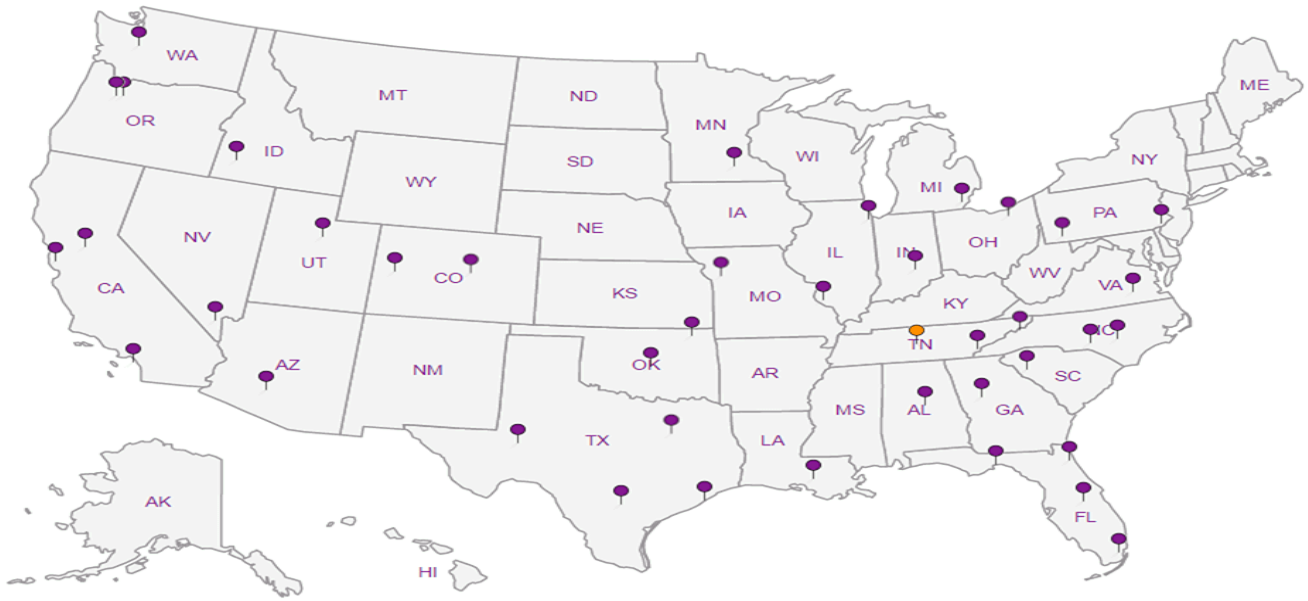
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences 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. ESC Lab Sciences performs all testing at our central laboratory.



SCS Engineers - KS
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Billing Information:
Accounts Payable
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

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

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

Client Project # 27213167.18

Lab Project # AQUAOPKS-IATAN

Collected by (print): JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature): Jason R. Franks

Immediately Packed on Ice N ___ Y ___

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

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	Anions (Cld, F, SO4) 125mlHDPE-NoPres	B, Ca - 6010 250mlHDPE-HNO3	TDS 250mlHDPE-NoPres							Remarks	Sample # (lab only)
MW-9	GRAB	GW	-	5/21/18	1255	3	X	X	X								-01
MW-10	GRAB	GW	-	5/21/18	1030	3	X	X	X								02

Chain of Custody Page 1 of 1

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

L# L996207

E117

Acctnum: AQUAOPKS
Template: T136056
Prelogin: P653110
TSR: 206 - Jeff Carr
PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Jason R. Franke	5/22/18	1210	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			SCI

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.0 °C Bottles Received: 6

Date: 5/23/18 Time: 10:15

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-2

June 2018 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 09, 2018

SCS Engineers - KS

Sample Delivery Group:	L1005331
Samples Received:	06/28/2018
Project Number:	27213167.18
Description:	KCP&L Iatan Generating Station

Report To: Jason Franks
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Entire Report Reviewed By:

Jason Romer
Technical Service Representative

TABLE OF CONTENTS

MW-1 L1005331-01 GW

Collected by: Jason R. Franks
Collected date/time: 06/26/18 14:25
Received date/time: 06/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1133124	1	07/04/18 00:16	07/04/18 00:16	MCG

MW-2 L1005331-02 GW

Collected by: Jason R. Franks
Collected date/time: 06/26/18 15:05
Received date/time: 06/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1133124	1	07/04/18 00:34	07/04/18 00:34	MCG

DUPLICATE L1005331-03 GW

Collected by: Jason R. Franks
Collected date/time: 06/26/18 15:05
Received date/time: 06/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1133124	1	07/04/18 02:23	07/04/18 02:23	MCG

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

Jason Romer
Technical Service Representative

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	263		100	1	07/04/2018 00:16	WG1133124

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	320		100	1	07/04/2018 00:34	WG1133124

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Fluoride	331		100	1	07/04/2018 02:23	WG1133124

Method Blank (MB)

(MB) R3323295-1 07/03/18 19:25

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Fluoride	11.2	J	9.90	100

L1005331-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1005331-02 07/04/18 00:34 • (DUP) R3323295-4 07/04/18 01:28

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	320	363	1	12.5		15

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

(LCS) R3323295-2 07/03/18 19:43 • (LCSD) R3323295-3 07/03/18 20:01

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 %
Fluoride	8000	7860	7850	98.2	98.2	80.0-120			0.0636	15

L1005331-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1005331-02 07/04/18 00:34 • (MS) R3323295-5 07/04/18 01:47 • (MSD) R3323295-6 07/04/18 02:05

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	5000	320	5400	5580	102	105	1	80.0-120			3.13	15

L1005335-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1005335-05 07/04/18 03:54 • (MS) R3323295-7 07/04/18 05:06 • (MSD) R3323295-8 07/04/18 05:25

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	5000	1330	6520	7080	104	115	1	80.0-120			8.29	15

L1005344-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1005344-04 07/04/18 07:14 • (MS) R3323295-10 07/04/18 07:50 • (MSD) R3323295-11 07/04/18 08:44

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	5000	135	5160	5310	101	104	1	80.0-120			2.83	15

L1005344-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1005344-06 07/04/18 09:21 • (MS) R3323295-12 07/04/18 09:39 • (MSD) R3323295-13 07/04/18 09:57

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 %
Fluoride	5000	318	5210	5510	97.9	104	1	80.0-120			5.50	15

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Qualifier	Description
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Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

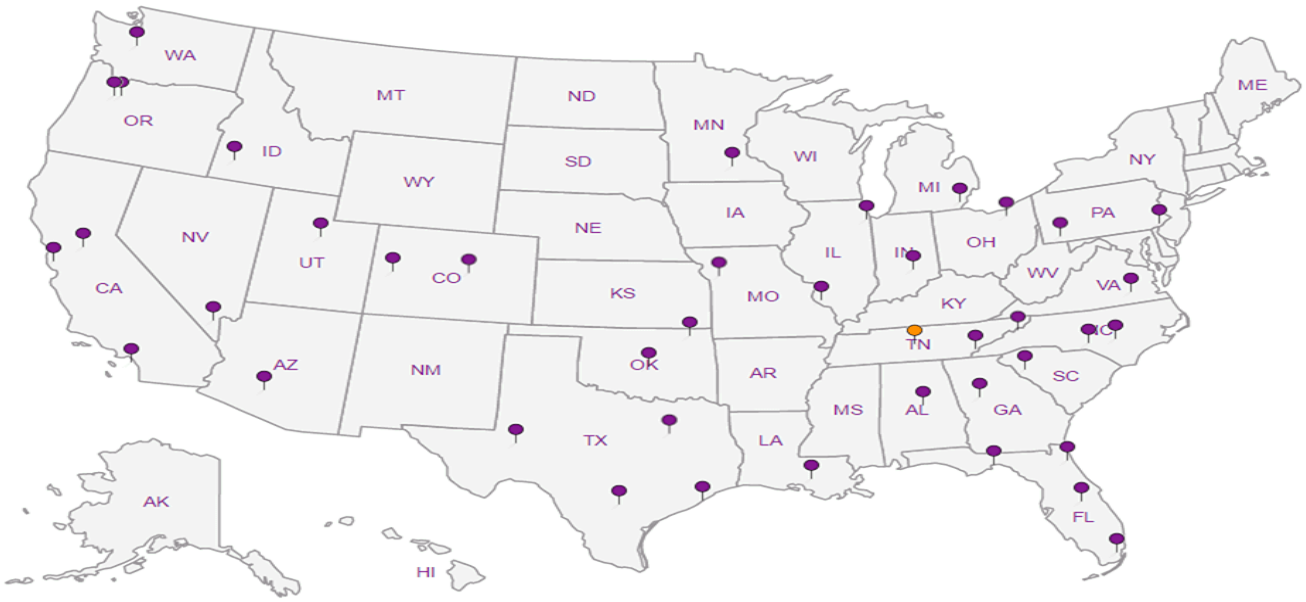
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

Our Locations

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



Chain of Custody Page 1 of 1

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

L# 1005331
A003

Acctnum: AQUAOPKS
Template: T136059
Prelogin: P659513
TSR: 206 - Jeff Carr
PB:
Shipped Via:

SCS Engineers - KS
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Billing Information:
Accounts Payable
7311 West 130th Street, Ste. 100
Overland Park, KS 66213

Pres Chk

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

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

Client Project # 27213167.18

Lab Project # AQUAOPKS-IATAN

Collected by (print): JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature): Jason R. Franks

Immediately Packed on Ice N ___ Y ___

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

Date Results Needed

Quote #

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Fluoride 125mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-1	GRAB	GW	-	6/26/18	1425	1	X		-01
MW-2	GRAB	GW	-	6/26/18	1505	1	X		-02
DUPLICATE	GRAB	GW	-	6/26/18	1505	1	X		-03
MW-12 MS/MSD	GRAB	GW	-	6/26/18	1505	1	X		-02

* 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

Samples returned via: UPS ___ FedEx ___ Courier ___

Tracking # 4361 6933 8622

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Relinquished by: (Signature) Jason R. Franks — Date: 6/27/18 — Time: 6:27:18

Received by: (Signature)

Temp: 3.7 °C — Bottles Received: 4

If preservation required by Login: Date/Time

Relinquished by: (Signature) — Date: ___ — Time: ___

Received by: (Signature)

Hold:

Condition: NCF / OK

Relinquished by: (Signature) — Date: ___ — Time: ___

Received for lab by: (Signature) — Date: 6/28/18 — Time: 8:45

Jared Morrison
December 16, 2022

ATTACHMENT 1-3

November 2018 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 21, 2018

SCS Engineers - KS

Sample Delivery Group:	L1043784
Samples Received:	11/13/2018
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

TABLE OF CONTENTS

MW-9 L1043784-01 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	11/12/18 12:50	11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 05:33	11/15/18 05:33	ELN
Metals (ICP) by Method 6010B	WG1196990	1	11/15/18 13:36	11/15/18 15:45	ST

MW-10 L1043784-02 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	11/12/18 12:00	11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 05:51	11/15/18 05:51	ELN
Metals (ICP) by Method 6010B	WG1196990	1	11/15/18 13:36	11/15/18 15:48	ST

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

Jeff Carr
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	435000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1100		1000	1	11/15/2018 05:33	WG1196256
Fluoride	390		100	1	11/15/2018 05:33	WG1196256
Sulfate	25800		5000	1	11/15/2018 05:33	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2018 15:45	WG1196990
Calcium	122000		1000	1	11/15/2018 15:45	WG1196990

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	554000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	15100		1000	1	11/15/2018 05:51	WG1196256
Fluoride	680		100	1	11/15/2018 05:51	WG1196256
Sulfate	32900		5000	1	11/15/2018 05:51	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/15/2018 15:48	WG1196990
Calcium	138000		1000	1	11/15/2018 15:48	WG1196990

Method Blank (MB)

(MB) R3361685-1 11/17/18 09:50

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

Laboratory Control Sample (LCS)

(LCS) R3361685-2 11/17/18 09:50

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

Method Blank (MB)

(MB) R3360117-1 11/14/18 22:17

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

L1043249-31 Original Sample (OS) • Duplicate (DUP)

(OS) L1043249-31 11/14/18 23:12 • (DUP) R3360117-3 11/14/18 23:30

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	67.2	0.000	1	200	P1	15
Fluoride	U	0.000	1	0.000		15
Sulfate	U	0.000	1	0.000		15

L1043793-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1043793-05 11/15/18 07:22 • (DUP) R3360117-6 11/15/18 07:40

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	12100	12100	1	0.239		15
Fluoride	396	444	1	11.5		15
Sulfate	85800	85800	1	0.0572		15

Laboratory Control Sample (LCS)

(LCS) R3360117-2 11/14/18 22:35

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39600	98.9	80.0-120	
Fluoride	8000	8000	100	80.0-120	
Sulfate	40000	40200	101	80.0-120	

L1043249-31 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043249-31 11/14/18 23:12 • (MS) R3360117-4 11/14/18 23:48 • (MSD) R3360117-5 11/15/18 00:06

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	67.2	49100	50400	98.0	101	1	80.0-120			2.58	15
Fluoride	5000	U	5000	5140	100	103	1	80.0-120			2.64	15
Sulfate	50000	U	50100	50800	100	102	1	80.0-120			1.31	15

L1043793-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1043793-05 11/15/18 07:22 • (MS) R3360117-7 11/15/18 07:59

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	12100	62000	99.8	1	80.0-120	
Fluoride	5000	396	5570	103	1	80.0-120	
Sulfate	50000	85800	132000	92.5	1	80.0-120	E

Method Blank (MB)

(MB) R3360382-1 11/15/18 15:24

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

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

(LCS) R3360382-2 11/15/18 15:26 • (LCSD) R3360382-3 11/15/18 15:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	1050	1060	105	106	80.0-120			0.908	20
Calcium	10000	10500	10600	105	106	80.0-120			0.824	20

L1042969-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1042969-05 11/15/18 15:32 • (MS) R3360382-5 11/15/18 15:37 • (MSD) R3360382-6 11/15/18 15:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	59.5	1110	1110	105	105	1	75.0-125			0.610	20
Calcium	10000	35000	45500	45100	105	101	1	75.0-125			0.782	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.
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).
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

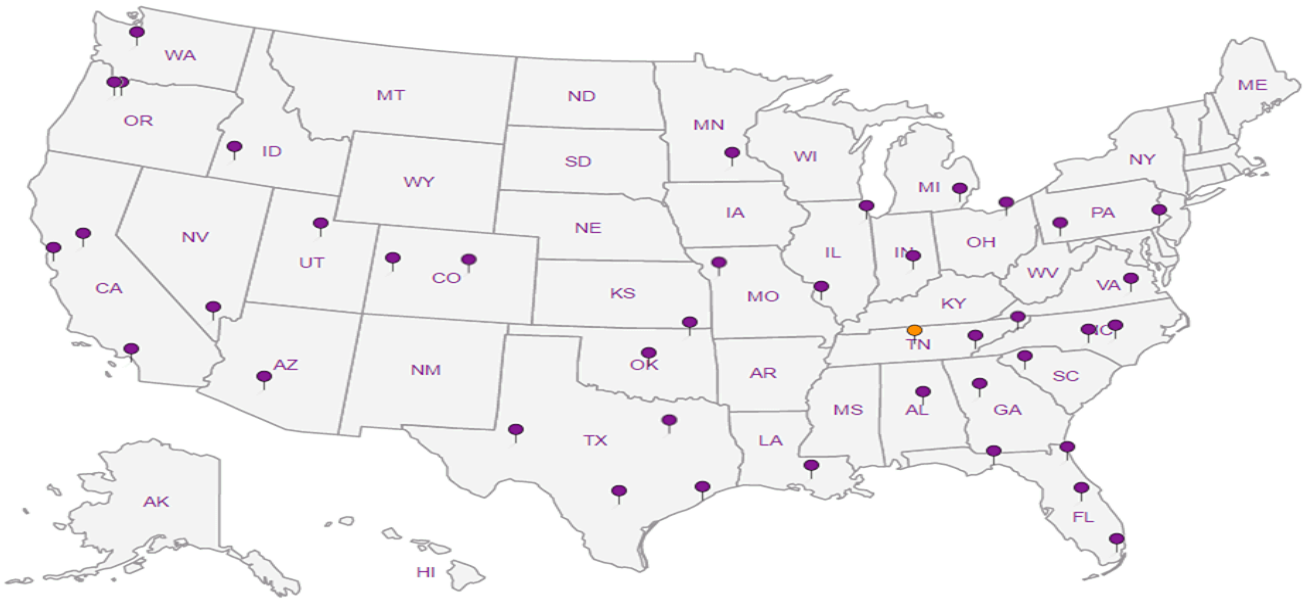
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

Our Locations

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



SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Pres Chk

Report to: **Jason Franks**

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

Project Description: **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. Donathor

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: STD

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions (Cld, F, SO4) 125mlHDPE-NoPres	B, Ca - 6010 250mlHDPE-HNO3	TDS 250mlHDPE-NoPres							Remarks	Sample # (lab only)
MW-9	Comp	GW		11/12/18	1250	3	X	X	X								01
MW-10	Comp	GW		11/12/18	1200	3	X	X	X								02

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

L# 1043784

Table #

Acctnum: **AQUAOPKS**
Template: **T136056**
Prelogin: **P678028**
TSR: **206 - Jeff Carr**
PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: ___ UPS ___ FedEx ___ Courier SVA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP ___Y ___N
COC Signed/Accurate: ___Y ___N
Bottles arrive intact: ___Y ___N
Correct bottles used: ___Y ___N
Sufficient volume sent: ___Y ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	11-12-18	1631			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 0.3-0.1-0.1 80	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/13/18 Time: 0845	Hold: / Condition: NCF / OK

Kelsey Stephenson

Pace Analytical®
National Center for Testing & Innovation

Login #: L1043784	Client: AQUAOPKS	Date: 11/13	Evaluated by: Brock F.

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
x	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courie
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: Metals container for MW-9 and MW-10 received unpreserved.

Client informed by:		Call		Email	X	Voice Mail		Date: 11/13/18	Time: 1628
TSR Initials: JC	Client Contact: J. Franks								

Login Instructions: Preserve and log for total metals.

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 21, 2018

SCS Engineers - KS

Sample Delivery Group:	L1043793
Samples Received:	11/13/2018
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

TABLE OF CONTENTS

MW-1 L1043793-01 GW

Collected by: G. Penaflor | Collected date/time: 11/12/18 14:00 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 06:10	11/15/18 06:10	ELN
Metals (ICP) by Method 6010B	WG1196321	1	11/14/18 10:10	11/14/18 14:28	ST

MW-2 L1043793-02 GW

Collected by: G. Penaflor | Collected date/time: 11/12/18 12:50 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 06:28	11/15/18 06:28	ELN
Metals (ICP) by Method 6010B	WG1196321	1	11/14/18 10:10	11/14/18 14:31	ST

MW-6 L1043793-03 GW

Collected by: G. Penaflor | Collected date/time: 11/12/18 14:45 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 06:46	11/15/18 06:46	ELN
Metals (ICP) by Method 6010B	WG1196321	1	11/14/18 10:10	11/14/18 15:02	ST

MW-7 L1043793-04 GW

Collected by: G. Penaflor | Collected date/time: 11/12/18 14:10 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 07:04	11/15/18 07:04	ELN
Wet Chemistry by Method 9056A	WG1196256	5	11/15/18 10:15	11/15/18 10:15	ELN
Metals (ICP) by Method 6010B	WG1196321	1	11/14/18 10:10	11/14/18 15:04	ST

MW-8 L1043793-05 GW

Collected by: G. Penaflor | Collected date/time: 11/12/18 14:45 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196256	1	11/15/18 07:22	11/15/18 07:22	ELN
Metals (ICP) by Method 6010B	WG1196321	1	11/14/18 10:10	11/14/18 14:14	ST

DUPLICATE L1043793-06 GW

Collected by: G. Penaflor | Collected date/time: 11/12/18 13:00 | Received date/time: 11/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1197219	1	11/17/18 09:14	11/17/18 09:50	MMF
Wet Chemistry by Method 9056A	WG1196780	1	11/15/18 17:51	11/15/18 17:51	ELN
Metals (ICP) by Method 6010B	WG1196321	1	11/14/18 10:10	11/14/18 20:25	ST

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

Jeff Carr
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	485000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5040		1000	1	11/15/2018 06:10	WG1196256
Fluoride	288		100	1	11/15/2018 06:10	WG1196256
Sulfate	24600		5000	1	11/15/2018 06:10	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/14/2018 14:28	WG1196321
Calcium	137000		1000	1	11/14/2018 14:28	WG1196321

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	590000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5790		1000	1	11/15/2018 06:28	WG1196256
Fluoride	327		100	1	11/15/2018 06:28	WG1196256
Sulfate	81500		5000	1	11/15/2018 06:28	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/14/2018 14:31	WG1196321
Calcium	166000		1000	1	11/14/2018 14:31	WG1196321

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	484000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	1310		1000	1	11/15/2018 06:46	WG1196256
Fluoride	325		100	1	11/15/2018 06:46	WG1196256
Sulfate	27300		5000	1	11/15/2018 06:46	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/14/2018 15:02	WG1196321
Calcium	147000		1000	1	11/14/2018 15:02	WG1196321

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	681000		13300	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	26400		1000	1	11/15/2018 07:04	WG1196256
Fluoride	369		100	1	11/15/2018 07:04	WG1196256
Sulfate	149000		25000	5	11/15/2018 10:15	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/14/2018 15:04	WG1196321
Calcium	192000		1000	1	11/14/2018 15:04	WG1196321

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	563000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	12100		1000	1	11/15/2018 07:22	WG1196256
Fluoride	396		100	1	11/15/2018 07:22	WG1196256
Sulfate	85800		5000	1	11/15/2018 07:22	WG1196256

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/14/2018 14:14	WG1196321
Calcium	170000	V	1000	1	11/14/2018 14:14	WG1196321

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	585000		10000	1	11/17/2018 09:50	WG1197219

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5550		1000	1	11/15/2018 17:51	WG1196780
Fluoride	328		100	1	11/15/2018 17:51	WG1196780
Sulfate	81100		5000	1	11/15/2018 17:51	WG1196780

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	11/14/2018 20:25	WG1196321
Calcium	164000		1000	1	11/14/2018 20:25	WG1196321

Method Blank (MB)

(MB) R3361685-1 11/17/18 09:50

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

L1043765-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1043765-03 11/17/18 09:50 • (DUP) R3361685-3 11/17/18 09:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	1110000	1010000	1	9.47	J3	5

Laboratory Control Sample (LCS)

(LCS) R3361685-2 11/17/18 09:50

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

Method Blank (MB)

(MB) R3360117-1 11/14/18 22:17

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

L1043249-31 Original Sample (OS) • Duplicate (DUP)

(OS) L1043249-31 11/14/18 23:12 • (DUP) R3360117-3 11/14/18 23:30

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	67.2	0.000	1	200	P1	15
Fluoride	U	0.000	1	0.000		15
Sulfate	U	0.000	1	0.000		15

L1043793-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1043793-05 11/15/18 07:22 • (DUP) R3360117-6 11/15/18 07:40

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	12100	12100	1	0.239		15
Fluoride	396	444	1	11.5		15
Sulfate	85800	85800	1	0.0572		15

Laboratory Control Sample (LCS)

(LCS) R3360117-2 11/14/18 22:35

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39600	98.9	80.0-120	
Fluoride	8000	8000	100	80.0-120	
Sulfate	40000	40200	101	80.0-120	

L1043249-31 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043249-31 11/14/18 23:12 • (MS) R3360117-4 11/14/18 23:48 • (MSD) R3360117-5 11/15/18 00:06

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	67.2	49100	50400	98.0	101	1	80.0-120			2.58	15
Fluoride	5000	U	5000	5140	100	103	1	80.0-120			2.64	15
Sulfate	50000	U	50100	50800	100	102	1	80.0-120			1.31	15

L1043793-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1043793-05 11/15/18 07:22 • (MS) R3360117-7 11/15/18 07:59

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	12100	62000	99.8	1	80.0-120	
Fluoride	5000	396	5570	103	1	80.0-120	
Sulfate	50000	85800	132000	92.5	1	80.0-120	E

Method Blank (MB)

(MB) R3360508-1 11/15/18 15:30

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

L1043813-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1043813-01 11/15/18 18:07 • (DUP) R3360508-3 11/15/18 18:23

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	3850	3860	1	0.329		15
Fluoride	190	190	1	0.316		15
Sulfate	46000	45900	1	0.154		15

L1044067-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1044067-01 11/15/18 23:19 • (DUP) R3360508-6 11/15/18 23:35

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	2580	2610	1	1.16		15
Fluoride	193	208	1	7.38		15
Sulfate	24500	24900	1	1.49		15

Laboratory Control Sample (LCS)

(LCS) R3360508-2 11/15/18 15:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38500	96.3	80.0-120	
Fluoride	8000	7890	98.6	80.0-120	
Sulfate	40000	38900	97.2	80.0-120	

L1043813-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043813-01 11/15/18 18:07 • (MS) R3360508-4 11/15/18 18:40 • (MSD) R3360508-5 11/15/18 18:56

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	3850	53100	54000	98.6	100	1	80.0-120			1.68	15
Fluoride	5000	190	5350	5390	103	104	1	80.0-120			0.797	15
Sulfate	50000	46000	95000	95800	98.1	99.7	1	80.0-120			0.838	15

L1044067-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1044067-01 11/15/18 23:19 • (MS) R3360508-7 11/15/18 23:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	2580	52200	99.3	1	80.0-120	
Fluoride	5000	193	5260	101	1	80.0-120	
Sulfate	50000	24500	74900	101	1	80.0-120	

Method Blank (MB)

(MB) R3359940-1 11/14/18 14:07

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

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

(LCS) R3359940-2 11/14/18 14:09 • (LCSD) R3359940-3 11/14/18 14:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	1080	1070	108	107	80.0-120			0.854	20
Calcium	10000	10400	10400	104	104	80.0-120			0.00547	20

L1043793-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043793-05 11/14/18 14:14 • (MS) R3359940-5 11/14/18 14:20 • (MSD) R3359940-6 11/14/18 14:22

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	ND	1200	1220	107	109	1	75.0-125			1.61	20
Calcium	10000	170000	174000	178000	48.1	82.0	1	75.0-125	V		1.92	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
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.
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.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

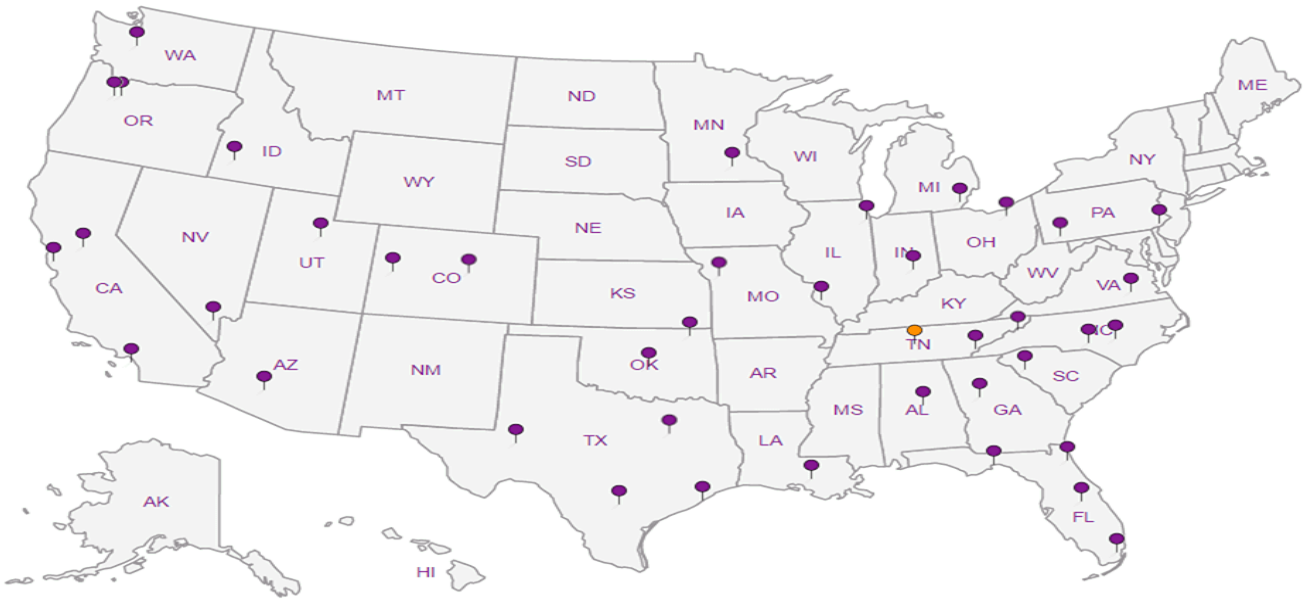
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

Our Locations

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



SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Pres Chk

Report to: **Jason Franks**

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

Project Description: **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. Penaflor

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: STD

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions (Cld, F, SO4) 125mlHDPE-NoPres	B, Ca - 6010 250mlHDPE-HNO3	TDS 250mlHDPE-NoPres							Remarks	Sample # (lab only)
								2									
MW-1	Comp	GW		11/12/18	1400	3	X	X	X								-01
MW-2		GW			1250	3	X	X	X								02
MW-6		GW			1445	3	X	X	X								03
MW-7		GW			1410	3	X	X	X								04
MW-8		GW			1445	3	X	X	X								05
DUPLICATE		GW			1300	3	X	X	X								06
MS		GW			1305	3	X	X	X								
MSD		GW			1310	3	X	X	X								

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

L# 1043793

Table #

Acctnum: **AQUAOPKS**

Template: **T136059**

Prelogin: **P680726**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: ___ UPS ___ FedEx ___ Courier SVA

Tracking #

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	Sample Receipt Checklist
	11-12-18	1631			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 80	If preservation required by Login: Date/Time
				1.3-0.1=1.2 LM	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:	Hold:	Condition:
				11/13/18	0845		NCF / OK

Kelsey Stephenson

Pace Analytical®
National Center for Testing & Innovation

Login #:L1043793	Client: AQUAOPKS	Date: 11/13	Evaluated by: Kelsey S.

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courie
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: Client does not specify which samples are MS/MSD.

Client informed by:		Call		Email	X	Voice Mail		Date: 11/13/18	Time: 1639
TSR Initials: JC	Client Contact: J. Franks								

Login Instructions: MW-2

Jared Morrison
December 16, 2022

ATTACHMENT 2

Statistical Analyses

Jared Morrison
December 16, 2022

ATTACHMENT 2-1

Fall 2017 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

January 22, 2018

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

From: SCS Engineers

RE: Revision to January 15, 2018 Memorandum
Determination of Statistically Significant Increases - CCR Landfill

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 and analyzed by October 17, 2017. A statistical analysis was conducted to determine whether there is a statistically significant increase over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring.

The completed statistical evaluation did identify one Appendix III constituent above its prediction limit. The prediction limit for chloride in monitoring well MW-1 is 6.27 mg/L and the chloride result for the second verification re-sample is 6.27 mg/L. However the, Sanitas™ Output identified the 6.27 mg/L chloride concentration in MW-1 as a confirmed statistically significant increase (SSI) above background, due to numerical rounding.

Attached to this memorandum are the following backup information:

Attachment 1: Sanitas™ Output:
Statistical evaluation output from Sanitas™ for the prediction limit analysis. This includes prediction limit plots, prediction limit background data, detection sample result, 1st verification re-sample result (when applicable), 2nd verification re-sample result (when applicable), extra sample result for quality control (if applicable), and a Prediction Limit summary table. Output documentation includes the analytical data used for the statistical analyses.

Attachment 2: Sanitas™ Configuration Settings:
Screen shots of the applicable Sanitas™ configuration settings for the statistical prediction limit analysis. This includes data configuration, output configuration, prediction limit configuration and other tests configuration.

Revision Number	Revision Date	Attachment Revised	Summary of Revisions
1	1/22/2018	Cover letter	Revision table added. No changes to text regarding statistical analyses. Attachment 1 description was revised to match the revisions made in the attachment.
1	1/22/2018	1	Sanitas™ Output was revised to report boron in mg/L instead of ug/L. Some samples previously identified as verification re-samples are now more appropriately identified as “extra samples”. These samples were taken as part of the quality control process, and were not required as part of verification re-sampling.

Iatan Generating Station
Determination of Statistically Significant Increases
CCR Landfill
January 22, 2018

ATTACHMENT 1

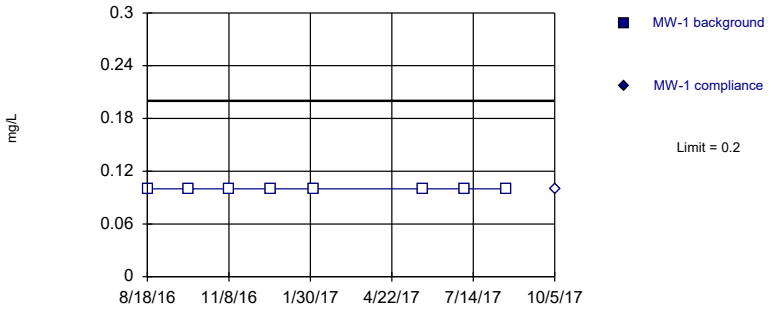
Sanitas™ Output

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

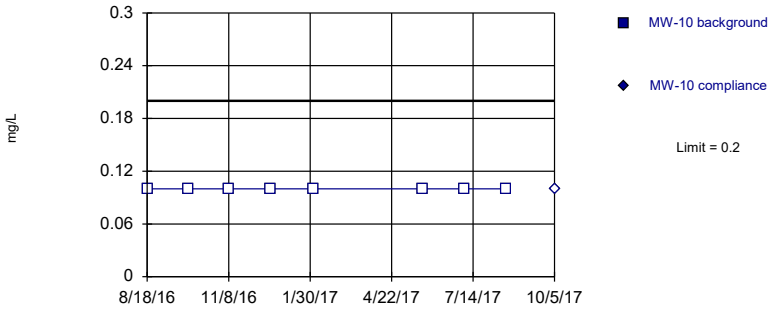
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

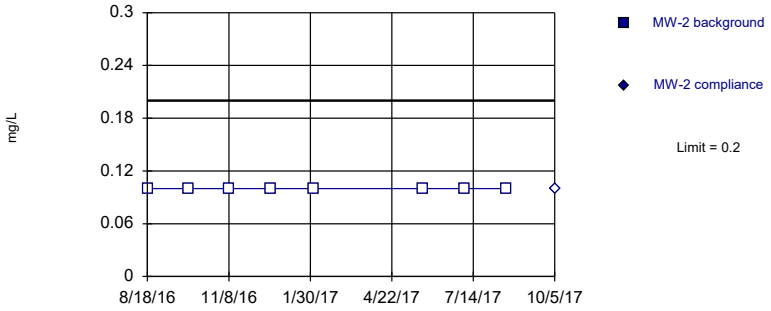
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

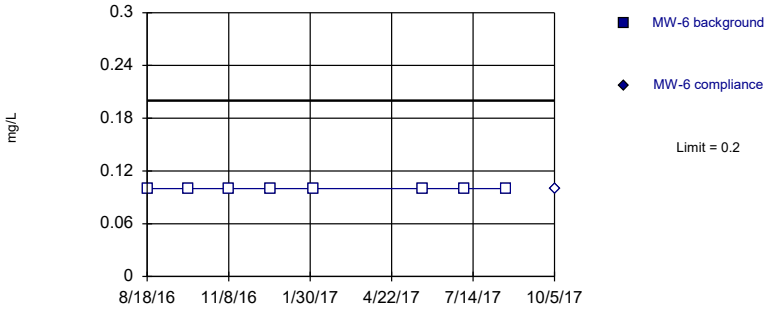
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

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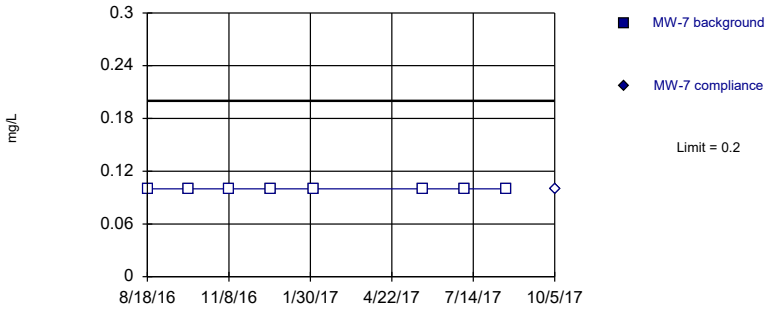
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

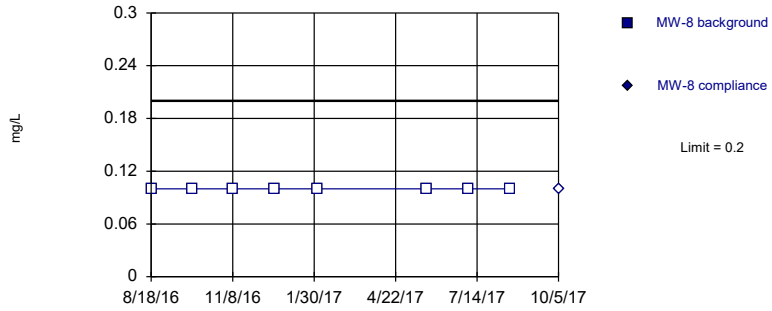
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

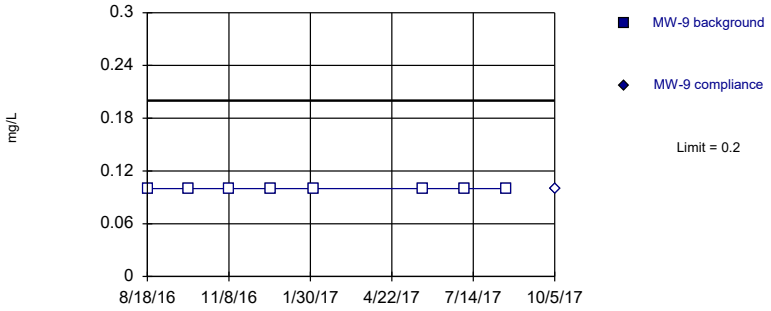
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 1/18/2018 12:17 PM View: CCR III

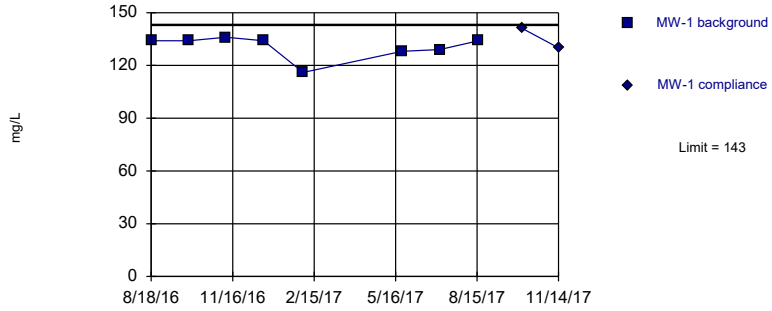
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG

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 = 0.755, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		<0.2

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

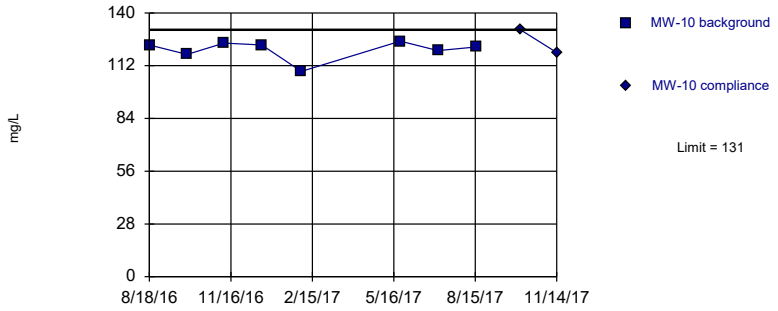
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		141	
11/14/2017		130	1st verification re-sample

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=121, Std. Dev.=5.15, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.795, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

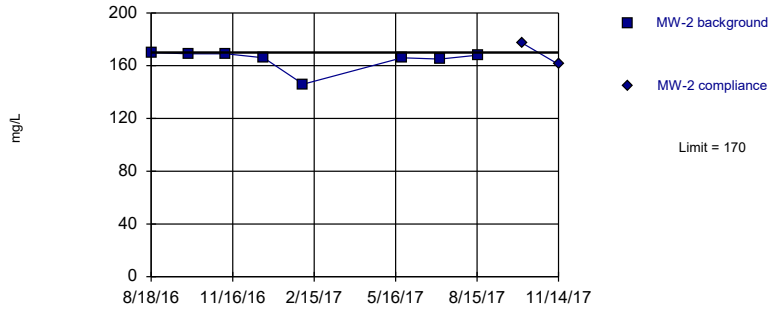
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

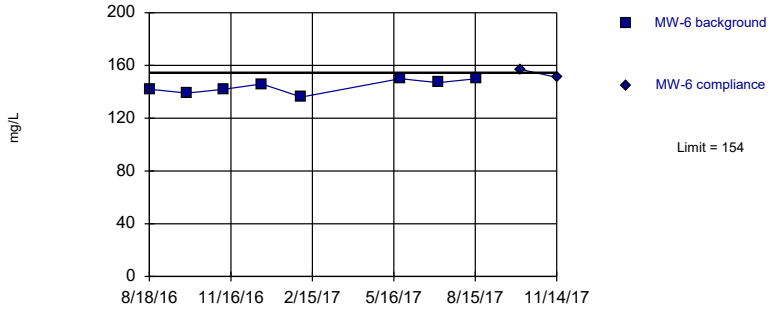
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=144, Std. Dev.=5.1, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.936, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

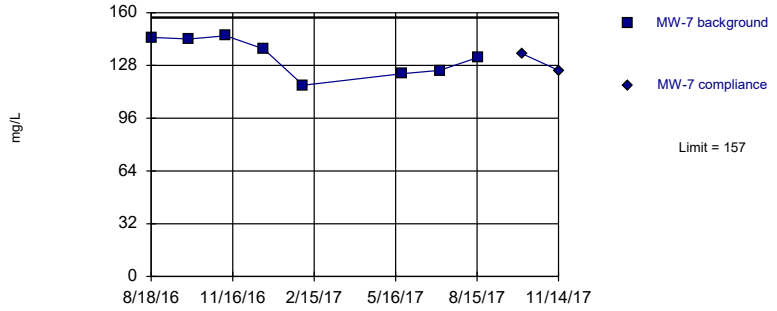
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=134, Std. Dev.=11.4, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.908, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		131	
11/14/2017		119	1st verification re-sample

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		177	
11/14/2017		161	1st verification re-sample

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		157	
11/14/2017		151	1st verification re-sample

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

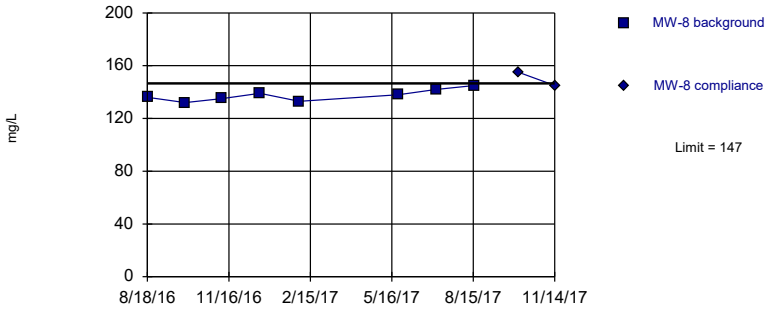
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		135	
11/14/2017		125	extra sample

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=138, Std. Dev.=4.44, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.962, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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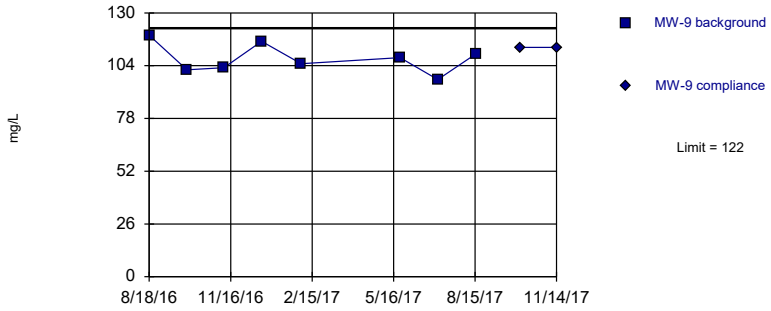
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=108, Std. Dev.=7.31, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.967, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 1/18/2018 12:17 PM View: CCR III

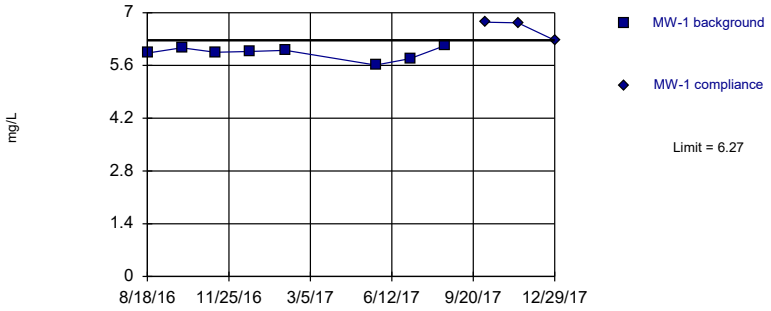
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.93, Std. Dev.=0.165, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.921, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

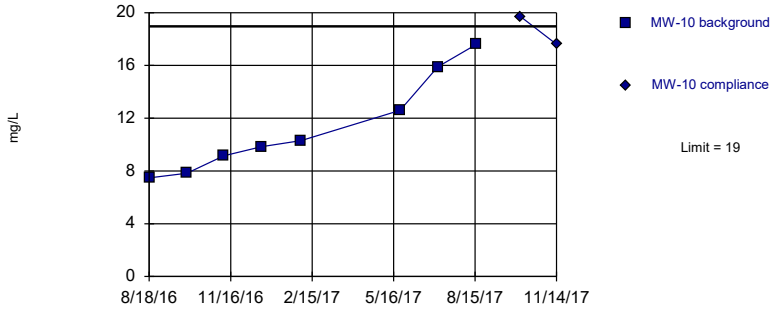
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Sanitas™ v.9.5.32 Sanitas software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=11.3, Std. Dev.=3.72, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.894, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		155	
11/14/2017		145	1st verification re-sample

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		113	
11/14/2017		113	extra sample

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		6.75	
11/14/2017		6.73	1st verification re-sample
12/29/2017		6.27	2nd verification re-sample

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

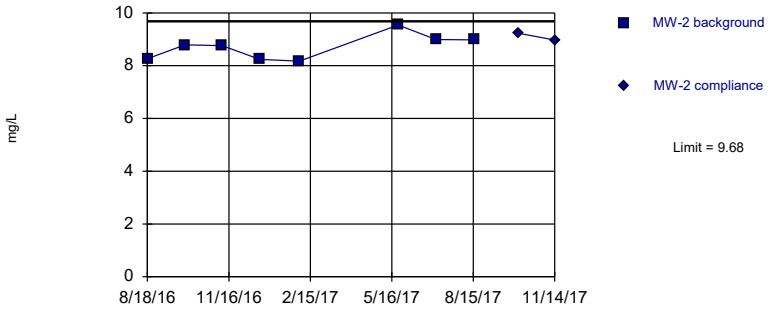
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		19.7	
11/14/2017		17.6	1st verification re-sample

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.72, Std. Dev.=0.473, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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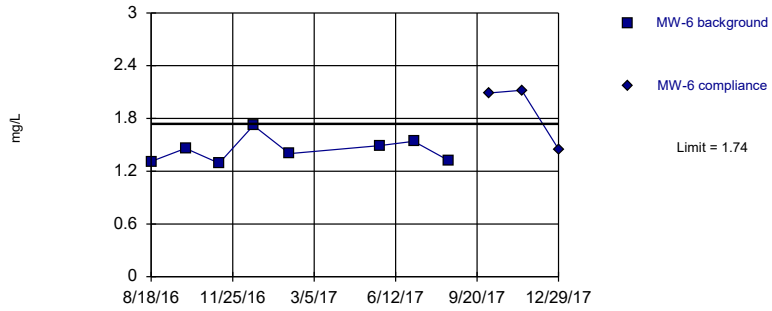
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=1.44, Std. Dev.=0.145, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.913, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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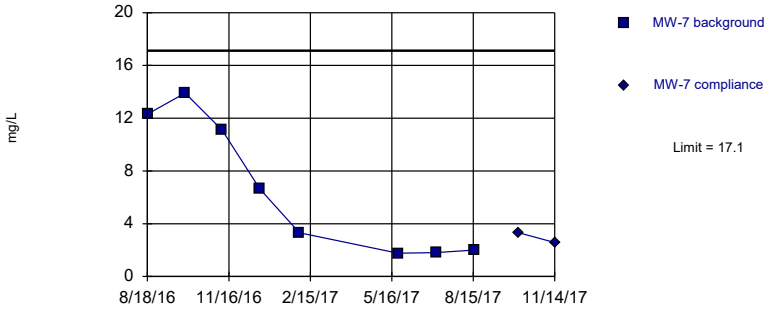
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.6, Std. Dev.=5.13, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.839, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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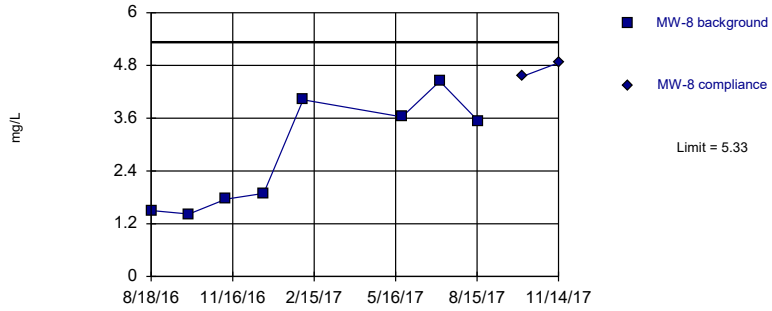
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.77, Std. Dev.=1.25, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.85, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		9.23	
11/14/2017		8.97	extra sample

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		2.09	
11/14/2017		2.12	1st verification re-sample
12/29/2017		1.45	2nd verification re-sample

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		3.32	
11/14/2017		2.58	extra sample

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

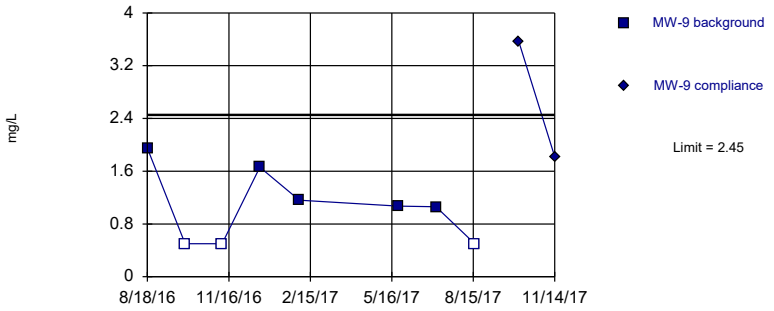
	MW-8	MW-8	
8/18/2016	1.5		
9/29/2016	1.42		
11/9/2016	1.76		
12/21/2016	1.89		
2/3/2017	4.02		
5/24/2017	3.63		
7/5/2017	4.44		
8/17/2017	3.53		
10/5/2017		4.55	
11/14/2017		4.86	extra sample

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Aitchison`s Adjustment): Mean=0.863, Std. Dev.=0.777, n=8, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.88, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

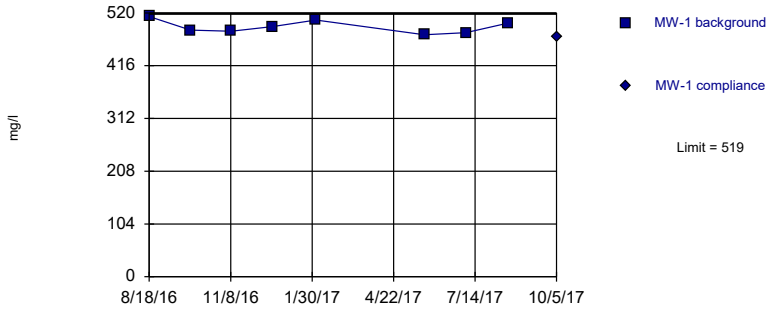
Constituent: Chloride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=493, Std. Dev.=12.8, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.943, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

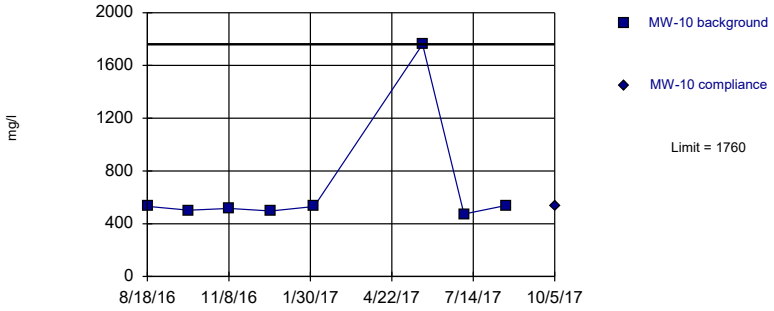
Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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 = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

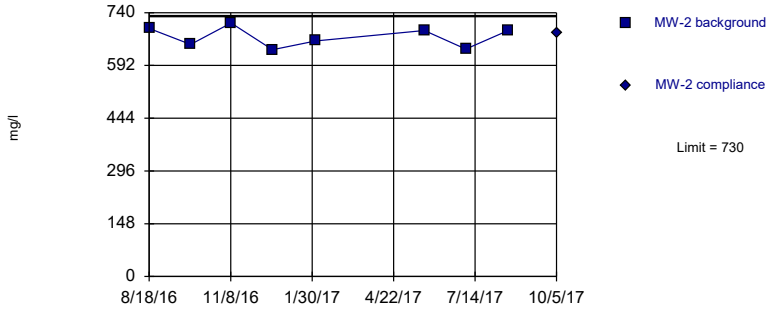
Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=672, Std. Dev.=28.7, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.904, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		3.57	
11/14/2017		1.82	1st verification re-sample

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		472

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		539

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

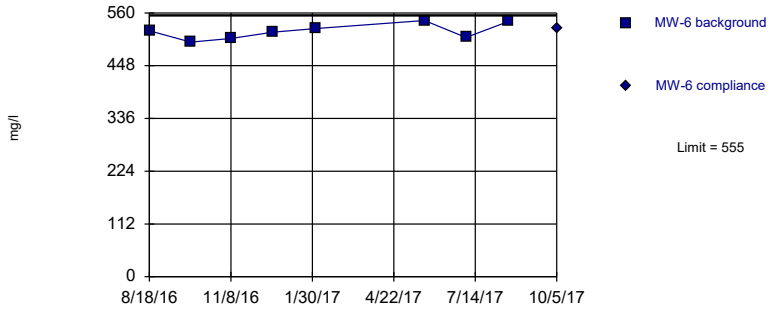
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		683

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=521, Std. Dev.=16.6, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.943, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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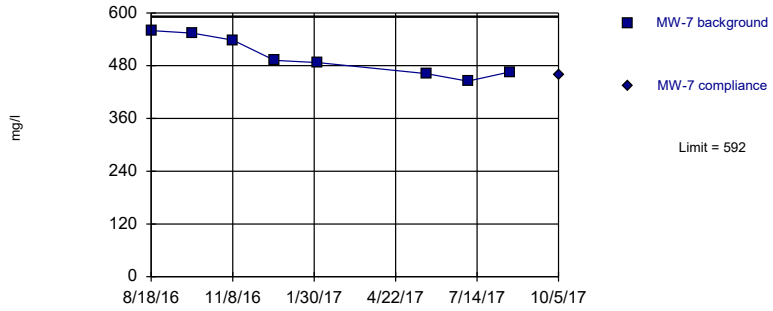
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=501, Std. Dev.=44.4, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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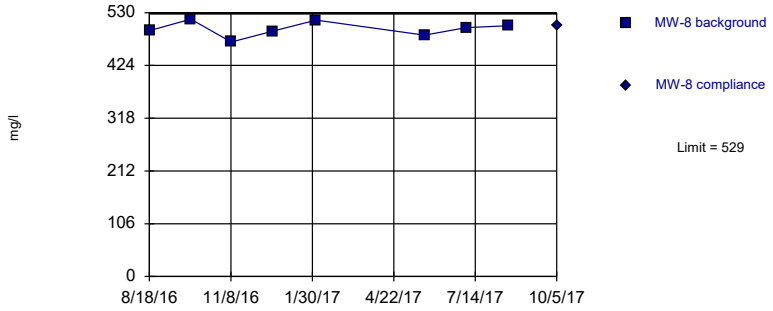
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=497, Std. Dev.=15.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.964, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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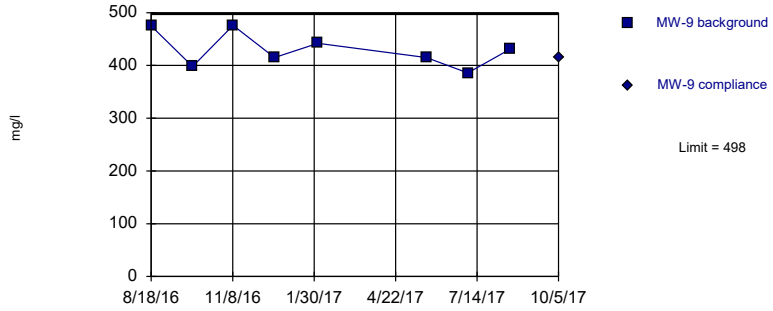
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=430, Std. Dev.=33.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.926, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		528

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		459

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		505

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 1/18/2018 12:19 PM View: CCR III

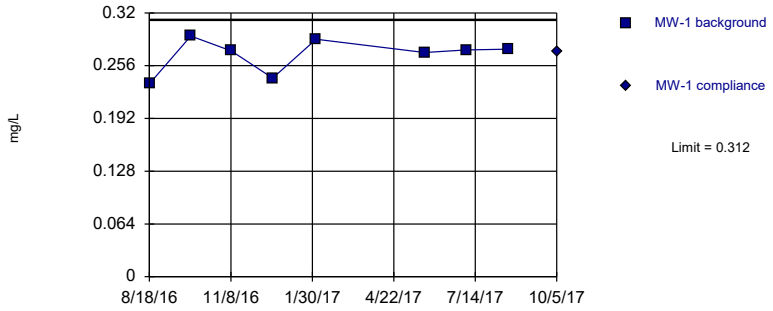
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		414

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.269, Std. Dev.=0.0208, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.853, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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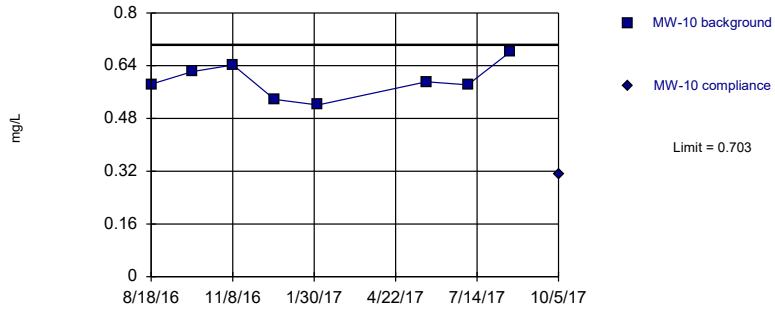
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.595, Std. Dev.=0.0528, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.971, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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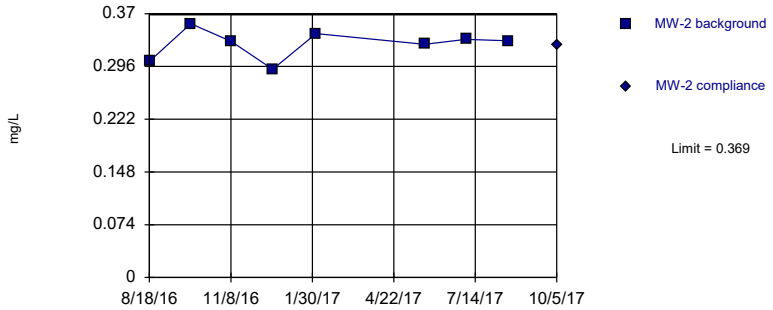
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.327, Std. Dev.=0.0206, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.927, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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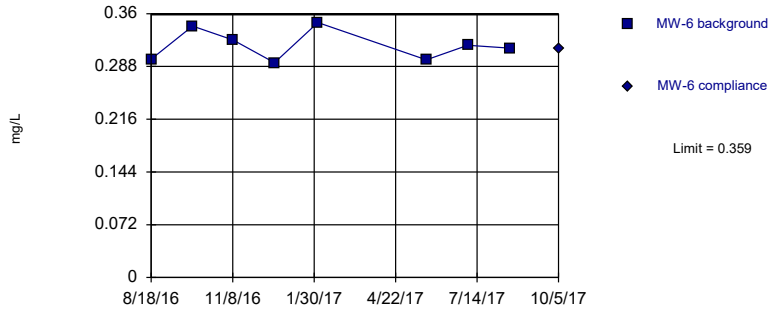
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.317, Std. Dev.=0.0208, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.273

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.312

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.326

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

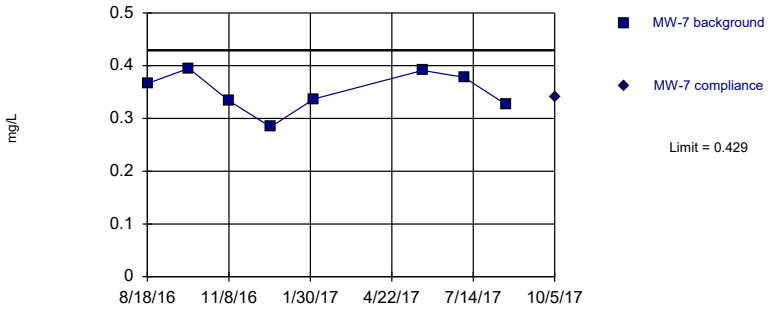
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.312

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.351, Std. Dev.=0.038, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.934, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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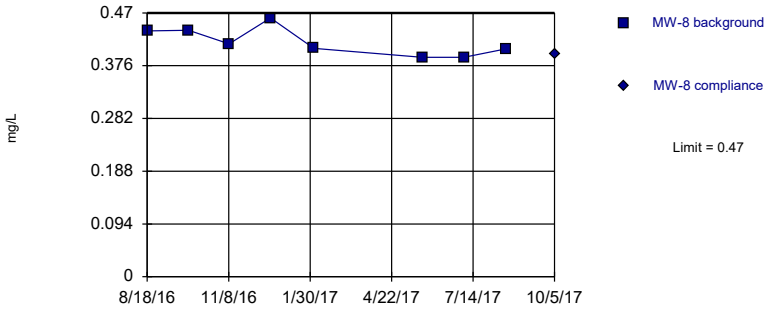
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.419, Std. Dev.=0.0251, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.915, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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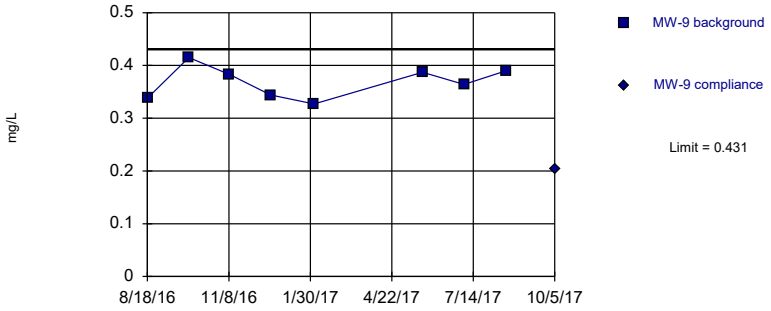
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.369, Std. Dev.=0.0304, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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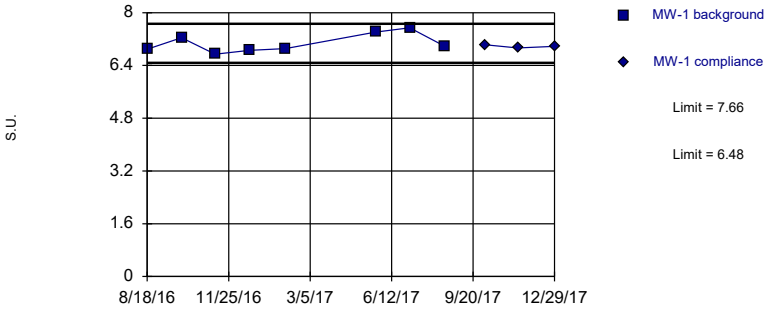
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.07, Std. Dev.=0.289, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.895, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.341

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.396

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		0.204

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

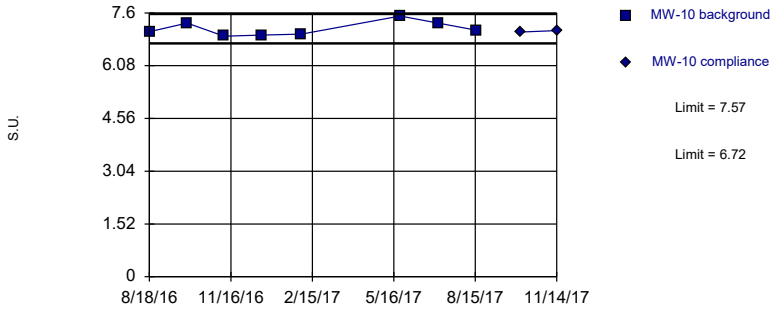
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7.03	
11/14/2017		6.93	extra sample
12/29/2017		6.98	extra sample

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.15, Std. Dev.=0.207, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.896, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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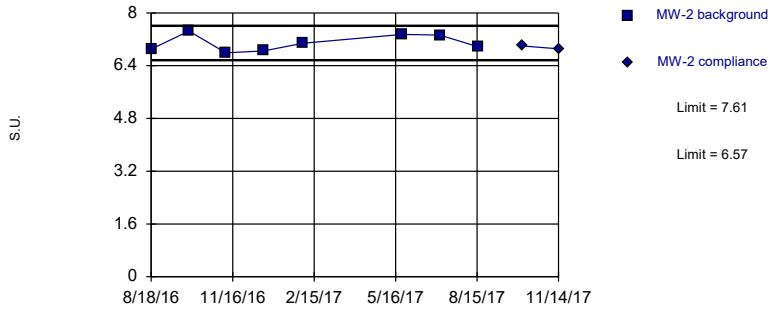
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.09, Std. Dev.=0.254, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.901, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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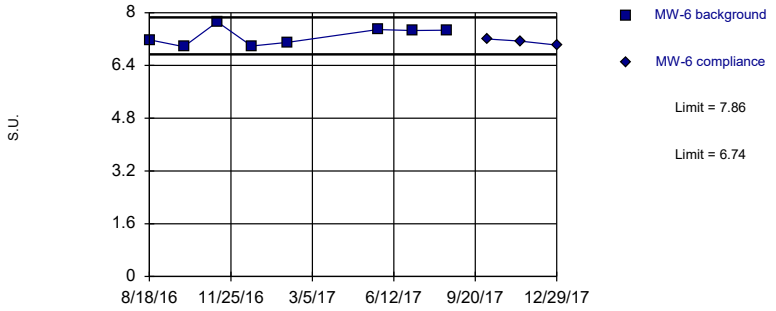
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.3, Std. Dev.=0.274, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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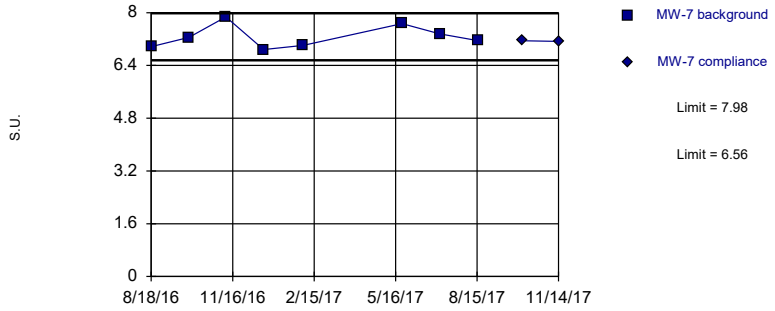
Within Limits

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 = 0.923, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7.05	
11/14/2017		7.09	extra sample

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7	
11/14/2017		6.91	extra sample

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7.2	
11/14/2017		7.14	extra sample
12/29/2017		7.02	extra sample

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

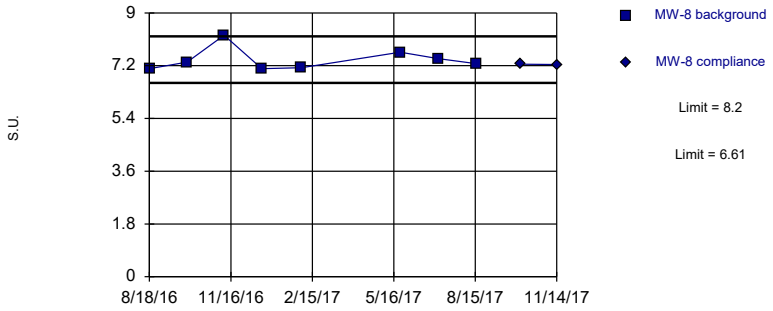
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7.15	
11/14/2017		7.13	extra sample

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.41, Std. Dev.=0.387, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.813, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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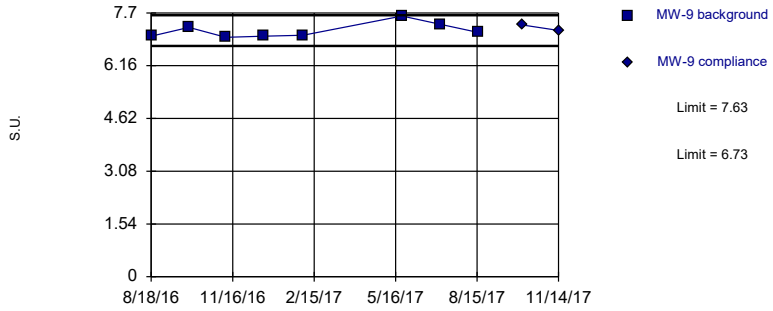
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.18, Std. Dev.=0.22, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.85, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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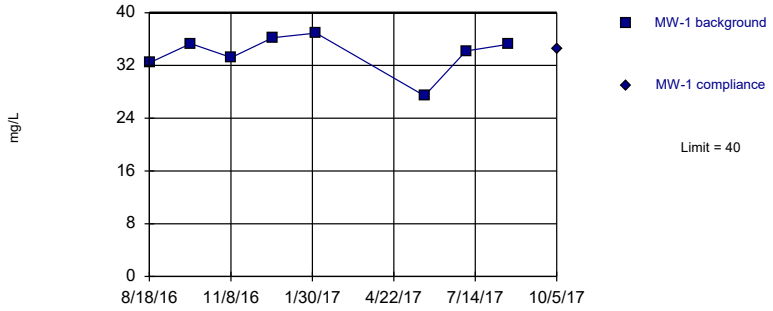
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=33.9, Std. Dev.=3, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.863, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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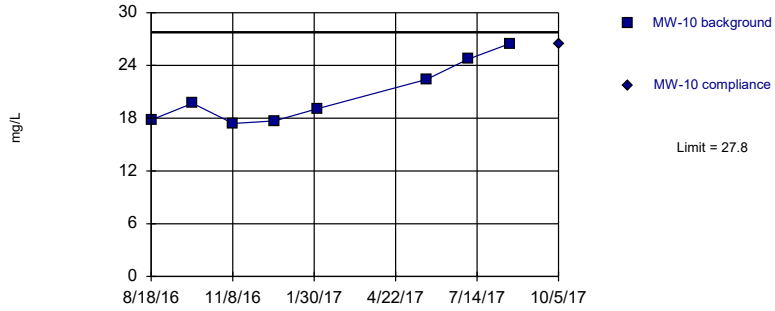
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=20.7, Std. Dev.=3.47, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.868, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:17 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7.25	
11/14/2017		7.24	extra sample

Prediction Limit

Constituent: pH (S.U.) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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		
10/5/2017		7.35	
11/14/2017		7.19	extra sample

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		34.5

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

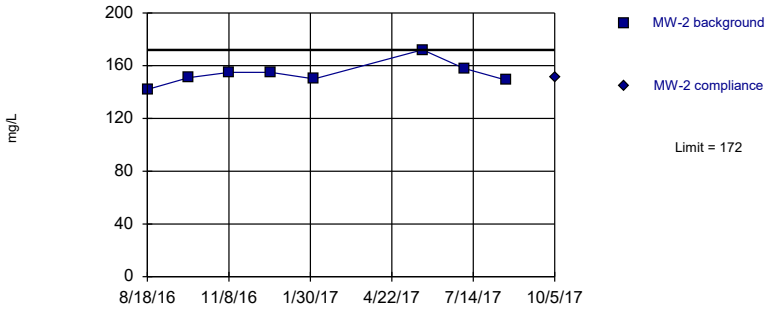
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		26.4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=154, Std. Dev.=8.75, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:18 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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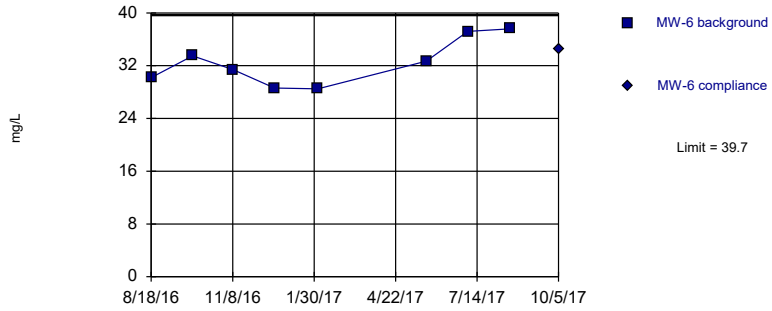
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=32.5, Std. Dev.=3.52, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.907, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:18 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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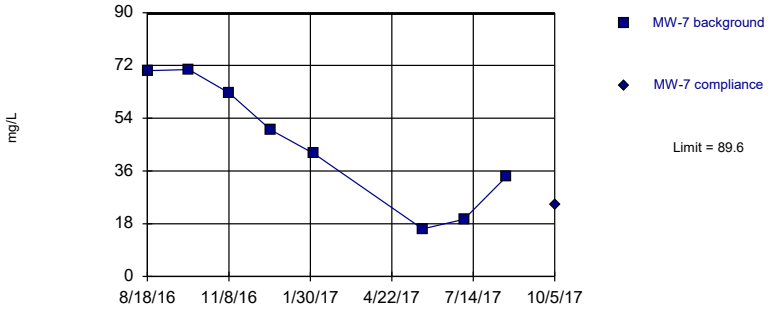
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=45.6, Std. Dev.=21.5, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.916, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:18 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

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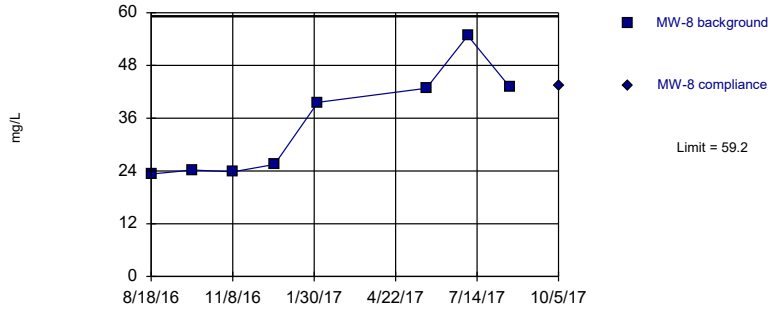
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=34.6, Std. Dev.=12, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.846, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:18 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		151

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		34.5

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		24.3

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

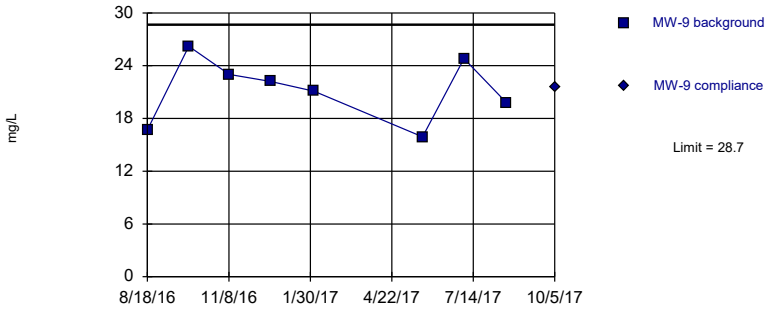
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		43.4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=21.2, Std. Dev.=3.64, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 1/18/2018 12:18 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 1/18/2018 12:19 PM View: CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan

	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	
10/5/2017		21.5

Prediction Limit

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan Printed 1/18/2018, 12:19 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	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-10	0.2	n/a	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-2	0.2	n/a	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-6	0.2	n/a	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-7	0.2	n/a	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-8	0.2	n/a	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-9	0.2	n/a	10/5/2017	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Calcium (mg/L)	MW-1	143	n/a	11/14/2017	130	No	8	0	x^2	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-10	131	n/a	11/14/2017	119	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-2	170	n/a	11/14/2017	161	No	8	0	n/a	0.00591	NP Intra (normality) ...
Calcium (mg/L)	MW-6	154	n/a	11/14/2017	151	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-7	157	n/a	11/14/2017	125	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-8	147	n/a	11/14/2017	145	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-9	122	n/a	11/14/2017	113	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	**MW-1**	**6.27**	**n/a**	**12/29/2017**	**6.27**	**Yes**	**8**	**0**	**No**	**0.00107**	**Param Intra 1 of 3**
Chloride (mg/L)	MW-10	19	n/a	11/14/2017	17.6	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-2	9.68	n/a	11/14/2017	8.97	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-6	1.74	n/a	12/29/2017	1.45	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-7	17.1	n/a	11/14/2017	2.58	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-8	5.33	n/a	11/14/2017	4.86	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-9	2.45	n/a	11/14/2017	1.82	No	8	37.5	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-1	519	n/a	10/5/2017	472	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-10	1760	n/a	10/5/2017	539	No	8	0	n/a	0.00591	NP Intra (normality) ...
Dissolved Solids (mg/l)	MW-2	730	n/a	10/5/2017	683	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-6	555	n/a	10/5/2017	528	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-7	592	n/a	10/5/2017	459	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-8	529	n/a	10/5/2017	505	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-9	498	n/a	10/5/2017	414	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-1	0.312	n/a	10/5/2017	0.273	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-10	0.703	n/a	10/5/2017	0.312	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-2	0.369	n/a	10/5/2017	0.326	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-6	0.359	n/a	10/5/2017	0.312	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-7	0.429	n/a	10/5/2017	0.341	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-8	0.47	n/a	10/5/2017	0.396	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-9	0.431	n/a	10/5/2017	0.204	No	8	0	No	0.00107	Param Intra 1 of 3
pH (S.U.)	MW-1	7.66	6.48	12/29/2017	6.98	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-10	7.57	6.72	11/14/2017	7.09	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-2	7.61	6.57	11/14/2017	6.91	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-6	7.86	6.74	12/29/2017	7.02	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-7	7.98	6.56	11/14/2017	7.13	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-8	8.2	6.61	11/14/2017	7.24	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-9	7.63	6.73	11/14/2017	7.19	No	8	0	No	0.000537	Param Intra 1 of 3
Sulfate (mg/L)	MW-1	40	n/a	10/5/2017	34.5	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-10	27.8	n/a	10/5/2017	26.4	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-2	172	n/a	10/5/2017	151	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-6	39.7	n/a	10/5/2017	34.5	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-7	89.6	n/a	10/5/2017	24.3	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-8	59.2	n/a	10/5/2017	43.4	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-9	28.7	n/a	10/5/2017	21.5	No	8	0	No	0.00107	Param Intra 1 of 3

ATTACHMENT 2

Sanitas™ Configuration Settings

Options

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

Exclude data flags:

Data Reading Options

- (•) Individual Observations
- ( ) Mean of Each: — Month
- ( ) Median of Each: — Season

Non-Detect / Trace Handling...

Setup Seasons...

[ ] Automatically Process Resamples...

OK | Cancel | Save Settings As... | Load Saved Settings... | Defaults... | Edit INI File | 

Options

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

- [ ] Black and White Output
- [x] Four Plots Per Page
  - [ ] Always Combine Data Pages...
  - [x] Include Tick Marks on Data Page
  - [ ] Use Constituent Name for Graph Title
- [ ] Draw Border Around Text Reports and Data Pages
- [x] Enlarge/Reduce Fonts (Graphs): 100%
- [x] Enlarge/Reduce Fonts (Data/Text Reports): 100%
- [x] Wide Margins (on reports without explicit setting)
- [ ] Use CAS# (Not Const. Name)
- [ ] Truncate File Names to 20 Characters
- [ ] Include Limit Lines when found in Database...
- [x] Show Deselected Data on Time Series: Lighter
- [x] Show Deselected Data on all Data Pages: Lighter

Setup Symbols and Colors...

- [x] Prompt to Overwrite/Append Summary Tables
- [ ] Round Limits to 2 Sig. Digits (when not set in data file)
- [ ] User-Set Scale
- [x] Indicate Background Data
- [ ] Show Exact Dates
- [ ] Thick Plot Lines

Zoom Factor: 200%

Output Decimal Precision

- (•) Less Precision
- ( ) Normal Precision
- ( ) More Precision

- [x] Store Print Jobs in Multiple Constituent Mode

Store All Print Jobs...

Printer: Adobe PDF

Printers...

OK | Cancel | Save Settings As... | Load Saved Settings... | Defaults... | Edit INI File

Options

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

☑ Test for Normality using Shapiro-Wilk/Francia at Alpha = 0.01

☑ Use Non-Parametric Test when Non-Detects Percent > 50

Use Aitchison's Adjustment when Non-Detects Percent > 15

☐ Optional Further Refinement: Use when NDs % > 50

☐ Use Poisson Prediction Limit when Non-Detects Percent > 90

Transformation

◉ Use Ladder of Powers
○ Natural Log or No Transformation
○ Never Transform
○ Use Specific Transformation: Natural Log

☐ Use Best W Statistic
☐ Plot Transformed Values

Deseasonalize (Intra- and InterWell)

◉ If Seasonality Is Detected
○ If Seasonality Is Detected Or Insufficient to Test
○ Always (When Sufficient Data) ○ Never

☐ Always Use Non-Parametric

Facility α

Statistical Evaluations per Year: 2
Constituents Analyzed: 7
Downgradient (Compliance) Wells: 7

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)

OK | Cancel | Save Settings As... | Load Saved Settings... | Defaults... | Edit INI File | 🖶

Options

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- [ ] Use Modified Alpha...
- [ ] 2-Tailed Test Mode...

Outlier Tests

- ( ) EPA 1989 Outlier Screening (fixed alpha of 0.05)
- (•) Dixon's at α= 0.05 or if n > 22 Rosner's at α= 0.01 [x] Use EPA Screening to establish Suspected Outliers
- ( ) Tukey's Outlier Screening, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat
- [x] Test For Normality using Shapiro-Wilk/Francia at Alpha = 0.1
  - (•) Stop if Non-Normal
  - ( ) Continue with Parametric Test if Non-Normal
  - ( ) Tukey's if Non-Normal, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat
- [x] No Outlier If Less Than 3.0 Times Median
- [ ] Apply Rules found in Ohio Guidance Document 0715
- [ ] Combine Background Wells on the Outlier Report...

Piper, Stiff Diagram

- [ ] Combine Wells
- [ ] Combine Dates
- (•) Use Default Constituent Names
- ( ) Use Constituent Definition File Edit
- [x] Label Constituents
- [x] Label Axes
- [x] Note Cation-Anion Balance (Piper only)

OK | Cancel | Save Settings As... | Load Saved Settings... | Defaults... | Edit INI File

Jared Morrison
December 16, 2022

ATTACHMENT 2-2

Spring 2018 Semiannual Detection Monitoring Statistical Analyses

MEMORANDUM

September 11, 2018

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 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 May 21, 2018. Review and validation of the results from the May 2018 Detection Monitoring Event was completed on June 15, 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. One round of verification sampling was conducted for certain constituents on June 26, 2018.

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

Attached to this memorandum are the following backup information:

Attachment 1: Sanitas™ Output:
Statistical evaluation output from Sanitas™ for the prediction limit analysis. This includes prediction limit plots, prediction limit background data, detection sample results, 1st verification re-sample results (when applicable), extra sample result for pH for wells which were re-sampled for verification, and a Prediction Limit summary table. Output documentation includes the analytical data used for the statistical analyses.

Attachment 2: Sanitas™ Configuration Settings:
Screen shots of the applicable Sanitas™ configuration settings for the statistical prediction limit analysis. This includes data configuration, output configuration, prediction limit configuration and other tests configuration.

Revision Number	Revision Date	Attachment Revised	Summary of Revisions

Iatan Generating Station
Determination of Statistically Significant Increases
CCR Landfill
September 11, 2018

ATTACHMENT 1

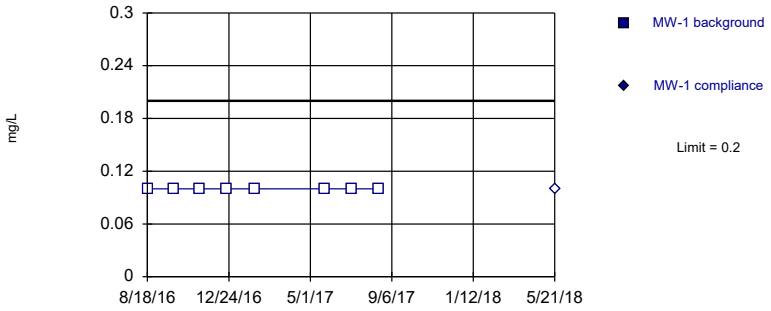
Sanitas™ Output

Sanitas™ v.9.6.09 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Boron Analysis Run 7/19/2018 10:20 AM View: LF CCR III

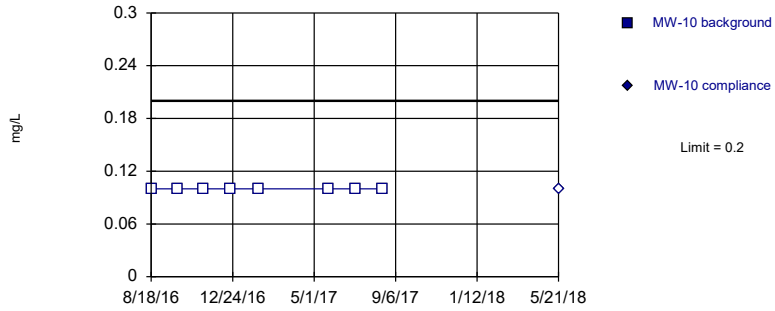
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Sanitas™ v.9.6.09 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



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Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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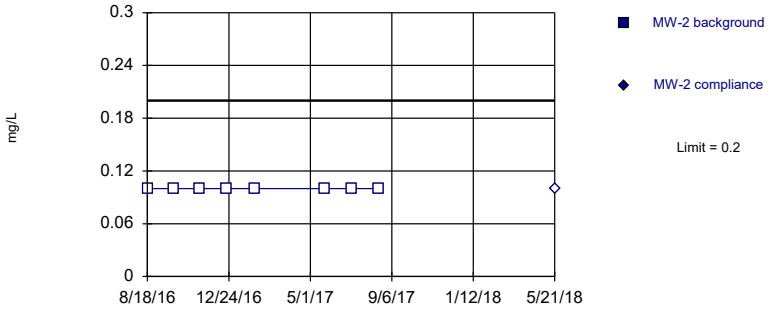
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



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Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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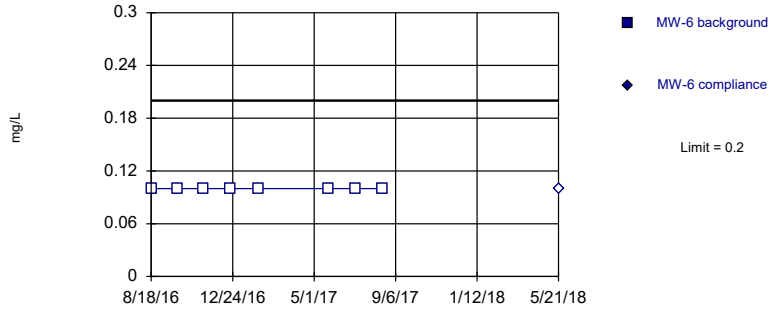
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



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Constituent: Boron Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

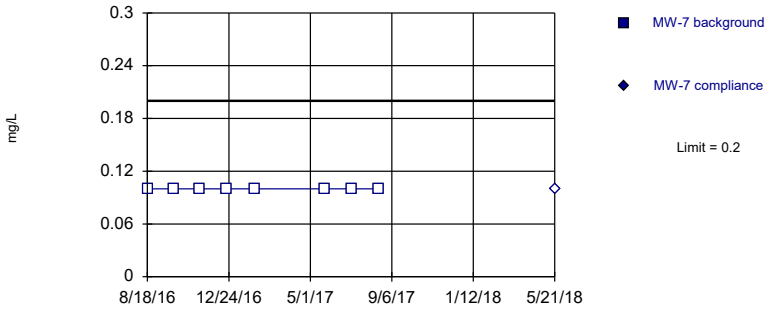
	MW-6	MW-6
8/18/2016	<0.2	
9/29/2016	<0.2	
11/9/2016	<0.2	
12/21/2016	<0.2	
2/3/2017	<0.2	
5/24/2017	<0.2	
7/5/2017	<0.2	
8/17/2017	<0.2	
5/21/2018		<0.2

Sanitas™ v.9.6.09 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



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Constituent: Boron Analysis Run 7/19/2018 10:20 AM View: LF CCR III

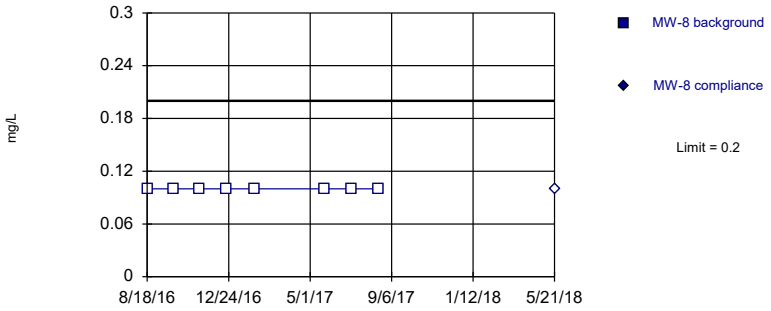
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Sanitas™ v.9.6.09 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



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Constituent: Boron Analysis Run 7/19/2018 10:20 AM View: LF CCR III

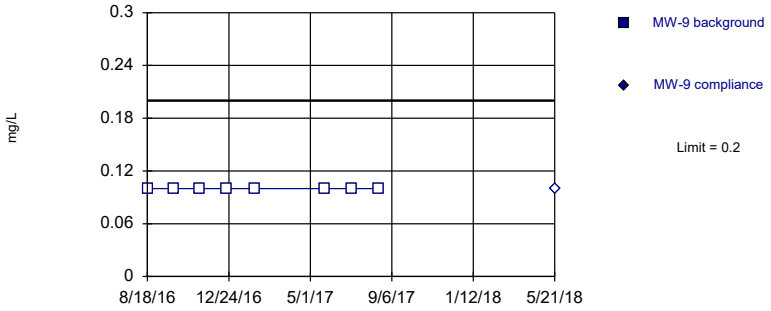
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Sanitas™ v.9.6.09 Sanitas software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



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Constituent: Boron Analysis Run 7/19/2018 10:20 AM View: LF CCR III

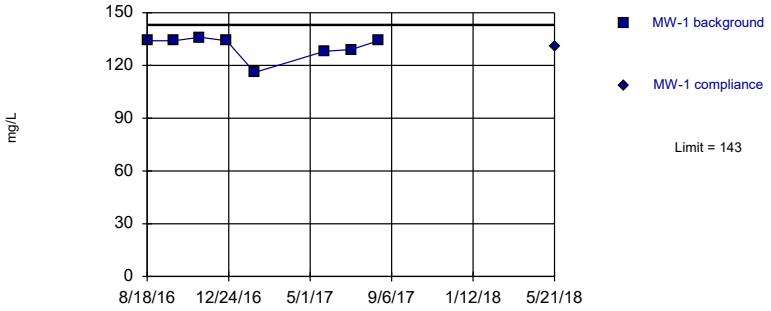
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Sanitas™ v.9.6.09 Sanitas software licensed to SCS Engineers. UG

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 = 0.755, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<0.2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<0.2

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

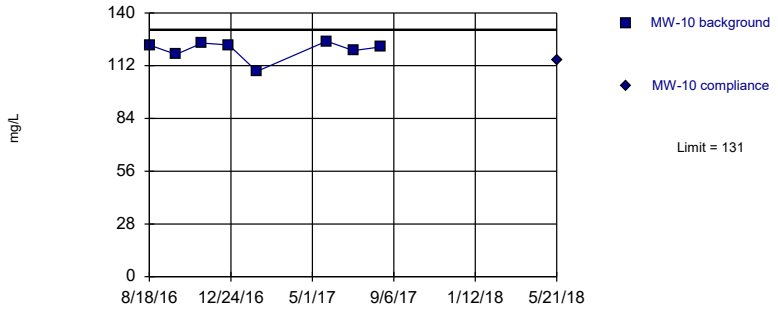
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		131

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=121, Std. Dev.=5.15, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.795, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

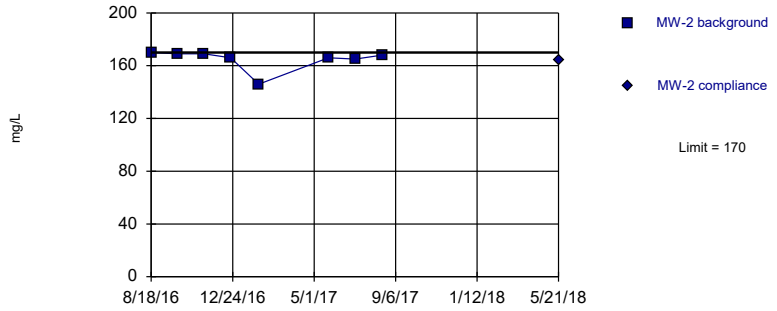
Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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 = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

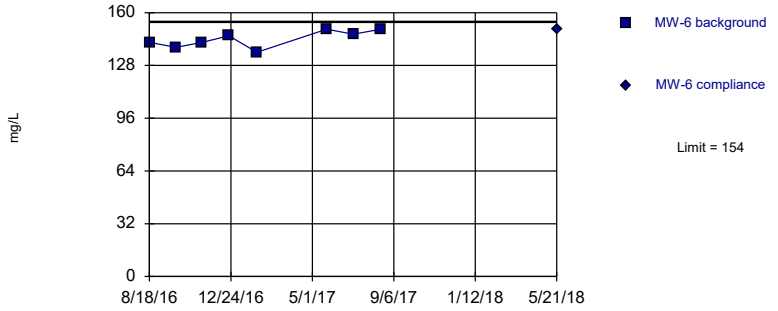
Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=144, Std. Dev.=5.1, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.936, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

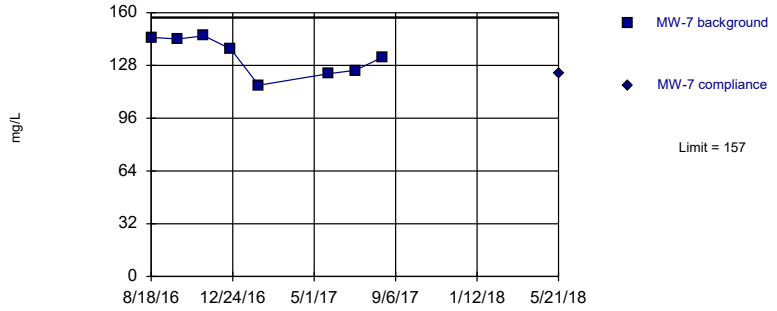
Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=134, Std. Dev.=11.4, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.908, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		115

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		164

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		150

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

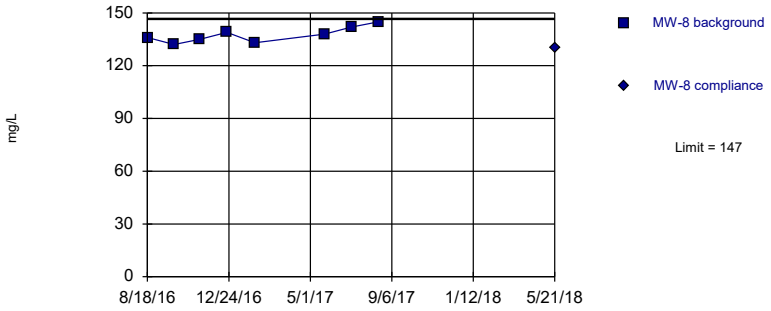
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		123

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=138, Std. Dev.=4.44, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.962, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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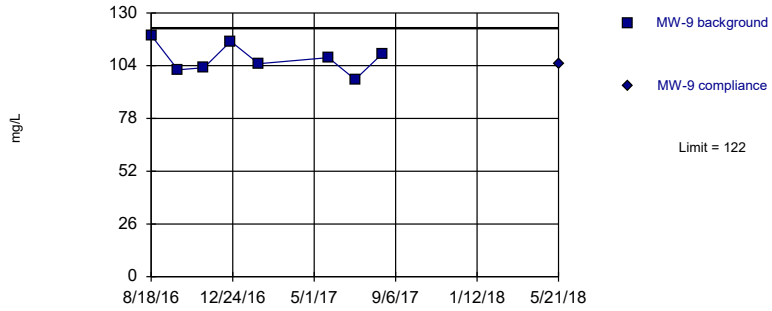
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=108, Std. Dev.=7.31, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.967, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Calcium Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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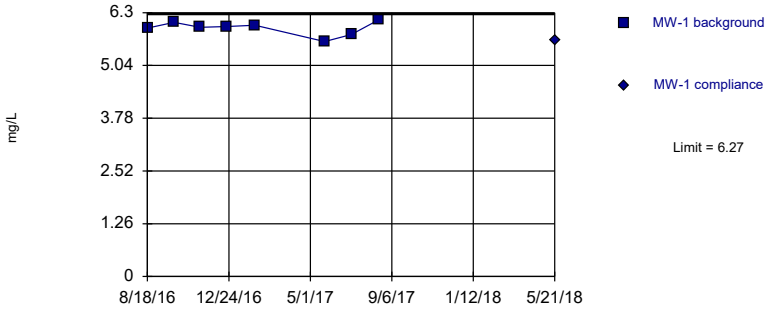
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.93, Std. Dev.=0.165, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.921, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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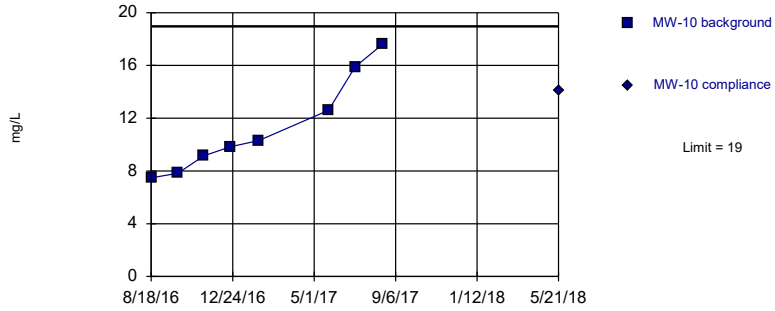
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=11.3, Std. Dev.=3.72, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.894, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		130

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		105

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		5.63

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

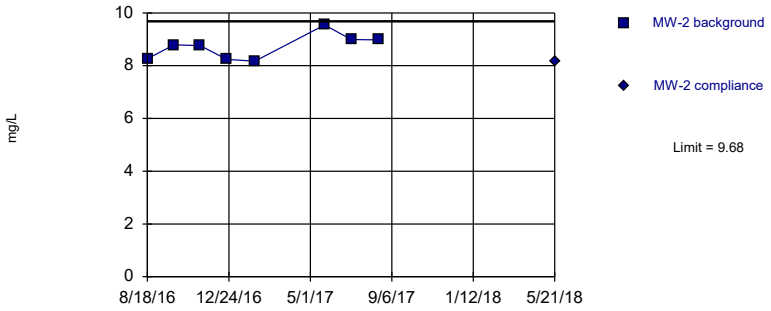
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		14.1

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=8.72, Std. Dev.=0.473, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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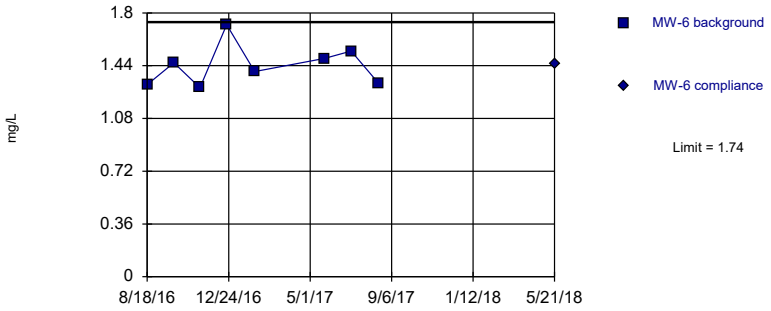
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=1.44, Std. Dev.=0.145, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.913, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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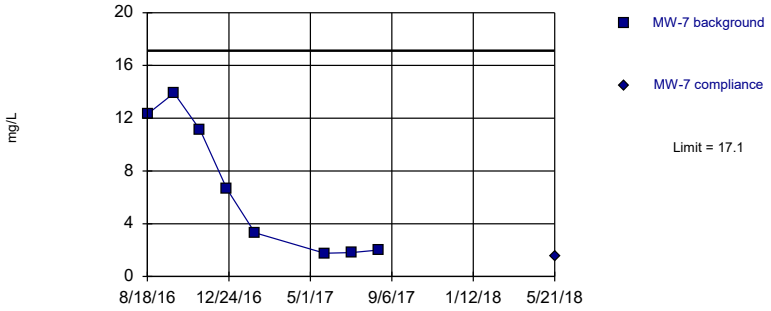
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.6, Std. Dev.=5.13, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.839, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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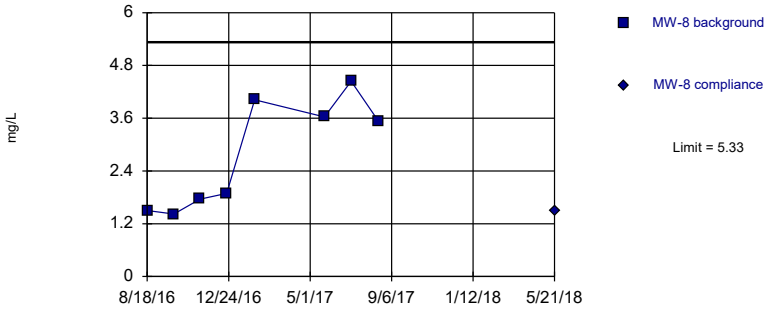
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.77, Std. Dev.=1.25, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.85, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		8.14

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		1.45

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		1.54

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

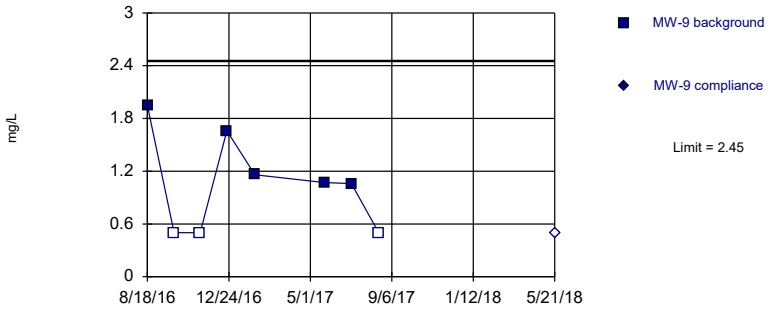
	MW-8	MW-8
8/18/2016	1.5	
9/29/2016	1.42	
11/9/2016	1.76	
12/21/2016	1.89	
2/3/2017	4.02	
5/24/2017	3.63	
7/5/2017	4.44	
8/17/2017	3.53	
5/21/2018		1.5

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Aitchison`s Adjustment): Mean=0.863, Std. Dev.=0.777, n=8, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.88, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

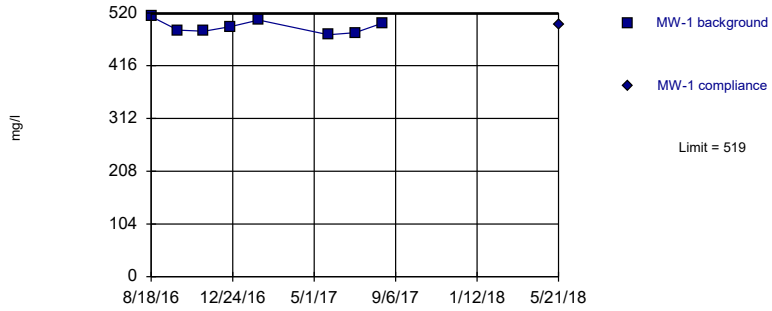
Constituent: Chloride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=493, Std. Dev.=12.8, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.943, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

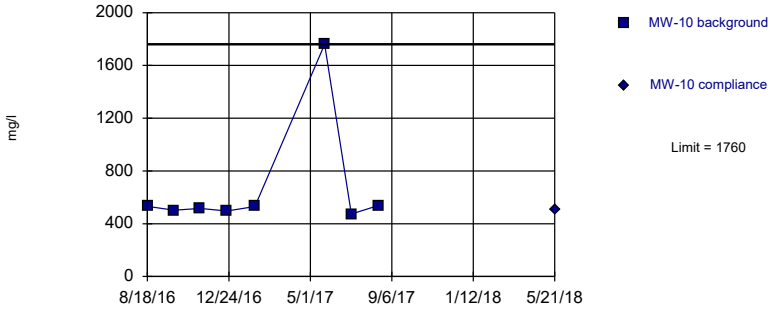
Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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 = 0.0118. Individual comparison alpha = 0.00591 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

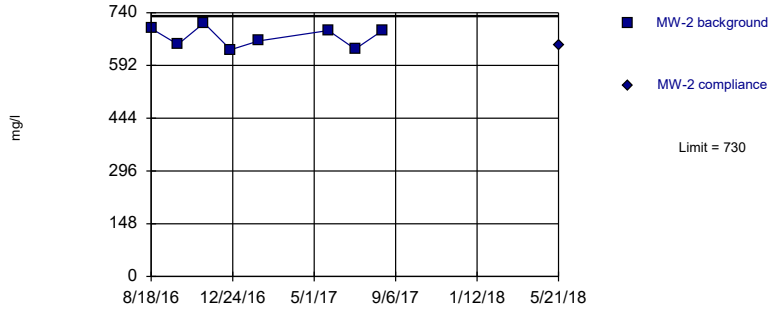
Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=672, Std. Dev.=28.7, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.904, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		<1

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		496

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		509

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

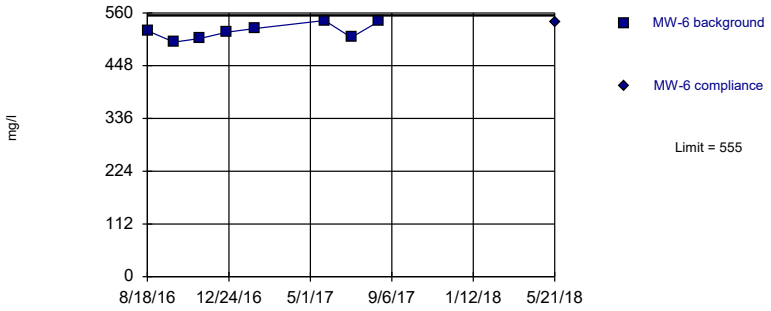
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		648

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=521, Std. Dev.=16.6, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.943, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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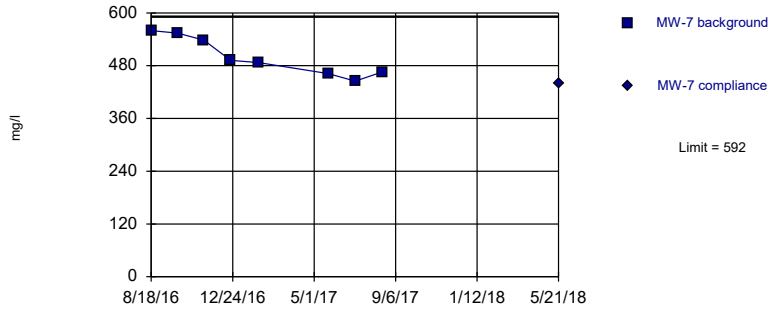
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=501, Std. Dev.=44.4, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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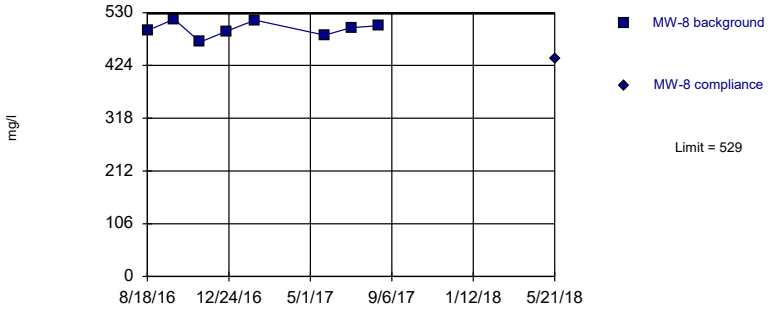
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=497, Std. Dev.=15.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.964, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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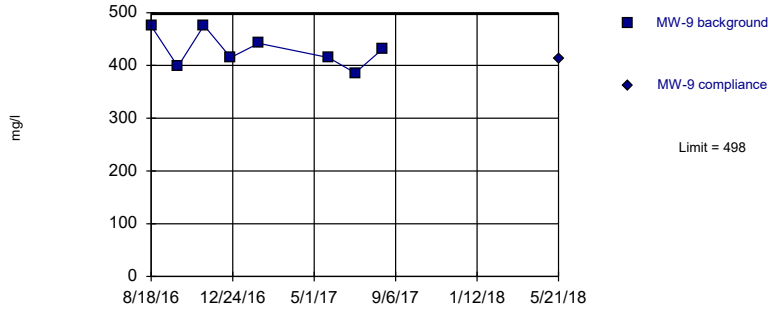
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=430, Std. Dev.=33.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.926, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Dissolved Solids Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		540

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		439

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		437

Prediction Limit

Constituent: Dissolved Solids (mg/l) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

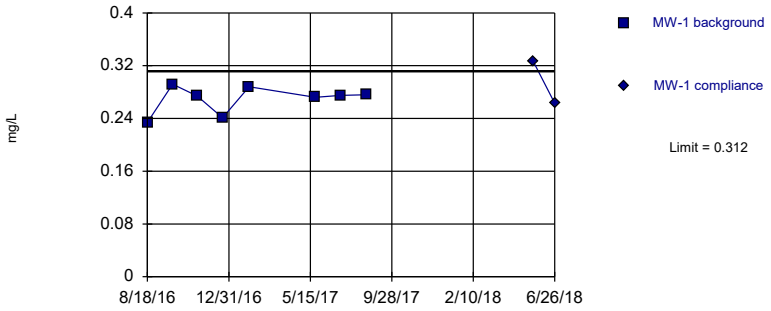
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		412

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.269, Std. Dev.=0.0208, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.853, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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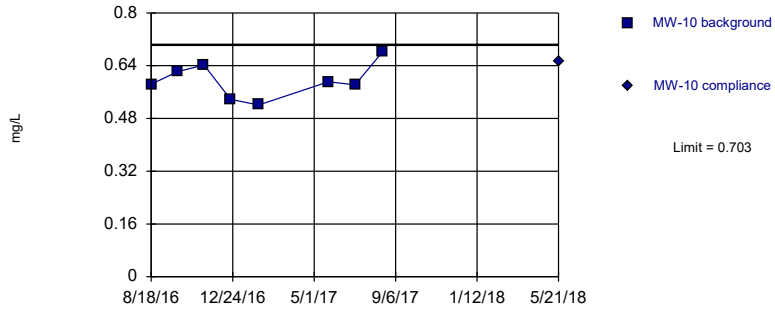
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.595, Std. Dev.=0.0528, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.971, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:20 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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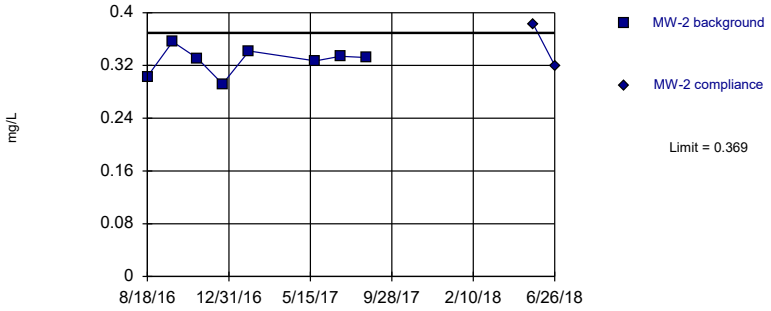
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.327, Std. Dev.=0.0206, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.927, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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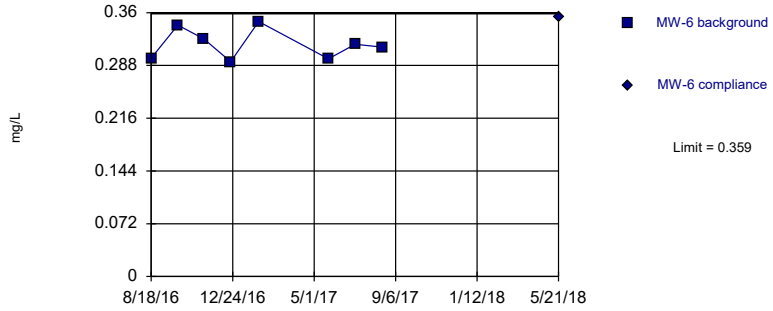
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.317, Std. Dev.=0.0208, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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		
5/21/2018		0.327	
6/26/2018		0.263	1st verification re-sample

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		0.654

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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		
5/21/2018		0.383	
6/26/2018		0.32	1st verification re-sample

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

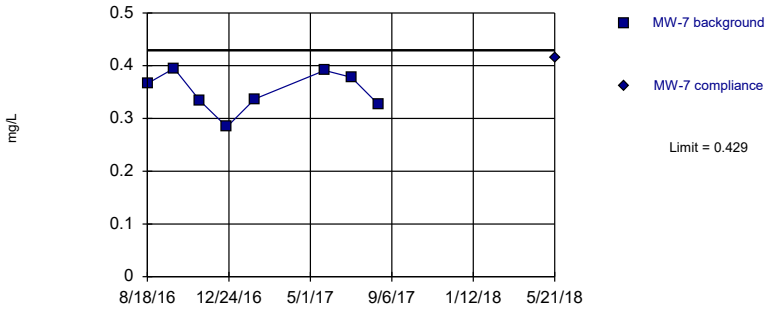
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		0.354

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.351, Std. Dev.=0.038, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.934, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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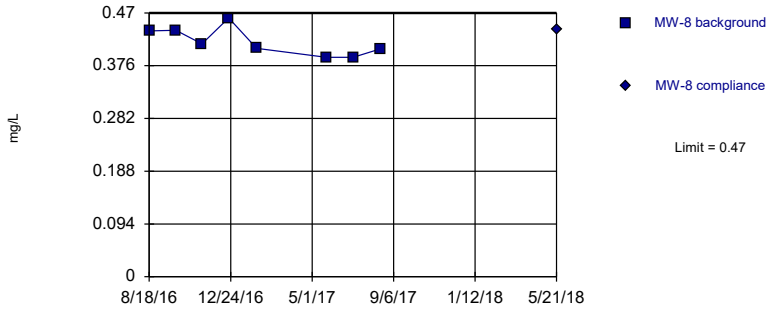
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.419, Std. Dev.=0.0251, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.915, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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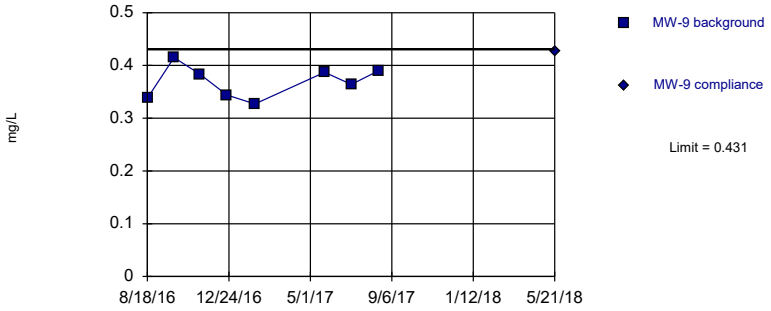
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.369, Std. Dev.=0.0304, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Fluoride Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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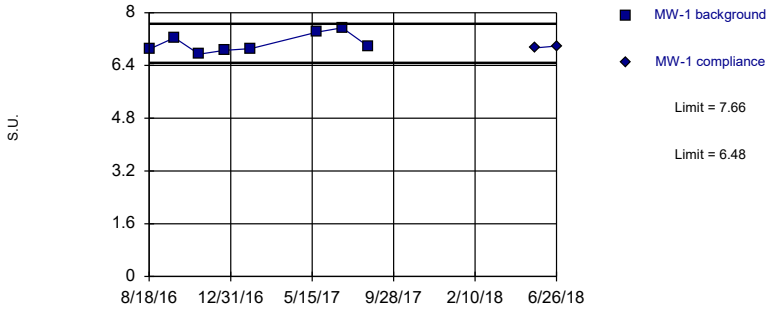
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.07, Std. Dev.=0.289, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.895, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		0.414

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		0.441

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		0.426

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

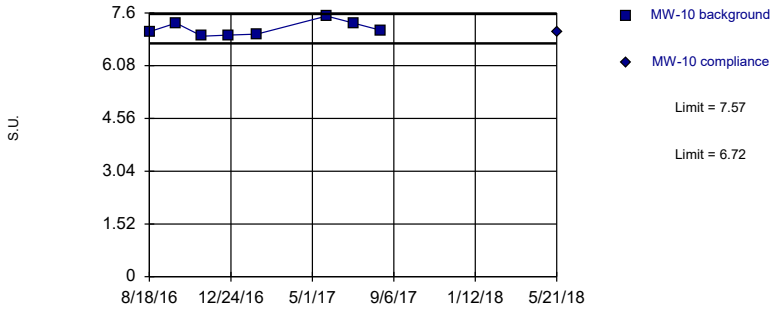
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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		
5/21/2018		6.93	
6/26/2018		6.99	extra sample

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.15, Std. Dev.=0.207, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.896, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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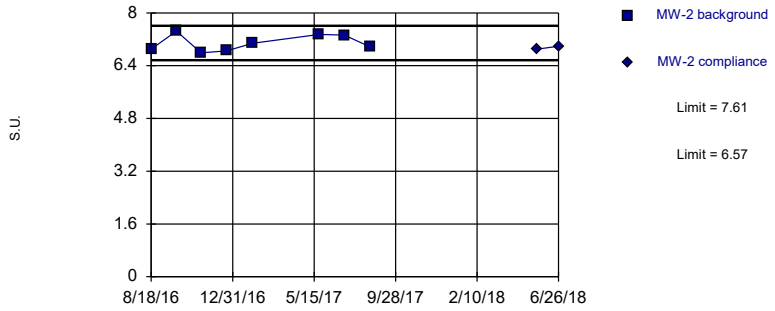
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.09, Std. Dev.=0.254, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.901, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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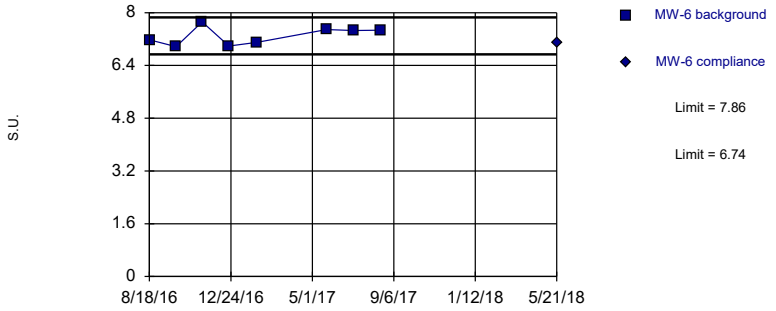
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.3, Std. Dev.=0.274, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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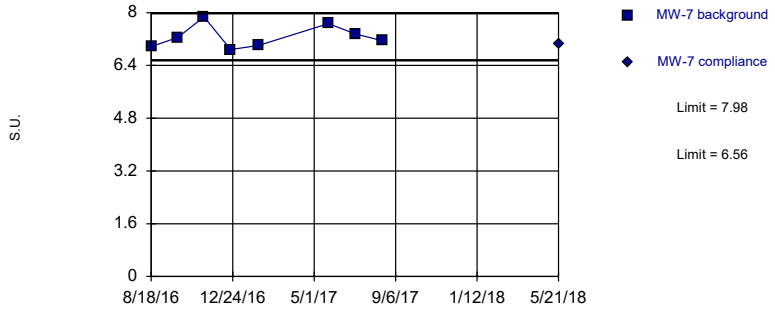
Within Limits

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 = 0.923, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		7.04

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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		
5/21/2018		6.9	
6/26/2018		6.99	extra sample

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		7.08

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

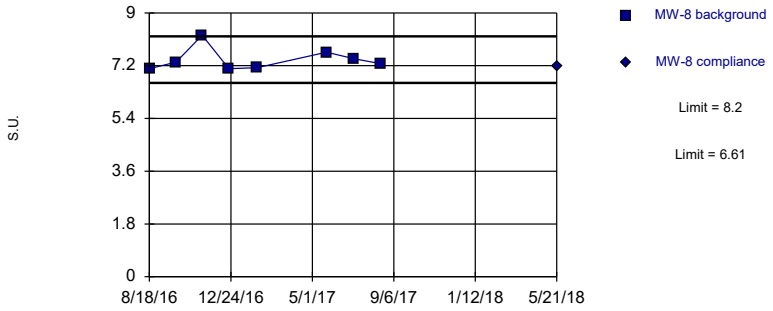
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		7.04

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.41, Std. Dev.=0.387, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.813, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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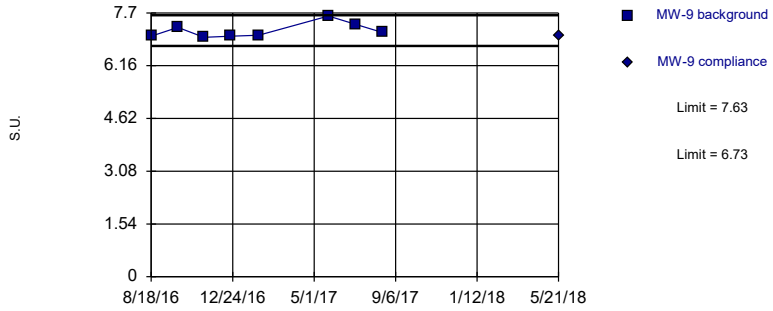
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.18, Std. Dev.=0.22, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.85, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: pH Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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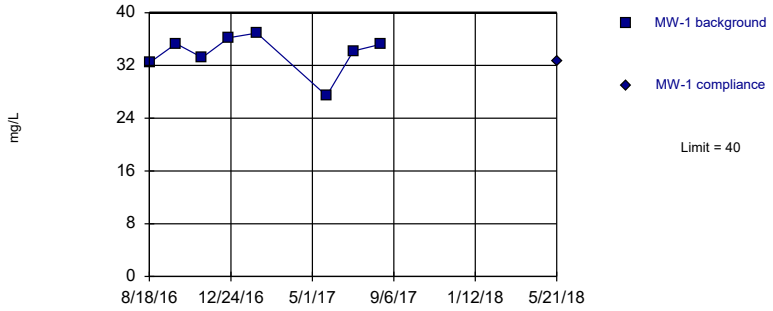
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=33.9, Std. Dev.=3, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.863, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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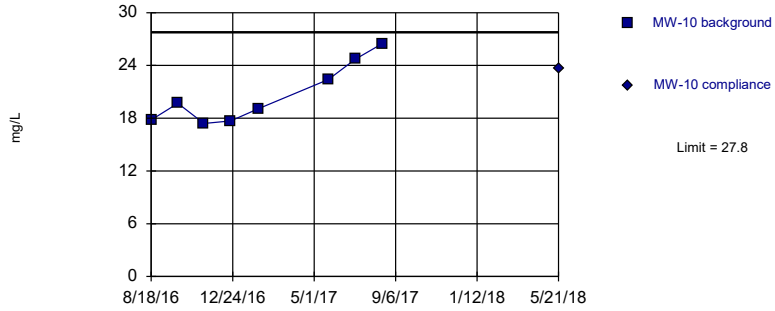
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=20.7, Std. Dev.=3.47, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.868, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		7.17

Prediction Limit

Constituent: pH (S.U.) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		7.05

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		32.6

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

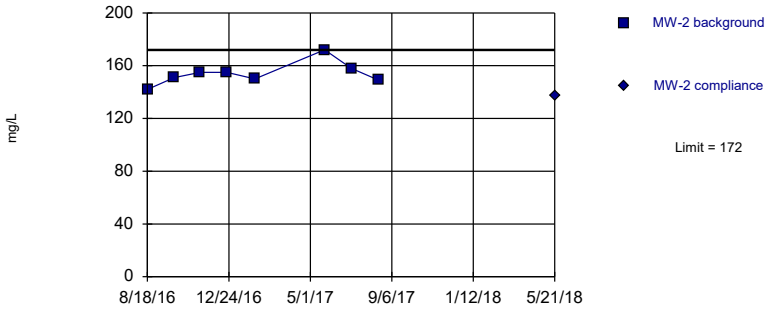
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		23.6

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=154, Std. Dev.=8.75, 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 = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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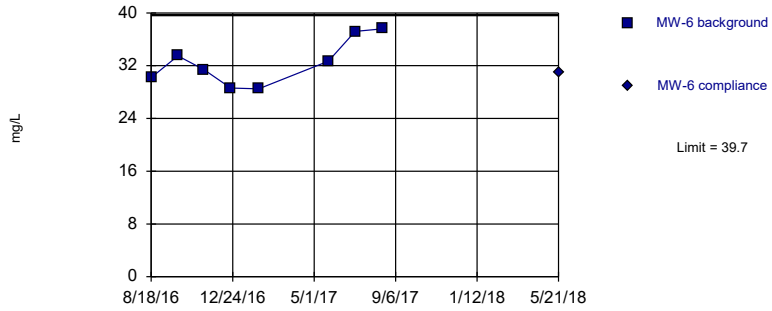
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=32.5, Std. Dev.=3.52, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.907, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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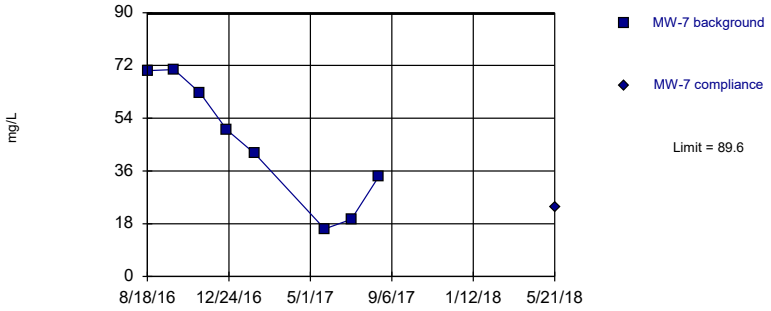
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=45.6, Std. Dev.=21.5, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.916, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

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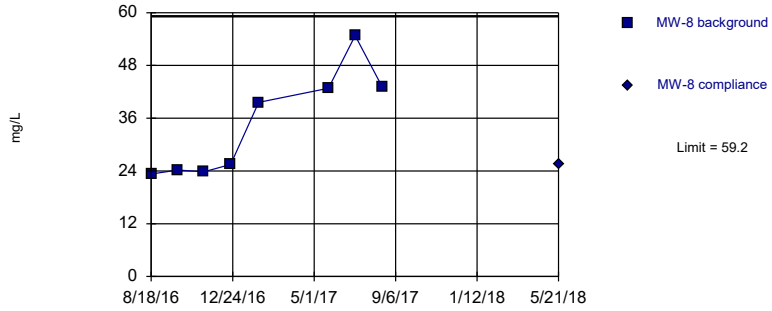
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=34.6, Std. Dev.=12, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.846, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		137

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		30.9

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		23.8

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

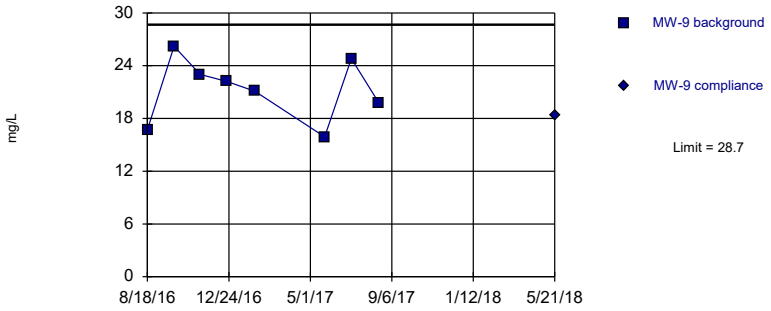
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		25.4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=21.2, Std. Dev.=3.64, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.749. Kappa = 2.05 (c=7, w=7, 1 of 3, event alpha = 0.0513). Report alpha = 0.00107.

Constituent: Sulfate Analysis Run 7/19/2018 10:21 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/19/2018 10:33 AM View: LF CCR III

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018

	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	
5/21/2018		18.3

Prediction Limit

Iatan Utility Waste LF Client: SCS Engineers Data: Iatan 7-3-2018 Printed 7/19/2018, 10:33 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	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-10	0.2	n/a	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-2	0.2	n/a	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-6	0.2	n/a	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-7	0.2	n/a	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-8	0.2	n/a	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Boron (mg/L)	MW-9	0.2	n/a	5/21/2018	0.1ND	No	8	100	n/a	0.00591	NP Intra (NDs) 1 of 3
Calcium (mg/L)	MW-1	143	n/a	5/21/2018	131	No	8	0	x^2	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-10	131	n/a	5/21/2018	115	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-2	170	n/a	5/21/2018	164	No	8	0	n/a	0.00591	NP Intra (normality) ...
Calcium (mg/L)	MW-6	154	n/a	5/21/2018	150	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-7	157	n/a	5/21/2018	123	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-8	147	n/a	5/21/2018	130	No	8	0	No	0.00107	Param Intra 1 of 3
Calcium (mg/L)	MW-9	122	n/a	5/21/2018	105	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-1	6.27	n/a	5/21/2018	5.63	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-10	19	n/a	5/21/2018	14.1	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-2	9.68	n/a	5/21/2018	8.14	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-6	1.74	n/a	5/21/2018	1.45	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-7	17.1	n/a	5/21/2018	1.54	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-8	5.33	n/a	5/21/2018	1.5	No	8	0	No	0.00107	Param Intra 1 of 3
Chloride (mg/L)	MW-9	2.45	n/a	5/21/2018	0.5ND	No	8	37.5	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-1	519	n/a	5/21/2018	496	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-10	1760	n/a	5/21/2018	509	No	8	0	n/a	0.00591	NP Intra (normality) ...
Dissolved Solids (mg/l)	MW-2	730	n/a	5/21/2018	648	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-6	555	n/a	5/21/2018	540	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-7	592	n/a	5/21/2018	439	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-8	529	n/a	5/21/2018	437	No	8	0	No	0.00107	Param Intra 1 of 3
Dissolved Solids (mg/l)	MW-9	498	n/a	5/21/2018	412	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-1	0.312	n/a	6/26/2018	0.263	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-10	0.703	n/a	5/21/2018	0.654	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-2	0.369	n/a	6/26/2018	0.32	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-6	0.359	n/a	5/21/2018	0.354	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-7	0.429	n/a	5/21/2018	0.414	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-8	0.47	n/a	5/21/2018	0.441	No	8	0	No	0.00107	Param Intra 1 of 3
Fluoride (mg/L)	MW-9	0.431	n/a	5/21/2018	0.426	No	8	0	No	0.00107	Param Intra 1 of 3
pH (S.U.)	MW-1	7.66	6.48	6/26/2018	6.99	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-10	7.57	6.72	5/21/2018	7.04	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-2	7.61	6.57	6/26/2018	6.99	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-6	7.86	6.74	5/21/2018	7.08	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-7	7.98	6.56	5/21/2018	7.04	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-8	8.2	6.61	5/21/2018	7.17	No	8	0	No	0.000537	Param Intra 1 of 3
pH (S.U.)	MW-9	7.63	6.73	5/21/2018	7.05	No	8	0	No	0.000537	Param Intra 1 of 3
Sulfate (mg/L)	MW-1	40	n/a	5/21/2018	32.6	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-10	27.8	n/a	5/21/2018	23.6	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-2	172	n/a	5/21/2018	137	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-6	39.7	n/a	5/21/2018	30.9	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-7	89.6	n/a	5/21/2018	23.8	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-8	59.2	n/a	5/21/2018	25.4	No	8	0	No	0.00107	Param Intra 1 of 3
Sulfate (mg/L)	MW-9	28.7	n/a	5/21/2018	18.3	No	8	0	No	0.00107	Param Intra 1 of 3

ATTACHMENT 2

Sanitas™ Configuration Settings

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

Exclude data flags:

Data Reading Options

- (•) Individual Observations
- ( ) Mean of Each: ( ) Month
- ( ) Median of Each: ( ) Season

Non-Detect / Trace Handling...

Setup Seasons...

[ ] Automatically Process Resamples...

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

- [ ] Black and White Output
- [x] Four Plots Per Page
  - [ ] Always Combine Data Pages...
  - [x] Include Tick Marks on Data Page
  - [ ] Use Constituent Name for Graph Title
- [ ] Draw Border Around Text Reports and Data Pages
- [x] Enlarge/Reduce Fonts (Graphs): 100%
- [x] Enlarge/Reduce Fonts (Data/Text Reports): 100%
- [x] Wide Margins (on reports without explicit setting)
- [ ] Use CAS# (Not Const. Name)
- [ ] Truncate File Names to 20 Characters
- [ ] Include Limit Lines when found in Database...
- [x] Show Deselected Data on Time Series Lighter
- [x] Show Deselected Data on all Data Pages Lighter

Setup Symbols and Colors...

- [x] Prompt to Overwrite/Append Summary Tables
- [ ] Round Limits to 2 Sig. Digits (when not set in data file)
- [ ] User-Set Scale
- [x] Indicate Background Data
- [ ] Show Exact Dates
- [ ] Thick Plot Lines

Zoom Factor: 200%

Output Decimal Precision

- (•) Less Precision
- ( ) Normal Precision
- ( ) More Precision

- [x] Store Print Jobs in Multiple Constituent Mode

Store All Print Jobs...

Printer: Adobe PDF

Printers...

Data | Output | Trend Test | Control Cht | **Prediction Lim** | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

☑ 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 α

Statistical Evaluations per Year: 2

Constituents Analyzed: 7

Downgradient (Compliance) Wells: 7

Sampling Plan

Comparing Individual Observations

○ 1 of 1 ○ 1 of 2 ◉ 1 of 3 ○ 1 of 4

○ 2 of 4 ("Modified California")

IntraWell Other

☐ Stop if Background Trend Detected at Alpha = 0.05

☑ Plot Background Data

Override Standard Deviation: _____

Override DF: _____ Override Kappa: _____

☐ Automatically Remove Background Outliers

☐ 2-Tailed Test Mode...

☑ Show Deselected Data Lighter

Non-Parametric Limit = Highest Background Value

Non-Parametric Limit when 100% Non-Detects:

- ○ Highest/Second Highest Background Value
- ◉ Most Recent PQL if available, or MDL
- ○ Most Recent Background Value (subst. method)

Data | Output | Trend Test | Control Cht | Prediction Lim | Tolerance Lim | Conf/Tol Int | ANOVA | Welchs | Other Tests

Rank Von Neumann, Wilcoxon Rank Sum / Mann-Whitney

- [ ] Use Modified Alpha...
- [ ] 2-Tailed Test Mode...

Outlier Tests

- ( ) EPA 1989 Outlier Screening (fixed alpha of 0.05)
- (•) Dixon's at α= 0.05 or if n > 22 Rosner's at α= 0.01 [x] Use EPA Screening to establish Suspected Outliers
- ( ) Tukey's Outlier Screening, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat
- [x] Test For Normality using Shapiro-Wilk/Francia at Alpha = 0.1
  - (•) Stop if Non-Normal
  - ( ) Continue with Parametric Test if Non-Normal
  - ( ) Tukey's if Non-Normal, with IQR Multiplier = 3.0 [ ] Use Ladder of Powers to achieve Best W Stat
- [x] No Outlier If Less Than 3.0 Times Median
- [ ] Apply Rules found in Ohio Guidance Document 0715
- [ ] Combine Background Wells on the Outlier Report...

Piper, Stiff Diagram

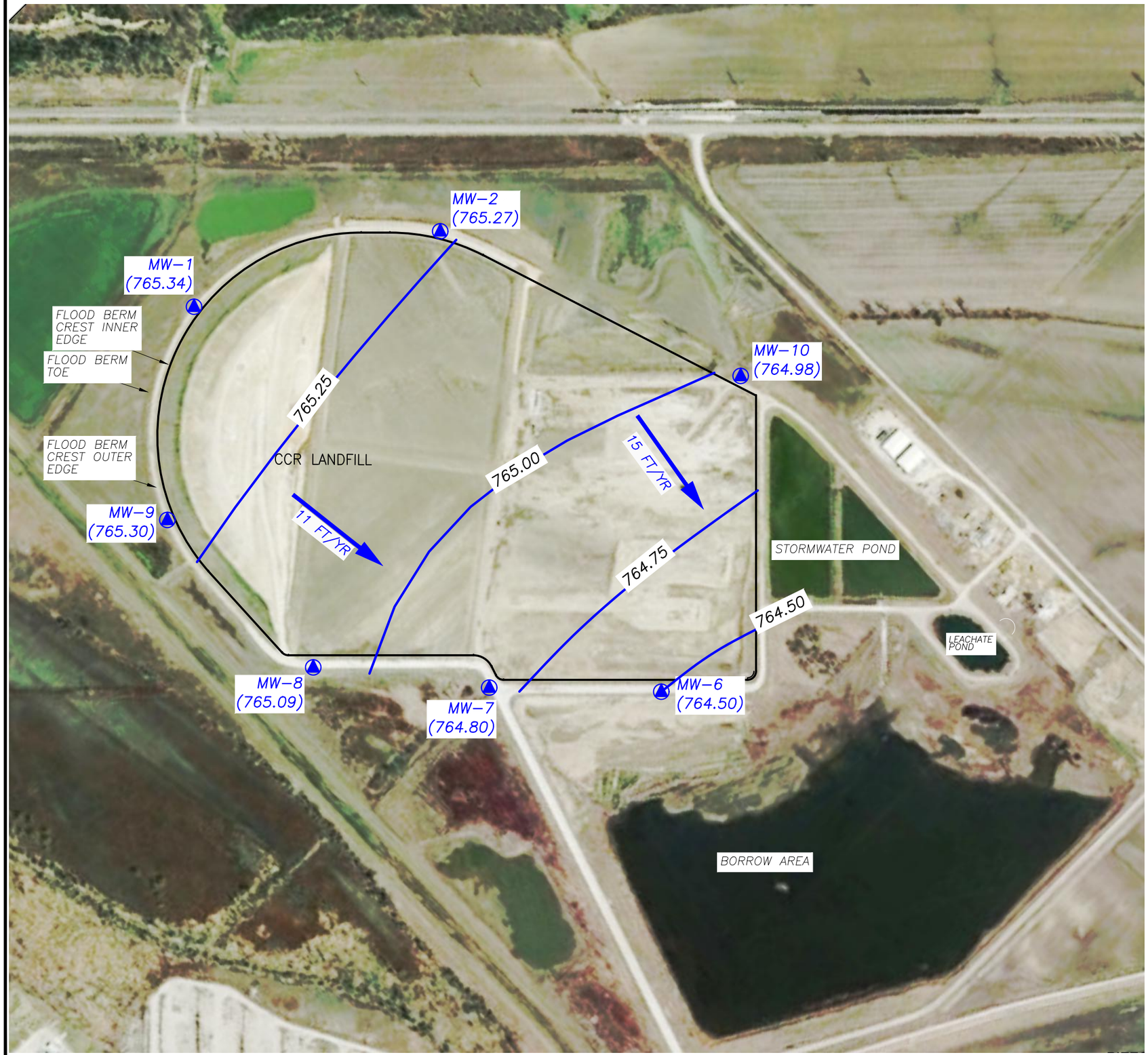
- [ ] Combine Wells
- [ ] Combine Dates
- (•) Use Default Constituent Names
- ( ) Use Constituent Definition File Edit

- [x] Label Constituents
- [x] Label Axes
- [x] Note Cation-Anion Balance (Piper only)

Jared Morrison
December 16, 2022

ATTACHMENT 3

Groundwater Potentiometric Surface Maps

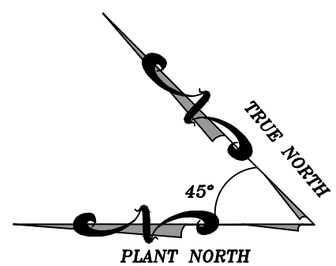


LEGEND

- 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 21, 2018



500 0 500 1000
SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP (MAY 2018)
CCR LANDFILL

PROJECT TITLE
2018 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

CLIENT
EVERGY METRO
IATAN GENERATING STATION
IATAN, MISSOURI

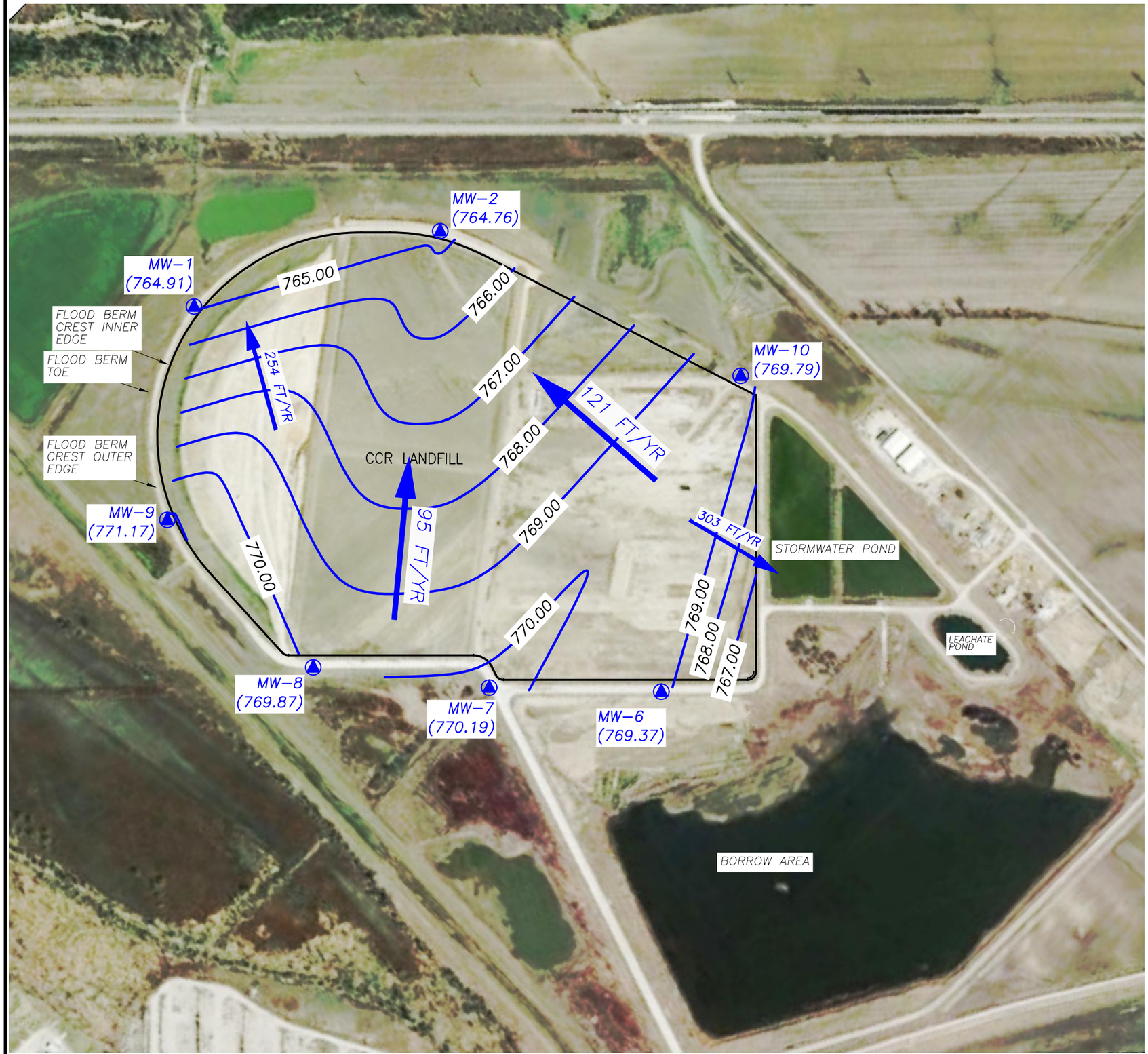
SCS ENGINEERS
7311 W. 130th St. Ste. 100
Overland Park, Kansas 66213
PH. (913) 681-0030 FAX (913) 681-0012

PROJ. NO.	DWN. BY:	CHK. BY:	QA/QC BY:	PROJ. MGR
27213167.18	RCW	JRR	JRR	JRR
DSN. BY: RCW				

CADD FILE:
IATAN LF CCR ASD FIG 2.DWG

DATE:
12/12/22

FIGURE NO.
1



LEGEND

- CCR UNIT BOUNDARY (APPROXIMATE LIMITS)
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- 16 FT/YR DIRECTION OF GROUNDWATER FLOW AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)

NOTES:

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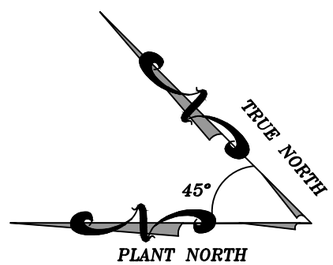
3. GOOGLE EARTH IMAGE DATED MARCH 27, 2017
4. APPROXIMATE BOUNDARY LOCATION PROVIDED BY BURNS & MCDONNELL
5. MONITORING WELL LOCATIONS PROVIDED BY SHAFFER, KLINE, & WARREN
6. WATER LEVEL MEASUREMENTS COMPLETED ON NOVEMBER 12, 2018



500 0 500 1000
SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP (NOVEMBER 2018)
CCR LANDFILL

PROJECT TITLE
2018 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

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PROJ. NO.	DSN. BY:	DWN. BY:	CHK. BY:	QA/QC BY:	PROJ. MGR
27213167.18	TGW	TGW	JRR	JRR	JRR

CADD FILE:
IATAN LF CCR ASD FIG 2 - 20181203.DWG

DATE:
12/12/22

FIGURE NO.
2