2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

ASH IMPOUNDMENT
IATAN GENERATING STATION
IATAN, MISSOURI

Presented To:

Kansas City Power & Light Company

Presented By:

SCS ENGINEERS
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Overland Park, Kansas 66210
(913) 681-0030

July 22, 2019
Revised December 16, 2022

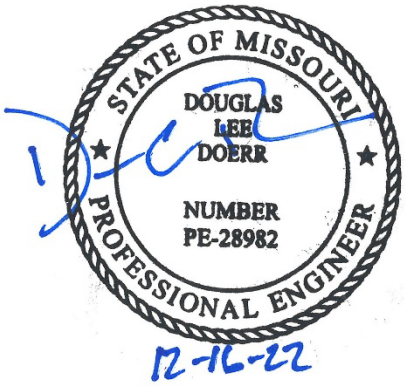
File Number 27217413.10

CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2018-2019 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).

John R. Rockhold, R.G.
SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify that the 2018-2019 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



Douglas L. Doerr, P.E.
SCS Engineers

Revision Number	Revision Date	Revision Section	Summary of Revisions
0	July 22, 2019	NA	Original
1	December 16, 2022	Addendum 1	Added Addendum 1

Table of Contents

Section **Page**

Appendices

1 INTRODUCTION

This 2018-2019 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the "Coal Combustion Residuals (CCR) Final Rule" (Rule) published by the United States Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015), update published August 5, 2016 ("Extension Rule) to provide an extension of compliance deadlines for certain inactive surface impoundments. The Ash Impoundment is classified as an "inactive" CCR unit and is therefore regulated by the August 5, 2016 update to the Rule subject to the new 40 CFR 257.100(e). Owners and operators of inactive CCR surface impoundments subject to the provisions of the new 40 CFR 257.100(e)(5)(ii) are required to prepare an annual groundwater monitoring and corrective action report no later than August 1, 2019 per 40 CFR 257.90(e).

Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e). Changes to the text of 40 CFR 257.90(e) to indicate the update subject to the new 40 CFR 257.100(e) are shown in [brackets] and specific reference to active CCR unit or expansions have been deleted. The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2018-2019 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan Generating Station.

2 § 257.90(e) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. *For [inactive] CCR surface impoundments, no later than [August 1, 2019], and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For [inactive] CCR surface impoundments, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than [August 1] of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:*

2.1 § 257.90(e)(1) SITE MAP

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

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

2.2 § 257.90(e)(2) MONITORING SYSTEM CHANGES

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

The monitoring wells were installed as part of the CCR groundwater monitoring program for the Ash Impoundment in January 2018 and initially certified on April 16, 2019. However, due to the historic Missouri River flooding that began in March 2019, monitoring well MW-106 was found to have been destroyed in April 2019. SCS Engineers completed an evaluation that concluded this CCR unit groundwater monitoring system meets the requirements of 40 CFR 257.91 without MW-106 and therefore may be certified in accordance with 40 CFR 257.91(f). Therefore, the CCR groundwater monitoring system was re-certified to meet the requirements of 40 CFR 257.91 on May 8, 2019.

2.3 § 257.90(e)(3) SUMMARY OF SAMPLING EVENTS

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

Only detection monitoring was conducted during the reporting period. Background sampling for the detection monitoring program began in February 2018. Samples were analyzed as indicated in **Appendix B**, **Table 1** (Appendix III and Appendix IV Detection Monitoring Results) and **Table 2** (Detection Monitoring Field Measurements). The dates of sample collection and the results of the analyses are also provided in these tables.

2.4 § 257.90(e)(4) MONITORING TRANSITION NARRATIVE

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

There was no transition between monitoring programs in 2018-2019. Only detection monitoring was conducted in 2018-2019. Statistical evaluation of the data was still in process as of June 30, 2019.

2.5 § 257.90(e)(5) OTHER REQUIREMENTS

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

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

2.5.1 § 257.90(e)

Status of Groundwater Monitoring and Corrective Action Program.

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

Summary of Key Actions Completed.

Collection of initial background groundwater quality data was completed and the initial detection monitoring sampling and analysis event was completed on April 29, 2019. The first verification sampling was conducted per the certified statistical method on May 20, 2019.

Description of Any Problems Encountered.

The initial detection monitoring sampling event was scheduled for March 2019; however, the historic flooding of the Missouri River prevented the sampling event until flood waters receded and the sampling event was performed April 29, 2019.

Discussion of Actions to Resolve the Problems.

The initial detection monitoring sampling event was performed April 29, 2019 after the Missouri River flood waters receded.

Projection of Key Activities for the Upcoming Year (2019-2020).

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

2.5.2 § 257.94(d)(3)

Demonstration providing the basis for an alternative monitoring frequency for detection monitoring and certification that it meets the requirements of this section.

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

2.5.3 § 257.94(e)(2)

Demonstration that an alternative source other than the CCR unit caused the statistically significant increase (SSI) over background or that the SSI was caused by an 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.

Not applicable because no such demonstration was conducted.

2.5.4 § 257.95(c)(3)

Demonstration providing the basis for an alternative monitoring frequency for assessment monitoring and certification that it meets the requirements of this section.

Not applicable because no such demonstration was conducted.

2.5.5 § 257.95(d)(3)

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)

Demonstration that an alternative source other than the CCR unit caused the contamination, or that the SSI (during assessment monitoring) resulted from an 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.

Not applicable because no such demonstration was conducted.

2.5.7 § 257.96(a)

Demonstration of the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. In addition, certification of the demonstration is to be included in the annual report.

Not applicable because no such demonstration was 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 KCP&L and Westar, Evergy Companies for specific application to the Iatan Generating Station Ash Impoundment. No warranties, express or implied, are intended or made.

APPENDIX A

FIGURES

Figure 1: Site Map

LEGEND:

MW-109 MONITORING WELL

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED JUNE 10, 2016.
4. MONITOR WELL LOCATIONS ARE APPROXIMATE.
5. * – WELL WAS DESTROYED IN HISTORIC RIVER FLOODING OF MARCH 2019.

400 0 400 800

SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-

SHEET TITLE
SITE MAP
ASH IMPOUNDMENT

PROJECT TITLE
2018-2019 GROUNDWATER MONITORING AND CORRECTIVE ACTIVE 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.	DWN. BY:	CHK. BY:	QA/A RVW BY:
27217413.00	MBJ	JRF	JRR
DSN. BY:			PROJ. MGR
JRR			JRF

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27217413.00_FIG 1_ASH IMPOUNDMENT.DWG

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APPENDIX B

TABLES

Table 1: Appendix III and Appendix IV Detection Monitoring Results

Table 2: Detection Monitoring Field Measurements

Table 1
Ash Impoundment
Appendix III and Appendix IV Detection Monitoring Results
KCP&L Iatan Generating Station

Well Number	Sample Date	Appendix III Constituents							Appendix IV Constituents														
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Thallium (mg/L)	Radium Combined (pCi/L)
MW-101	02/27/18	<0.200	132	6.27	0.288	7.15	<5.00	534	<0.00200	0.00247	0.681	<0.00200	<0.00100	<0.0100	<0.0100	0.288	<0.00200	0.0362	<0.000200	<0.00500	<0.00200	<0.00200	0.177
MW-101	04/16/18	<0.200	135	5.99	0.387	6.93	<5.00	536	<0.00200	<0.00200	0.694	<0.00200	<0.00100	<0.0100	<0.0100	0.387	<0.00200	0.0369	<0.000200	<0.00500	<0.00200	<0.00200	0.870
MW-101	05/21/18	<0.200	134	6.52	0.300	7.39	<5.00	522	<0.00200	<0.00200	0.686	<0.00200	<0.00100	<0.0100	<0.0100	0.300	<0.00200	0.0381	<0.000200	<0.00500	<0.00200	<0.00200	0.894
MW-101	07/19/18	<0.200	132	6.18	0.297	7.05	<5.00	538	<0.00200	<0.00200	0.689	<0.00200	<0.00100	<0.0100	<0.0100	0.297	<0.00200	0.0339	<0.000200	<0.00500	<0.00200	<0.00200	1.82
MW-101	09/10/18	<0.200	135	6.12	0.392	7.07	<5.00	545	<0.00200	0.00462	0.630	<0.00200	<0.00100	<0.0100	<0.0100	0.392	<0.00200	0.0323	<0.000200	<0.00500	<0.00200	<0.00200	1.08
MW-101	10/30/18	<0.200	135	5.90	0.318	7.10	<5.00	526	<0.00200	<0.00200	0.678	<0.00200	<0.00100	<0.0100	<0.0100	0.318	<0.00200	0.0287	<0.000200	<0.00500	<0.00200	<0.00200	2.78
MW-101	12/20/18	<0.200	133	6.43	0.316	7.30	<5.00	509	<0.00200	0.00473	0.663	<0.00200	<0.00100	<0.0100	<0.0100	0.316	<0.00200	0.0324	<0.000200	<0.00500	<0.00200	<0.00200	1.16
MW-101	02/15/19	<0.200	130	5.92	0.318	7.78	<5.00	521	<0.00200	0.00412	0.637	<0.00200	<0.00100	<0.0100	<0.0100	0.318	<0.00200	0.0325	<0.000200	<0.00500	<0.00200	<0.00200	2.28
MW-101	04/29/19	<0.200	124	6.19	0.385	7.18	<5.00	536	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-102	02/27/18	<0.200	130	5.08	0.209	7.11	<5.00	507	<0.00200	0.00461	0.695	<0.00200	<0.00100	<0.0100	<0.0100	0.209	<0.00200	0.0337	<0.000200	<0.00500	<0.00200	<0.00200	1.89
MW-102	04/16/18	<0.200	129	4.89	0.335	6.99	<5.00	492	<0.00200	<0.00200	0.806	<0.00200	<0.00100	<0.0100	<0.0100	0.335	<0.00200	0.0426	<0.000200	<0.00500	<0.00200	<0.00200	0.539
MW-102	05/21/18	<0.200	133	4.99	0.305	7.37	<5.00	506	<0.00200	<0.00200	0.731	<0.00200	<0.00100	<0.0100	<0.0100	0.305	<0.00200	0.0384	<0.000200	<0.00500	<0.00200	<0.00200	1.54
MW-102	07/19/18	<0.200	129	5.10	0.229	7.07	<5.00	506	<0.00200	0.00246	0.729	<0.00200	<0.00100	<0.0100	<0.0100	0.229	<0.00200	0.0363	<0.000200	<0.00500	<0.00200	<0.00200	0.316
MW-102	09/10/18	<0.200	135	5.26	0.300	7.10	<5.00	526	<0.00200	<0.00200	0.726	<0.00200	<0.00100	<0.0100	<0.0100	0.300	<0.00200	0.0336	<0.000200	<0.00500	<0.00200	<0.00200	2.12
MW-102	10/30/18	<0.200	139	4.95	0.244	7.15	<5.00	516	<0.00200	0.01500	0.681	<0.00200	<0.00100	<0.0100	<0.0100	0.244	<0.00200	0.0290	<0.000200	<0.00500	<0.00200	<0.00200	3.69
MW-102	12/20/18	<0.200	141	5.65	0.23	7.35	<5.00	474	<0.00200	0.0347	0.627	<0.00200	<0.00100	<0.0100	<0.0100	0.230	<0.00200	0.0300	<0.000200	<0.00500	<0.00200	<0.00200	1.82
MW-102	02/14/19	<0.200	131	5.11	0.257	7.59	<5.00	509	<0.00200	0.0242	0.645	<0.00200	<0.00100	<0.0100	<0.0100	0.257	<0.00200	0.0336	<0.000200	<0.00500	<0.00200	<0.00200	1.28
MW-102	04/29/19	<0.200	125	5.29	0.280	7.11	<5.00	477	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-103	02/28/18	<0.200	136	4.20	0.197	7.24	<5.00	493	<0.00200	<0.00200	0.674	<0.00200	<0.00100	<0.0100	<0.0100	0.197	<0.00200	0.0536	<0.000200	<0.00500	<0.00200	<0.00200	1.80
MW-103	04/16/18	<0.200	155	4.03	0.306	6.96	<5.00	549	<0.00200	<0.00200	0.739	<0.00200	<0.00100	<0.0100	<0.0100	0.306	<0.00200	0.0565	<0.000200	<0.00500	<0.00200	<0.00200	1.68
MW-103	05/21/18	<0.200	177	4.08	0.277	7.24	<5.00	619	<0.00200	<0.00200	0.739	<0.00200	<0.00100	<0.0100	<0.0100	0.277	<0.00200	0.0605	<0.000200	<0.00500	<0.00200	<0.00200	1.19
MW-103	07/19/18	<0.200	162	4.36	0.210	7.39	<5.00	535	<0.00200	<0.00200	0.765	<0.00200	<0.00100	<0.0100	<0.0100	0.210	<0.00200	0.0536	<0.000200	<0.00500	<0.00200	<0.00200	3.53
MW-103	09/11/18	<0.200	149	4.54	0.273	7.02	<5.00	528	<0.00200	<0.00200	0.703	<0.00200	<0.00100	<0.0100	<0.0100	0.273	<0.00200	0.0513	<0.000200	<0.00500	<0.00200	<0.00200	1.27
MW-103	10/30/18	<0.200	137	4.42	0.219	7.16	<5.00	477	<0.00200	<0.00200	0.668	<0.00200	<0.00100	<0.0100	<0.0100	0.219	<0.00200	0.0448	<0.000200	<0.00500	<0.00200	<0.00200	1.97
MW-103	12/20/18	<0.200	140	4.32	0.209	7.27	<5.00	465	<0.00200	<0.00200	0.681	<0.00200	<0.00100	<0.0100	<0.0100	0.209	<0.00200	0.0452	<0.000200	<0.00500	<0.00200	<0.00200	1.67
MW-103	02/14/19	<0.200	135	4.00	0.231	7.04	<5.00	491	<0.00200	<0.00200	0.687	<0.00200	<0.00100	<0.0100	<0.0100	0.231	<0.00200	0.0509	<0.000200	<0.00500	<0.00200	<0.00200	3.00
MW-103	04/29/19	<0.200	137	4.51	0.257	7.15	<5.00	485	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-104	02/28/18	1.28	51.8	23.5	0.470	7.50	130	444	<0.00200	<0.00200	0.181	<0.00200	<0.00100	<0.0100	<0.0100	0.470	<0.00200	0.0160	<0.000200	0.0226	<0.00200	<0.00200	0.698
MW-104	04/16/18	1.27	50.2	23.0	0.674	7.29	136	433	<0.00200	<0.00200	0.161	<0.00200	<0.00100	<0.0100	<0.0100	0.674	<0.00200	0.0203	<0.000200	0.0229	<0.00200	<0.00200	0.368
MW-104	05/21/18	1.26	50.9	23.6	0.628	7.64	138	425	<0.00200	<0.00200	0.162	<0.00200	<0.00100	<0.0100	<0.0100	0.628	<0.00200	0.0164	<0.000200	0.0251	<0.00200	<0.00200	0.942
MW-104	07/19/18	1.31	53.0	21.9	0.510	7.86	147	455	<0.00200	<0.00200	0.152	<0.00200	<0.00100	<0.0100	<0.0100	0.510	<0.00200	0.0156	<0.000200	0.0288	<0.00200	<0.00200	0.396
MW-104	09/11/18	1.34	49.5	21.6	0.670	7.45	139	450	<0.00200	<0.00200	0.162	<0.00200	<0.00100	<0.0100	<0.0100	0.670	<0.00200	0.0161	<0.000200	0.0280	<0.00200	<0.00200	0.506
MW-104	10/30/18	1.26	47.8	20.5	0.598	7.45	109	417	<0.00200	<0.00200	0.163	<0.00200	<0.00100	<0.0100	<0.0100	0.598	<0.00200	<0.0150	<0.000200	0.0249	<0.00200	<0.00200	1.67
MW-104	12/20/18	1.31	51.5	21.4	0.453	7.62	116	393	<0.00200	<0.00200	0.165	<0.00200	<0.00100	<0.0100	<0.0100	0.453	<0.00200	0.0159	<0.000200	0.0225	<0.00200	<0.00200	1.72
MW-104	02/14/19	1.32	50.5	23.6	0.537	7.30	115	421	<0.00200	<0.00200	0.163	<0.00200	<0.00100	<0.0100	<0.0100	0.537	<0.00200	<0.0150	<0.000200	0.0220	<0.00200	<0.00200	0.953
MW-104	04/29/19	1.20	52.6	23.0	0.593	7.56	119	397	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

mg/L - miligrams per liter
pCi/L - picocuries per liter
S.U. - Standard Units
--- Not Sampled
* Verification Sample
** Extra Sample Collected per Standard Sampling Procedure

Table 1
Ash Impoundment
Appendix III and Appendix IV Detection Monitoring Results
KCP&L Iatan Generating Station

		Appendix III Constituents							Appendix IV Constituents														
Well Number	Sample Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Thallium (mg/L)	Radium Combined (pCi/L)
MW-105	02/28/18	1.26	101	18.5	0.654	7.05	282	689	<0.00200	<0.00200	0.402	<0.00200	<0.00100	<0.0100	<0.0100	0.654	<0.00200	0.0287	<0.000200	0.0148	<0.00200	<0.00200	0.772
MW-105	04/16/18	1.26	99.5	19.0	0.837	7.23	292	677	<0.00200	<0.00200	0.377	<0.00200	<0.00100	<0.0100	<0.0100	0.837	<0.00200	0.0362	<0.000200	0.0167	<0.00200	<0.00200	0.539
MW-105	05/21/18	1.26	102	18.6	0.791	7.39	286	713	<0.00200	<0.00200	0.369	<0.00200	<0.00100	<0.0100	<0.0100	0.791	<0.00200	0.0339	<0.000200	0.0151	<0.00200	<0.00200	0.884
MW-105	07/19/18	1.19	94.3	18.4	0.637	7.58	267	684	<0.00200	<0.00200	0.374	<0.00200	<0.00100	<0.0100	<0.0100	0.637	<0.00200	0.0304	<0.000200	0.0155	<0.00200	<0.00200	0.895
MW-105	09/11/18	1.33	97.1	18.3	0.808	7.23	255	676	<0.00200	<0.00200	0.380	<0.00200	<0.00100	<0.0100	<0.0100	0.808	<0.00200	0.0269	<0.000200	0.0196	<0.00200	<0.00200	2.05
MW-105	10/30/18	1.68	94.7	17.9	0.744	7.30	250	668	<0.00200	<0.00200	0.358	<0.00200	<0.00100	<0.0100	<0.0100	0.744	<0.00200	0.0232	<0.000200	0.0340	<0.00200	<0.00200	1.98
MW-105	12/19/18	1.92	93.5	18.2	0.595	7.37	248	679	<0.00200	<0.00200	0.370	<0.00200	<0.00100	<0.0100	<0.0100	0.595	<0.00200	0.0248	<0.000200	0.0352	<0.00200	<0.00200	1.68
MW-105	02/14/19	1.26	93.4	17.5	0.690	7.76	262	704	<0.00200	<0.00200	0.374	<0.00200	<0.00100	<0.0100	<0.0100	0.690	<0.00200	0.0273	<0.000200	0.0194	<0.00200	<0.00200	0.434
MW-105	04/29/19	1.41	89.4	17.8	0.791	7.41	281	647	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-106	02/28/18	1.16	86.1	21.0	0.346	6.89	154	572	<0.00200	<0.00200	0.217	<0.00200	<0.00100	<0.0100	<0.0100	0.346	<0.00200	0.0373	<0.000200	<0.00500	<0.00200	<0.00200	1.21
MW-106	04/16/18	1.10	83.8	20.8	0.503	7.25	156	545	<0.00200	<0.00200	0.204	<0.00200	<0.00100	<0.0100	<0.0100	0.503	<0.00200	0.0392	<0.000200	<0.00500	<0.00200	<0.00200	1.08
MW-106	05/21/18	1.08	87.7	19.0	0.444	7.11	135	540	<0.00200	<0.00200	0.198	<0.00200	<0.00100	<0.0100	<0.0100	0.444	<0.00200	0.0411	<0.000200	<0.00500	<0.00200	<0.00200	0.0319
MW-106	07/19/18	1.00	95.3	18.3	0.336	7.69	157	585	<0.00200	<0.00200	0.205	<0.00200	<0.00100	<0.0100	<0.0100	0.336	<0.00200	0.0395	<0.000200	<0.00500	<0.00200	<0.00200	1.42
MW-106	09/11/18	0.937	110	20.3	0.721	7.11	185	629	<0.00200	<0.00200	0.232	<0.00200	<0.00100	<0.0100	<0.0100	0.721	<0.00200	0.0389	<0.000200	<0.00500	<0.00200	<0.00200	0.769
MW-106	10/29/18	0.870	121	18.9	0.349	7.11	230	677	<0.00200	<0.00200	0.255	<0.00200	<0.00100	<0.0100	<0.0100	0.349	<0.00200	0.0350	<0.000200	<0.00500	<0.00200	<0.00200	1.61
MW-106	12/19/18	0.950	105	19.7	0.280	7.05	186	612	<0.00200	<0.00200	0.242	<0.00200	<0.00100	<0.0100	<0.0100	0.280	<0.00200	0.0343	<0.000200	<0.00500	<0.00200	<0.00200	0.551
MW-106	02/14/19	1.07	113	21.0	0.364	7.64	209	705	<0.00200	<0.00200	0.276	<0.00200	<0.00100	<0.0100	<0.0100	0.364	<0.00200	0.0371	<0.000200	<0.00500	<0.00200	<0.00200	0.282
MW-106	04/29/19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-107	02/28/18	2.44	60.0	18.5	0.494	7.94	264	683	<0.00200	<0.00200	0.112	<0.00200	<0.00100	<0.0100	<0.0100	0.494	<0.00200	<0.0150	<0.000200	0.0979	<0.00200	<0.00200	0.754
MW-107	04/16/18	2.57	54.8	19.7	0.790	7.76	233	637	<0.00200	<0.00200	0.102	<0.00200	<0.00100	<0.0100	<0.0100	0.790	<0.00200	<0.0150	<0.000200	0.110	<0.00200	<0.00200	1.56
MW-107	05/21/18	2.39	57.5	20.6	0.779	7.54	222	628	<0.00200	<0.00200	0.0994	<0.00200	<0.00100	<0.0100	<0.0100	0.779	<0.00200	<0.0150	<0.000200	0.103	<0.00200	<0.00200	0.190
MW-107	07/19/18	2.33	57.6	20.1	0.604	7.58	235	634	<0.00200	<0.00200	0.0995	<0.00200	<0.00100	<0.0100	<0.0100	0.604	<0.00200	<0.0150	<0.000200	0.102	<0.00200	<0.00200	0.221
MW-107	09/11/18	2.30	52.7	19.0	0.416	7.51	225	639	<0.00200	<0.00200	0.0991	<0.00200	<0.00100	<0.0100	<0.0100	0.416	<0.00200	<0.0150	<0.000200	0.0897	<0.00200	<0.00200	0.144
MW-107	10/29/18	2.11	52.3	20.2	0.667	7.47	239	647	<0.00200	<0.00200	0.103	<0.00200	<0.00100	<0.0100	<0.0100	0.667	<0.00200	<0.0150	<0.000200	0.0915	<0.00200	<0.00200	1.02
MW-107	12/20/18	2.02	55.8	20.2	0.532	7.75	255	583	<0.00200	<0.00200	0.105	<0.00200	<0.00100	<0.0100	<0.0100	0.532	<0.00200	<0.0150	<0.000200	0.0703	<0.00200	<0.00200	1.64
MW-107	02/15/19	1.87	60.8	25.9	0.652	7.35	266	679	<0.00200	<0.00200	0.116	<0.00200	<0.00100	<0.0100	<0.0100	0.652	<0.00200	<0.0150	<0.000200	0.0711	<0.00200	<0.00200	0.309
MW-107	04/29/19	2.20	67.4	33.3	0.744	7.39	249	619	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-107	05/20/19	---	*66.8	*34.2	---	**7.49	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-108	02/28/18	1.36	144	16.5	0.394	7.38	292	791	<0.00200	<0.00200	0.202	<0.00200	<0.00100	<0.0100	<0.0100	0.394	<0.00200	0.0330	<0.000200	0.0131	<0.00200	<0.00200	1.59
MW-108	04/16/18	1.82	113	16.0	0.668	7.59	283	761	<0.00200	0.00251	0.197	<0.00200	<0.00100	<0.0100	<0.0100	0.668	<0.00200	0.0338	<0.000200	0.0147	<0.00200	<0.00200	1.55
MW-108	05/21/18	1.68	125	16.4	0.605	7.79	278	743	<0.00200	0.00226	0.204	<0.00200	<0.00100	<0.0100	<0.0100	0.605	<0.00200	0.0376	<0.000200	0.0126	<0.00200	<0.00200	0.585
MW-108	07/19/18	1.21	131	16.7	0.425	7.21	304	796	<0.00200	0.00204	0.171	<0.00200	<0.00100	<0.0100	<0.0100	0.425	<0.00200	0.0346	<0.000200	0.0112	<0.00200	<0.00200	1.14
MW-108	09/10/18	0.885	147	17.5	0.480	7.14	303	805	<0.00200	<0.00200	0.175	<0.00200	<0.00100	<0.0100	<0.0100	0.480	<0.00200	0.0340	<0.000200	0.00776	<0.00200	<0.00200	1.00
MW-108	10/29/18	1.39	157	18.9	0.530	7.23	374	906	<0.00200	0.00288	0.235	<0.00200	<0.00100	<0.0100	<0.0100	0.530	<0.00200	0.0310	<0.000200	0.0110	<0.00200	<0.00200	0.447
MW-108	12/19/18	1.40	255	28.7	0.327	7.31	666	1490	<0.00200	0.00302	0.283	<0.00200	<0.00100	<0.0100	<0.0100	0.327	<0.00200	0.0450	<0.000200	0.00944	<0.00200	<0.00200	0.488
MW-108	02/15/19	1.50	127	18.8	0.482	8.40	303	835	<0.00200	0.00211	0.153	<0.00200	<0.00100	<0.0100	<0.0100	0.482	<0.00200	0.0353	<0.000200	0.0118	<0.00200	<0.00200	0.470
MW-108	04/29/19	1.41	128	18.7	0.559	7.32	336	799	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

mg/L - miligrams per liter
pCi/L - picocuries per liter
S.U. - Standard Units
--- Not Sampled
* Verification Sample
** Extra Sample Collected per Standard Sampling Procedure

Table 1
Ash Impoundment
Appendix III and Appendix IV Detection Monitoring Results
KCP&L Iatan Generating Station

Well Number	Sample Date	Appendix III Constituents							Appendix IV Constituents															
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Thallium (mg/L)	Radium Combined (pCi/L)
MW-109	02/27/18	0.790	93.9	25.2	0.461	7.32	222	641	<0.00200	<0.00200	0.207	<0.00200	<0.00100	<0.0100	<0.0100	0.461	<0.00200	0.0234	<0.000200	0.0255	<0.00200	<0.00200	0.416
MW-109	04/16/18	0.664	117	23.1	0.600	7.50	233	700	<0.00200	<0.00200	0.282	<0.00200	<0.00100	<0.0100	<0.0100	0.600	<0.00200	0.0347	<0.000200	0.0205	<0.00200	<0.00200	1.67
MW-109	05/21/18	0.630	110	25.7	0.580	7.53	200	663	<0.00200	0.00219	0.296	<0.00200	<0.00100	<0.0100	<0.0100	0.580	<0.00200	0.0306	<0.000200	0.0179	<0.00200	<0.00200	0.280
MW-109	07/19/18	0.569	104	27.7	0.470	7.19	203	653	<0.00200	0.00334	0.244	<0.00200	<0.00100	<0.0100	<0.0100	0.470	<0.00200	0.0263	<0.000200	0.0163	<0.00200	<0.00200	1.88
MW-109	09/10/18	0.565	127	27.2	0.601	7.07	193	739	<0.00200	0.00351	0.303	<0.00200	<0.00100	<0.0100	<0.0100	0.601	<0.00200	0.0258	<0.000200	0.0130	<0.00200	<0.00200	1.19
MW-109	10/29/18	0.566	130	27.1	0.557	7.20	186	708	<0.00200	0.00487	0.315	<0.00200	<0.00100	<0.0100	<0.0100	0.557	<0.00200	0.0235	<0.000200	0.0119	<0.00200	<0.00200	1.34
MW-109	12/19/18	0.664	91.5	26.5	0.445	7.31	193	584	<0.00200	<0.00200	0.208	<0.00200	<0.00100	<0.0100	<0.0100	0.445	<0.00200	0.0190	<0.000200	0.0198	<0.00200	<0.00200	0.480
MW-109	02/15/19	0.772	111	21.2	0.517	7.24	249	711	<0.00200	<0.00200	0.246	<0.00200	<0.00100	<0.0100	<0.0100	0.517	<0.00200	0.0281	<0.000200	0.0203	<0.00200	<0.00200	0.765
MW-109	04/29/19	0.684	126	22.5	0.604	7.22	245	692	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-110	02/27/18	1.85	55.7	20.7	0.489	7.52	352	733	<0.00200	<0.00200	0.115	<0.00200	<0.00100	<0.0100	<0.0100	0.489	<0.00200	0.0195	<0.000200	0.0701	<0.00200	<0.00200	0.930
MW-110	04/16/18	2.30	57.7	20.0	0.648	7.87	353	703	<0.00200	0.00444	0.173	<0.00200	<0.00100	<0.0100	<0.0100	0.648	<0.00200	0.0175	<0.000200	0.0887	<0.00200	<0.00200	0.351
MW-110	05/21/18	2.17	62.0	21.0	0.621	7.83	690	728	<0.00200	<0.00200	0.125	<0.00200	<0.00100	<0.0100	<0.0100	0.621	<0.00200	0.0217	<0.000200	0.0767	<0.00200	<0.00200	0.139
MW-110	07/19/18	1.90	62.5	20.4	0.457	7.50	343	715	<0.00200	<0.00200	0.110	<0.00200	<0.00100	<0.0100	<0.0100	0.457	<0.00200	0.0191	<0.000200	0.0622	<0.00200	<0.00200	0.59
MW-110	09/10/18	0.888	87.1	11.8	0.628	7.25	67.4	572	<0.00200	<0.00200	0.374	<0.00200	<0.00100	<0.0100	<0.0100	0.628	<0.00200	0.0257	<0.000200	0.0132	<0.00200	<0.00200	1.59
MW-110	10/30/18	2.31	58.6	20.1	0.470	7.31	346	752	<0.00200	0.00464	0.130	<0.00200	<0.00100	<0.0100	<0.0100	0.470	<0.00200	<0.0150	<0.000200	0.0829	<0.00200	<0.00200	0.81
MW-110	12/19/18	2.35	67.6	20.3	0.374	7.65	348	751	<0.00200	0.00365	0.133	<0.00200	<0.00100	<0.0100	<0.0100	0.374	<0.00200	<0.0150	<0.000200	0.0675	<0.00200	<0.00200	0.772
MW-110	02/15/19	2.40	64.4	20.7	0.461	7.41	345	727	<0.00200	0.00235	0.119	<0.00200	<0.00100	<0.0100	<0.0100	0.461	<0.00200	<0.0150	<0.000200	0.0884	<0.00200	<0.00200	0.983
MW-110	04/29/19	2.45	64.1	20.5	0.551	7.51	361	776	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-111	02/27/18	1.03	83.0	11.3	0.661	7.24	71.4	569	<0.00200	<0.00200	0.344	<0.00200	<0.00100	<0.0100	<0.0100	0.661	<0.00200	0.0311	<0.000200	0.0153	<0.00200	<0.00200	0.472
MW-111	04/16/18	0.846	101	7.71	0.608	7.42	31.3	554	<0.00200	0.00215	0.441	<0.00200	<0.00100	<0.0100	<0.0100	0.608	<0.00200	0.0331	<0.000200	0.0139	<0.00200	<0.00200	0.252
MW-111	05/21/18	0.904	91.5	9.92	0.646	7.53	64.7	580	<0.00200	<0.00200	0.410	<0.00200	<0.00100	<0.0100	<0.0100	0.646	<0.00200	0.0302	<0.000200	0.0155	<0.00200	<0.00200	0.489
MW-111	07/19/18	0.897	84.5	11.0	0.488	7.22	73.1	555	<0.00200	<0.00200	0.370	<0.00200	<0.00100	<0.0100	<0.0100	0.488	<0.00200	0.0270	<0.000200	0.0149	<0.00200	<0.00200	1.21
MW-111	09/10/18	0.873	87.2	11.8	0.62	7.25	66.8	552	<0.00200	<0.00200	0.373	<0.00200	0.0733	<0.0100	<0.0100	0.620	<0.00200	0.0230	<0.000200	0.0140	<0.00200	<0.00200	2.58
MW-111	10/30/18	0.863	98.7	9.29	0.525	7.45	62.8	586	<0.00200	<0.00200	0.391	<0.00200	<0.00100	<0.0100	<0.0100	0.525	<0.00200	0.0249	<0.000200	0.0124	<0.00200	<0.00200	2.29
MW-111	12/19/18	0.909	96.1	9.63	0.422	7.38	61.8	572	<0.00200	<0.00200	0.386	<0.00200	<0.00100	<0.0100	<0.0100	0.422	<0.00200	0.0235	<0.000200	0.0124	<0.00200	<0.00200	1.13
MW-111	02/15/19	0.908	99.0	8.19	0.513	7.20	27.8	567	<0.00200	0.00370	0.454	<0.00200	<0.00100	<0.0100	<0.0100	0.513	<0.00200	0.0270	<0.000200	0.0127	<0.00200	<0.00200	1.18
MW-111	04/29/19	0.843	95.9	8.30	0.574	7.32	26.3	559	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

mg/L - miligrams per liter
pCi/L - picocuries per liter
S.U. - Standard Units
--- Not Sampled

Table 2
Ash Impoundment
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-101	02/27/18	7.15	841	14.9	39.3	NA	NA	12.35	764.84
MW-101	04/16/18	6.93	961	12.45	0.8	-109.0	0.00	11.18	766.01
MW-101	05/21/18	7.39	905	14.71	0.0	-175.0	0.98	10.35	766.84
MW-101	07/19/18	7.05	962	15.7	0.0	-181.0	2.76	8.78	768.41
MW-101	09/10/18	7.07	943	15.21	4.2	-164.0	0.00	8.31	768.88
MW-101	10/30/18	7.10	992	14.77	0.0	-134.0	0.00	6.42	770.77
MW-101	12/20/18	7.30	976	12.5	5.0	-147	1.29	6.95	770.24
MW-101	02/15/19	7.78	955	11.62	0	-184	0.00	7.48	769.71
MW-101	04/29/19	7.18	981	11.59	0.0	-199.0	0.0	4.52	772.67
MW-102	02/27/18	7.11	784	15.75	4.9	NA	NA	10.97	764.82
MW-102	04/16/18	6.99	882	12.58	0.0	-84.0	0.00	9.68	766.11
MW-102	05/21/18	7.37	881	14.47	0.0	-175.0	0.99	9.07	766.72
MW-102	07/19/18	7.07	934	15.59	0	-190	2.11	7.54	768.25
MW-102	09/10/18	7.10	890	15.44	6.4	-162.0	0.00	7.10	768.69
MW-102	10/30/18	7.15	992	14.46	0.0	-129.0	0.00	6.20	769.59
MW-102	12/20/18	7.35	1030	9.89	25.8	-154	0.39	5.50	770.29
MW-102	02/14/19	7.59	929	12.22	0.0	-167	0.60	5.65	770.14
MW-102	04/29/19	7.11	924	11.2	0.0	-205.0	0.0	2.96	772.83
MW-103	02/28/18	7.24	1290	15.14	11.1	NA	NA	19.17	764.02
MW-103	04/16/18	6.96	992	13.35	0.0	-82.0	0.00	17.29	765.90
MW-103	05/21/18	7.24	1050	15.96	0.0	-165.0	0.67	16.83	766.36
MW-103	07/19/18	7.39	1090	16.87	0.0	-194.0	0.27	15.58	767.61
MW-103	09/11/18	7.02	887	15.91	6.6	-144.0	0.00	14.96	768.23
MW-103	10/30/18	7.16	923	14.35	0.0	-119.0	0.00	12.70	770.49
MW-103	12/20/18	7.27	928	12.6	5.0	-142	0.00	12.70	770.49
MW-103	02/14/19	7.04	834	13.76	0.0	-169	0.00	13.03	770.16
MW-103	04/29/19	7.15	912	14.85	0.0	-148.0	8.3	9.59	773.60
MW-104	02/28/18	7.50	1060	15.2	4.3	NA	NA	16.11	763.01
MW-104	04/16/18	7.29	698	14.5	0.3	-80.0	0.00	13.39	765.73
MW-104	05/21/18	7.64	655	16.23	0.0	-185.0	0.70	12.88	766.24
MW-104	07/19/18	7.86	749	16.5	0.0	-255.0	0.01	11.33	767.79
MW-104	09/11/18	7.45	690	16.2	6.9	-173.0	0.01	10.59	768.53
MW-104	10/30/18	7.45	720	14.29	3.1	-144.0	0.00	8.51	770.61
MW-104	12/20/18	7.62	713	12.90	5.5	-165	0.00	8.81	770.31
MW-104	02/14/19	7.30	667	13.74	0.0	-190	0.00	9.40	769.72
MW-104	04/29/19	7.56	701	14.98	4.0	-170.0	0.0	5.75	773.37
MW-105	02/28/18	7.05	1560	15.02	8.9	NA	NA	16.28	763.87
MW-105	04/16/18	7.23	1050	13.68	0.0	-59.0	0.00	15.15	765.00
MW-105	05/21/18	7.39	1200	16.19	0.0	-166.0	1.02	13.83	766.32
MW-105	07/19/18	7.58	940	15.78	0.0	-267.0	0.00	11.44	768.71
MW-105	09/11/18	7.23	993	15.37	6.8	-159.0	0.02	10.50	769.65
MW-105	10/30/18	7.30	1060	14.26	7.2	-140.0	0.00	9.00	771.15
MW-105	12/19/18	7.37	1070	12.95	0.8	-134	0.00	10.00	770.15
MW-105	02/14/19	7.76	1060	12.92	0.0	-202	0.00	11.16	768.99
MW-105	04/29/19	7.41	1090	13.59	0.0	-180.0	0.0	7.37	772.78
MW-106	02/28/18	6.89	1350	15.09	41.0	NA	NA	23.77	763.29
MW-106	04/16/18	7.25	887	14.24	1.4	-70.0	0.00	22.57	764.49
MW-106	05/21/18	7.11	914	16.76	0.0	202.0	0.64	20.50	766.56
MW-106	07/19/18	7.69	949	17.35	0.0	-273.0	0.00	17.67	769.39
MW-106	09/11/18	7.11	959	16.6	7.3	-158.0	0.21	16.43	770.63
MW-106	10/29/18	7.11	1110	16.32	0.7	-136.0	0.00	16.02	771.04
MW-106	12/19/18	7.05	1020	14.35	0.0	-125	1.77	18.34	768.72
MW-106	02/14/19	7.64	1080	14.19	0.0	-195	0.00	20.10	766.96
MW-106	04/29/19	NA	NA	NA	NA	NA	NA	NA	NA
MW-107	02/28/18	7.94	1610	12.8	1.1	NA	NA	15.87	762.24
MW-107	04/16/18	7.76	983	13.49	0.0	-34.0	0.00	13.60	764.51
MW-107	05/21/18	7.54	976	14.63	0.0	-172.0	1.07	11.10	767.01
MW-107	07/19/18	7.58	1010	15.81	0.0	-283.0	0.55	8.23	769.88
MW-107	09/11/18	7.51	948	15.52	6.3	-163.0	0.07	6.08	772.03
MW-107	10/29/18	7.47	1010	15.71	0.0	-160.0	0.00	7.21	770.90
MW-107	12/20/18	7.75	1050	12.57	4.9	-151	0.00	10.64	767.47
MW-107	02/15/19	7.35	1020	12.78	0.0	-175	0.00	12.46	765.65
MW-107	04/29/19	7.39	1080	12.68	0.0	-188.0	0.0	5.94	772.17
MW-107	05/20/19	**7.49	1010	12.13	0.0	-195.0	0.0	4.84	773.27
MW-108	02/28/18	7.38	1030	11.6	23.1	NA	NA	15.05	762.53
MW-108	04/16/18	7.59	1200	12.04	6.4	-91.0	0.00	12.98	764.60
MW-108	05/21/18	7.79	1150	12.59	0.0	-176.0	1.10	10.50	767.08
MW-108	07/19/18	7.21	1110	14.67	0.0	-169.0	3.06	7.72	769.86
MW-108	09/10/18	7.14	1210	13.09	6.8	-155.0	0.00	6.50	771.08
MW-108	10/29/18	7.23	1380	14.07	2.3	-147.0	0.00	6.45	771.13
MW-108	12/19/18	7.31	1870	11.63	5.0	-121	0.00	9.51	768.07
MW-108	02/15/19	8.40	1270	9.78	4.5	-182	7.92	11.28	766.30
MW-108	04/29/19	7.32	1310	9.77	0.0	-190.0	0.0	5.18	772.40
MW-109	02/27/18	7.32	887	14.92	46.7	NA	NA	15.50	762.33
MW-109	04/16/18	7.50	1130	14.25	24.0	-42.0	0.00	13.16	764.67
MW-109	05/21/18	7.53	1020	15.01	81.0	-156.0	0.88	10.75	767.08
MW-109	07/19/18	7.19	1010	17.48	0.0	-175.0	3.12	8.08	769.75
MW-109	09/10/18	7.07	1170	15.9	5.7	-150.0	0.21	6.97	770.86
MW-109	10/29/18	7.20	1120	16.38	7.6	-143.0	0.00	6.69	771.14
MW-109	12/19/18	7.36	983	13.43	5.9	-63	0.00	9.50	768.33
MW-109	02/15/19	7.24	1050	12.74	0.0	-173	0.00	11.29	766.54
MW-109	04/29/19	7.22	1190	12.61	0.0	-179.0	0.0	5.36	772.47
MW-110	02/27/18	7.52	955	12.2	36.7	NA	NA	15.65	762.57
MW-110	04/16/18	7.87	1110	10.35	13.6	-67.0	0.00	13.10	765.12
MW-110	05/21/18	7.83	1070	11.57	0.0	-177.0	3.02	11.43	766.79
MW-110	07/19/18	7.50	1090	13.36	0.0	-180.0	1.78	9.41	768.81
MW-110	09/10/18	7.25	912	16.05	0.0	-169.0	0.00	10.39	767.83
MW-110	10/30/18	7.31	1150	12.02	9.4	-80.0	0.00	7.51	770.71
MW-110	12/19/18	7.65	1180	10.43	4.2	-128	0.00	8.58	769.64
MW-110	02/15/19	7.41	1090	8.66	0.0	-174	0.00	9.95	768.27
MW-110	04/29/19	7.51	1200	8.45	0.0	-180.0	0.0	5.61	772.61
MW-111	02/27/18	7.24	803	15.64	19.3	NA	NA	15.72	763.04
MW-111	04/16/18	7.42	941	13.78	6.9	-57.0	0.00	12.28	766.48
MW-111	05/21/18	7.53	925	15.21	10.0	-178.0	1.16	12.22	766.54
MW-111	07/19/18	7.22	921	17.24	0.0	-183.0	2.72	11.04	767.72
MW-111	09/10/18	7.25	894	16.42	6.7	-157.0	0.75	10.39	768.37
MW-111	10/30/18	7.45	994	14.85	8.6	-133.0	0.00	8.46	770.30
MW-111	12/19/18	7.38	1000	13.53	6.8	-146	0.00	8.49	770.27
MW-111	02/15/19	7.20	937	12.61	9.9	-176	0.00	9.15	769.61
MW-111	04/29/19	7.32	993	12.17	0.0	-194.0	0.0	5.76	773.00

* Verification Sample
** Extra Sample Collected 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

ADDENDUM 1

2018-2019 Annual Groundwater Monitoring and Corrective Action Addendum 1

December 16, 2022
File No. 27217413.00

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: 2018-2019 Annual Groundwater Monitoring and Corrective Action Report Addendum 1
Evergy Metro, Inc.
Ash Impoundment
Iatan Generating Station – Platte County, Missouri

The Ash Impoundment at the 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 40 257.100. An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting activities completed from February 2018 through June 2019 for the Ash Impoundment was completed and placed in the facility's operating record on January 30, 2018, as required by the Rule. The report was subsequently revised and placed in the operating record February 13, 2018. 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. Because a GWMCA Report was not required for 2018, the Appendix III and Appendix IV background data collected in 2018 through June 2019 is included herewith. The laboratory data packages for the following sampling events are provided:

- February 2018 – First background sampling event for Appendix III and Appendix IV.
- April 2018 – Second background sampling event for Appendix III and Appendix IV.
- May 2018 - Third background sampling event for Appendix III and Appendix IV.
- July 2018 - Fourth background sampling event for Appendix III and Appendix IV.
- September 2018 - Fifth background sampling event for Appendix III and Appendix IV.
- October 2018 - Sixth background sampling event for Appendix III and Appendix IV.
- December 2018 - Seventh background sampling event for Appendix III and Appendix IV.
- February 2019 - Eighth background sampling event for Appendix III and Appendix IV.
- April 2019 – Spring semiannual detection monitoring sampling event.
- May 2019 – First verification sampling for the Spring 2019 detection monitoring sampling event.

- Attachment 2 - Statistical Analyses:

  Statistical analyses were not completed between February 2018 and June 2019. Statistical analyses of the background sampling events were completed following data verification of the July 2019 second verification sampling event.

- 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:

  - February 2018 – First background sampling event.
  - April 2018 – Second background sampling event.
  - May 2018 - Third background sampling event.
  - July 2018 - Fourth background sampling event.
  - September 2018 - Fifth background sampling event.
  - October 2018 - Sixth background sampling event.
  - December 2018 - Seventh background sampling event.
  - February 2019 - Eighth background sampling event.
  - April 2019 – Spring semiannual detection monitoring sampling event.

Jared Morrison
December 16, 2022

ATTACHMENT 1

Laboratory Analytical Reports

Jared Morrison
December 16, 2022

ATTACHMENT 1-1

February 2018 Sampling Event Laboratory Report

ANALYTICAL REPORT

March 08, 2018

SCS Engineers - KS

Sample Delivery Group:	L974241
Samples Received:	03/02/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Technical Service Representative

MW-101 L974241-01 GW

Collected by: Adam Parris | Collected date/time: 02/27/18 09:05 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 14:59	03/03/18 14:59	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 22:57	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:36	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 21:39	LD

MW-102 L974241-02 GW

Collected by: Adam Parris | Collected date/time: 02/27/18 10:05 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 15:15	03/03/18 15:15	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 22:59	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:39	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 21:43	LD

MW-103 L974241-03 GW

Collected by: Adam Parris | Collected date/time: 02/28/18 16:45 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 15:30	03/03/18 15:30	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:01	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:41	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:12	LD

MW-104 L974241-04 GW

Collected by: Adam Parris | Collected date/time: 02/28/18 15:35 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 15:46	03/03/18 15:46	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 13:37	03/04/18 13:37	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 22:43	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:26	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 21:24	LD

MW-105 L974241-05 GW

Collected by: Adam Parris | Collected date/time: 02/28/18 14:45 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 17:18	03/03/18 17:18	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 14:27	03/04/18 14:27	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:04	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:49	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:16	LD

MW-106 L974241-06 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/28/18 13:45	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 17:33	03/03/18 17:33	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 15:04	03/04/18 15:04	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:13	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:51	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:20	LD

MW-107 L974241-07 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/28/18 11:45	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080137	1	03/04/18 10:42	03/04/18 11:26	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 17:49	03/03/18 17:49	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 15:17	03/04/18 15:17	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:15	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:54	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:24	LD

MW-108 L974241-08 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/28/18 10:40	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080137	1	03/04/18 10:42	03/04/18 11:26	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 18:04	03/03/18 18:04	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 15:29	03/04/18 15:29	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:17	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:57	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:27	LD

MW-109 L974241-09 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/27/18 16:00	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 18:20	03/03/18 18:20	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 15:42	03/04/18 15:42	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:19	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 12:59	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:31	LD

MW-110 L974241-10 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/27/18 14:25	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 18:35	03/03/18 18:35	DR
Wet Chemistry by Method 9056A	WG1079887	5	03/03/18 18:50	03/03/18 18:50	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:22	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 13:02	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:35	LD

MW-111 L974241-11 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/27/18 12:20	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080136	1	03/04/18 10:18	03/04/18 10:41	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 19:37	03/03/18 19:37	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:24	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 13:04	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:39	LD

DUPLICATE L974241-12 GW

Collected by	Collected date/time	Received date/time
Adam Parris	02/28/18 15:40	03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1080137	1	03/04/18 10:42	03/04/18 11:26	BS
Wet Chemistry by Method 9056A	WG1079887	1	03/03/18 19:52	03/03/18 19:52	DR
Wet Chemistry by Method 9056A	WG1080350	5	03/04/18 15:54	03/04/18 15:54	DR
Mercury by Method 7470A	WG1080605	1	03/06/18 05:23	03/06/18 23:26	EL
Metals (ICP) by Method 6010B	WG1080269	1	03/06/18 22:08	03/07/18 13:07	TRB
Metals (ICPMS) by Method 6020	WG1080279	1	03/06/18 17:46	03/07/18 22:42	LD

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	534000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	6270		1000	1	03/03/2018 14:59	WG1079887
Fluoride	288		100	1	03/03/2018 14:59	WG1079887
Sulfate	ND		5000	1	03/03/2018 14:59	WG1079887

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 22:57	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	681		5.00	1	03/07/2018 12:36	WG1080269
Boron	ND		200	1	03/07/2018 12:36	WG1080269
Calcium	132000		1000	1	03/07/2018 12:36	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:36	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:36	WG1080269
Lithium	36.2		15.0	1	03/07/2018 12:36	WG1080269
Molybdenum	ND		5.00	1	03/07/2018 12:36	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 21:39	WG1080279
Arsenic	2.47		2.00	1	03/07/2018 21:39	WG1080279
Beryllium	ND		2.00	1	03/07/2018 21:39	WG1080279
Cadmium	ND		1.00	1	03/07/2018 21:39	WG1080279
Lead	ND		2.00	1	03/07/2018 21:39	WG1080279
Selenium	ND		2.00	1	03/07/2018 21:39	WG1080279
Thallium	ND		2.00	1	03/07/2018 21:39	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	507000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5080		1000	1	03/03/2018 15:15	WG1079887
Fluoride	209		100	1	03/03/2018 15:15	WG1079887
Sulfate	ND		5000	1	03/03/2018 15:15	WG1079887

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 22:59	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	695		5.00	1	03/07/2018 12:39	WG1080269
Boron	ND		200	1	03/07/2018 12:39	WG1080269
Calcium	130000		1000	1	03/07/2018 12:39	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:39	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:39	WG1080269
Lithium	33.7		15.0	1	03/07/2018 12:39	WG1080269
Molybdenum	ND		5.00	1	03/07/2018 12:39	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 21:43	WG1080279
Arsenic	4.61		2.00	1	03/07/2018 21:43	WG1080279
Beryllium	ND		2.00	1	03/07/2018 21:43	WG1080279
Cadmium	ND		1.00	1	03/07/2018 21:43	WG1080279
Lead	ND		2.00	1	03/07/2018 21:43	WG1080279
Selenium	ND		2.00	1	03/07/2018 21:43	WG1080279
Thallium	ND		2.00	1	03/07/2018 21:43	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	493000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4200		1000	1	03/03/2018 15:30	WG1079887
Fluoride	197		100	1	03/03/2018 15:30	WG1079887
Sulfate	ND		5000	1	03/03/2018 15:30	WG1079887

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:01	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	674		5.00	1	03/07/2018 12:41	WG1080269
Boron	ND		200	1	03/07/2018 12:41	WG1080269
Calcium	136000		1000	1	03/07/2018 12:41	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:41	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:41	WG1080269
Lithium	53.6		15.0	1	03/07/2018 12:41	WG1080269
Molybdenum	ND		5.00	1	03/07/2018 12:41	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:12	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:12	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:12	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:12	WG1080279
Lead	ND		2.00	1	03/07/2018 22:12	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:12	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:12	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	444000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23500		1000	1	03/03/2018 15:46	WG1079887
Fluoride	470		100	1	03/03/2018 15:46	WG1079887
Sulfate	130000		25000	5	03/04/2018 13:37	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 22:43	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	181		5.00	1	03/07/2018 12:26	WG1080269
Boron	1280	O1	200	1	03/07/2018 12:26	WG1080269
Calcium	51800		1000	1	03/07/2018 12:26	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:26	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:26	WG1080269
Lithium	16.0		15.0	1	03/07/2018 12:26	WG1080269
Molybdenum	22.6		5.00	1	03/07/2018 12:26	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 21:24	WG1080279
Arsenic	ND		2.00	1	03/07/2018 21:24	WG1080279
Beryllium	ND		2.00	1	03/07/2018 21:24	WG1080279
Cadmium	ND		1.00	1	03/07/2018 21:24	WG1080279
Lead	ND		2.00	1	03/07/2018 21:24	WG1080279
Selenium	ND		2.00	1	03/07/2018 21:24	WG1080279
Thallium	ND		2.00	1	03/07/2018 21:24	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	689000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18500		1000	1	03/03/2018 17:18	WG1079887
Fluoride	654		100	1	03/03/2018 17:18	WG1079887
Sulfate	282000		25000	5	03/04/2018 14:27	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:04	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	402		5.00	1	03/07/2018 12:49	WG1080269
Boron	1260		200	1	03/07/2018 12:49	WG1080269
Calcium	101000		1000	1	03/07/2018 12:49	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:49	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:49	WG1080269
Lithium	28.7		15.0	1	03/07/2018 12:49	WG1080269
Molybdenum	14.8		5.00	1	03/07/2018 12:49	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:16	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:16	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:16	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:16	WG1080279
Lead	ND		2.00	1	03/07/2018 22:16	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:16	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:16	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	572000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21000		1000	1	03/03/2018 17:33	WG1079887
Fluoride	346		100	1	03/03/2018 17:33	WG1079887
Sulfate	154000		25000	5	03/04/2018 15:04	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:13	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	217		5.00	1	03/07/2018 12:51	WG1080269
Boron	1160		200	1	03/07/2018 12:51	WG1080269
Calcium	86100		1000	1	03/07/2018 12:51	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:51	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:51	WG1080269
Lithium	37.3		15.0	1	03/07/2018 12:51	WG1080269
Molybdenum	ND		5.00	1	03/07/2018 12:51	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:20	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:20	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:20	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:20	WG1080279
Lead	ND		2.00	1	03/07/2018 22:20	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:20	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:20	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	683000		10000	1	03/04/2018 11:26	WG1080137

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18500		1000	1	03/03/2018 17:49	WG1079887
Fluoride	494		100	1	03/03/2018 17:49	WG1079887
Sulfate	264000		25000	5	03/04/2018 15:17	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:15	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	112		5.00	1	03/07/2018 12:54	WG1080269
Boron	2440		200	1	03/07/2018 12:54	WG1080269
Calcium	60000		1000	1	03/07/2018 12:54	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:54	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:54	WG1080269
Lithium	ND		15.0	1	03/07/2018 12:54	WG1080269
Molybdenum	97.9		5.00	1	03/07/2018 12:54	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:24	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:24	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:24	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:24	WG1080279
Lead	ND		2.00	1	03/07/2018 22:24	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:24	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:24	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	791000		10000	1	03/04/2018 11:26	WG1080137

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	16500		1000	1	03/03/2018 18:04	WG1079887
Fluoride	394		100	1	03/03/2018 18:04	WG1079887
Sulfate	292000		25000	5	03/04/2018 15:29	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:17	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	202		5.00	1	03/07/2018 12:57	WG1080269
Boron	1360		200	1	03/07/2018 12:57	WG1080269
Calcium	144000		1000	1	03/07/2018 12:57	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:57	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:57	WG1080269
Lithium	33.0		15.0	1	03/07/2018 12:57	WG1080269
Molybdenum	13.1		5.00	1	03/07/2018 12:57	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:27	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:27	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:27	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:27	WG1080279
Lead	ND		2.00	1	03/07/2018 22:27	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:27	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:27	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	641000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	25200		1000	1	03/03/2018 18:20	WG1079887
Fluoride	461		100	1	03/03/2018 18:20	WG1079887
Sulfate	222000		25000	5	03/04/2018 15:42	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:19	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	207		5.00	1	03/07/2018 12:59	WG1080269
Boron	790		200	1	03/07/2018 12:59	WG1080269
Calcium	93900		1000	1	03/07/2018 12:59	WG1080269
Chromium	ND		10.0	1	03/07/2018 12:59	WG1080269
Cobalt	ND		10.0	1	03/07/2018 12:59	WG1080269
Lithium	23.4		15.0	1	03/07/2018 12:59	WG1080269
Molybdenum	25.5		5.00	1	03/07/2018 12:59	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:31	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:31	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:31	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:31	WG1080279
Lead	ND		2.00	1	03/07/2018 22:31	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:31	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:31	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	733000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20700		1000	1	03/03/2018 18:35	WG1079887
Fluoride	489		100	1	03/03/2018 18:35	WG1079887
Sulfate	352000		25000	5	03/03/2018 18:50	WG1079887

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:22	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	115		5.00	1	03/07/2018 13:02	WG1080269
Boron	1850		200	1	03/07/2018 13:02	WG1080269
Calcium	55700		1000	1	03/07/2018 13:02	WG1080269
Chromium	ND		10.0	1	03/07/2018 13:02	WG1080269
Cobalt	ND		10.0	1	03/07/2018 13:02	WG1080269
Lithium	19.5		15.0	1	03/07/2018 13:02	WG1080269
Molybdenum	70.1		5.00	1	03/07/2018 13:02	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:35	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:35	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:35	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:35	WG1080279
Lead	ND		2.00	1	03/07/2018 22:35	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:35	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:35	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	569000		10000	1	03/04/2018 10:41	WG1080136

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	11300		1000	1	03/03/2018 19:37	WG1079887
Fluoride	661		100	1	03/03/2018 19:37	WG1079887
Sulfate	71400		5000	1	03/03/2018 19:37	WG1079887

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:24	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	344		5.00	1	03/07/2018 13:04	WG1080269
Boron	1030		200	1	03/07/2018 13:04	WG1080269
Calcium	83000		1000	1	03/07/2018 13:04	WG1080269
Chromium	ND		10.0	1	03/07/2018 13:04	WG1080269
Cobalt	ND		10.0	1	03/07/2018 13:04	WG1080269
Lithium	31.1		15.0	1	03/07/2018 13:04	WG1080269
Molybdenum	15.3		5.00	1	03/07/2018 13:04	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:39	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:39	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:39	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:39	WG1080279
Lead	ND		2.00	1	03/07/2018 22:39	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:39	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:39	WG1080279

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	440000		10000	1	03/04/2018 11:26	WG1080137

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23600		1000	1	03/03/2018 19:52	WG1079887
Fluoride	584		100	1	03/03/2018 19:52	WG1079887
Sulfate	130000		25000	5	03/04/2018 15:54	WG1080350

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/06/2018 23:26	WG1080605

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	180		5.00	1	03/07/2018 13:07	WG1080269
Boron	1280		200	1	03/07/2018 13:07	WG1080269
Calcium	52000		1000	1	03/07/2018 13:07	WG1080269
Chromium	ND		10.0	1	03/07/2018 13:07	WG1080269
Cobalt	ND		10.0	1	03/07/2018 13:07	WG1080269
Lithium	16.2		15.0	1	03/07/2018 13:07	WG1080269
Molybdenum	22.0		5.00	1	03/07/2018 13:07	WG1080269

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	03/07/2018 22:42	WG1080279
Arsenic	ND		2.00	1	03/07/2018 22:42	WG1080279
Beryllium	ND		2.00	1	03/07/2018 22:42	WG1080279
Cadmium	ND		1.00	1	03/07/2018 22:42	WG1080279
Lead	ND		2.00	1	03/07/2018 22:42	WG1080279
Selenium	ND		2.00	1	03/07/2018 22:42	WG1080279
Thallium	ND		2.00	1	03/07/2018 22:42	WG1080279

Method Blank (MB)

(MB) R3290989-1 03/04/18 10:41

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	5000	J	2820	10000

L974241-01 Original Sample (OS) • Duplicate (DUP)

(OS) L974241-01 03/04/18 10:41 • (DUP) R3290989-4 03/04/18 10:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	534000	540000	1	1.12		5

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

(LCS) R3290989-2 03/04/18 10:41 • (LCSD) R3290989-3 03/04/18 10:41

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	8620000	8630000	98.0	98.1	85.0-115			0.116	5

Method Blank (MB)

(MB) R3290990-1 03/04/18 11:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	5000	J	2820	10000

L974241-12 Original Sample (OS) • Duplicate (DUP)

(OS) L974241-12 03/04/18 11:26 • (DUP) R3290990-4 03/04/18 11:26

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	440000	446000	1	1.35		5

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

(LCS) R3290990-2 03/04/18 11:26 • (LCSD) R3290990-3 03/04/18 11:26

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	8680000	8610000	98.6	97.8	85.0-115			0.810	5

Method Blank (MB)

(MB) R3290298-1 03/03/18 10:15

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

L974241-04 Original Sample (OS) • Duplicate (DUP)

(OS) L974241-04 03/03/18 15:46 • (DUP) R3290298-4 03/03/18 16:32

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	23500	23900	1	1.69		15
Fluoride	470	473	1	0.700		15

L974320-01 Original Sample (OS) • Duplicate (DUP)

(OS) L974320-01 03/03/18 20:08 • (DUP) R3290298-7 03/03/18 20:23

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	11400	11400	1	0.374		15
Fluoride	145	164	1	12.3		15
Sulfate	22600	22000	1	2.60		15

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

(LCS) R3290298-2 03/03/18 10:31 • (LCSD) R3290298-3 03/03/18 10:46

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	40700	39900	102	99.6	80.0-120			2.01	15
Fluoride	8000	8470	8470	106	106	80.0-120			0.0496	15
Sulfate	40000	40700	40300	102	101	80.0-120			1.06	15

L974241-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L974241-04 03/03/18 15:46 • (MS) R3290298-5 03/03/18 16:47 • (MSD) R3290298-6 03/03/18 17:03

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	23500	75000	74800	103	103	1	80.0-120			0.280	15
Fluoride	5000	470	5860	5940	108	109	1	80.0-120			1.36	15

L974320-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L974320-01 03/03/18 20:08 • (MS) R3290298-8 03/03/18 20:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	11400	62300	102	1	80.0-120	
Fluoride	5000	145	5290	103	1	80.0-120	
Sulfate	50000	22600	73200	101	1	80.0-120	

Method Blank (MB)

(MB) R3290645-1 03/04/18 07:41

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

L974241-04 Original Sample (OS) • Duplicate (DUP)

(OS) L974241-04 03/04/18 13:37 • (DUP) R3290645-6 03/04/18 13:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	130000	132000	5	1.58		15

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

(LCS) R3290645-2 03/04/18 07:54 • (LCSD) R3290645-3 03/04/18 08:06

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	40600	40400	101	101	80.0-120			0.492	15

L974056-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L974056-01 03/04/18 11:08 • (MS) R3290645-5 03/04/18 11:46

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	14600	64000	98.9	1	80.0-120	

Method Blank (MB)

(MB) R3291017-1 03/06/18 22:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3291017-2 03/06/18 22:34 • (LCSD) R3291017-3 03/06/18 22:36

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	%	%	%			%	%
Mercury	3.00	2.89	2.85	96.2	95.0	80.0-120			1.21	20

L974241-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L974241-04 03/06/18 22:43 • (MS) R3291017-4 03/06/18 22:45 • (MSD) R3291017-5 03/06/18 22:48

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	%	%		%			%	%
Mercury	3.00	ND	2.73	2.74	91.1	91.5	1	75.0-125			0.424	20

Method Blank (MB)

(MB) R3291219-1 03/07/18 12:19

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	97.3	J	46.3	1000
Chromium	1.46	J	1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3291219-2 03/07/18 12:21 • (LCSD) R3291219-3 03/07/18 12:23

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 %
Barium	1000	991	998	99.1	99.8	80.0-120			0.659	20
Boron	1000	959	966	95.9	96.6	80.0-120			0.771	20
Calcium	10000	9650	9710	96.5	97.1	80.0-120			0.662	20
Chromium	1000	965	974	96.5	97.4	80.0-120			0.878	20
Cobalt	1000	990	996	99.0	99.6	80.0-120			0.568	20
Lithium	1000	973	989	97.3	98.9	80.0-120			1.68	20
Molybdenum	1000	993	996	99.3	99.6	80.0-120			0.278	20

L974241-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L974241-04 03/07/18 12:26 • (MS) R3291219-5 03/07/18 12:31 • (MSD) R3291219-6 03/07/18 12:33

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	181	1180	1170	99.6	98.9	1	75.0-125			0.634	20
Boron	1000	1280	2230	2240	95.6	96.4	1	75.0-125			0.361	20
Calcium	10000	51800	60300	60200	84.9	83.9	1	75.0-125			0.166	20
Chromium	1000	ND	978	969	97.8	96.9	1	75.0-125			0.846	20
Cobalt	1000	ND	1030	1020	103	102	1	75.0-125			0.872	20
Lithium	1000	16.0	997	986	98.1	97.0	1	75.0-125			1.06	20
Molybdenum	1000	22.6	1030	1020	101	100	1	75.0-125			0.479	20

Method Blank (MB)

(MB) R3291380-1 03/07/18 21:13

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	U		0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3291380-2 03/07/18 21:16 • (LCSD) R3291380-3 03/07/18 21:20

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 %
Antimony	50.0	51.5	51.7	103	103	80.0-120			0.437	20
Arsenic	50.0	52.4	52.9	105	106	80.0-120			1.09	20
Beryllium	50.0	50.1	49.0	100	98.0	80.0-120			2.25	20
Cadmium	50.0	53.9	54.4	108	109	80.0-120			0.940	20
Lead	50.0	53.2	52.8	106	106	80.0-120			0.676	20
Selenium	50.0	52.9	53.3	106	107	80.0-120			0.793	20
Thallium	50.0	52.2	51.4	104	103	80.0-120			1.58	20

L974241-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L974241-04 03/07/18 21:24 • (MS) R3291380-5 03/07/18 21:31 • (MSD) R3291380-6 03/07/18 21:35

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	ND	52.9	54.9	106	110	1	75.0-125			3.71	20
Arsenic	50.0	ND	52.7	54.4	105	108	1	75.0-125			3.22	20
Beryllium	50.0	ND	48.3	49.7	96.6	99.4	1	75.0-125			2.77	20
Cadmium	50.0	ND	54.8	56.7	110	113	1	75.0-125			3.41	20
Lead	50.0	ND	53.0	55.2	105	110	1	75.0-125			3.99	20
Selenium	50.0	ND	53.7	56.4	107	113	1	75.0-125			4.94	20
Thallium	50.0	ND	52.2	54.0	104	108	1	75.0-125			3.48	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, 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.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

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.

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	LA000356
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

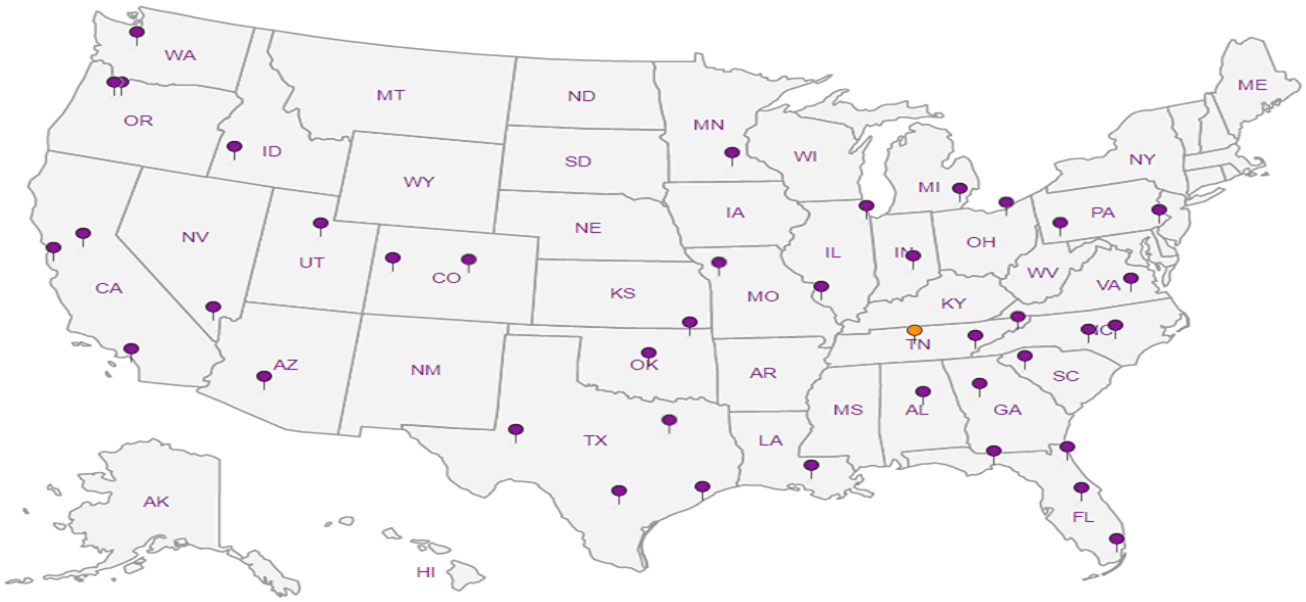
Third Party Federal Accreditations

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: **KCPL Iatan Gen Stat - Ash Imp CCR GW BG**

City/State Collected:

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

Client Project # **27213167.16**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): Adam Parris

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: Standard

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

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Fax: 615-758-5859

L# L974241

1030

Acctnum: **AQUAOPKS**
Template: **T132734**
Prelogin: **P639380**
TSR: **206 - Jeff Carr**
PB:
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	Grab	GW	-	2/27/18	0905	3	X	X	X		-01
MW-102		GW	-	2/27/18	1005	3	X	X	X		-02
MW-103		GW	-	2/28/18	1645	3	X	X	X		-03
MW-104		GW	-	2/28/18	1535	3	X	X	X		-04
MW-105		GW	-	2/28/18	1445	3	X	X	X		-05
MW-106		GW	-	2/28/18	1345	3	X	X	X		-06
MW-107		GW	-	2/28/18	1145	3	X	X	X		-07
MW-108		GW	-	2/28/18	1040	3	X	X	X		-08
MW-109		GW	-	2/27/18	1600	3	X	X	X		-09
MW-110		GW	-	2/27/18	1425	3	X	X	X		-10

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

Remarks:6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	2/28/18	1715	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: 2.1 °C Bottles Received: 42

Date: 3/2/18 Time: 8:15

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

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: **KCPL Iatan Gen Stat - Ash Imp CCR GW BG**

City/State Collected:

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

Client Project # **27213167.16**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): Adam Parris

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: Standard

Chain of Custody Page 1 of 2

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

L# L974241

Table #

Acctnum: **AQUAOPKS**
Template: **T132734**
Prelogin: **P639380**
TSR: **206 - Jeff Carr**
PB:
Shipped Via: **FedEX Ground**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	Grab	GW	-	2/27/18	1220	3	X	X	X		-11
DUPLICATE	↓	GW	-	2/28/18	1540	3	X	X	X		-12
MS		GW	-	2/28/18	1545	3	X	X	X		-04
MSD		GW	-	2/28/18	1550	3	X	X	X		-04

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

Remarks:6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	2/29/18	1114	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: 2.1 °C Bottles Received: 12

Date: 2/1/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

Matt Shacklock

ESC LAB SCIENCES
YOUR LAB OF CHOICE

Login #: L974241	Client: AQUAOPKS	Date: 3/2	Evaluated by: Matt 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: Please clarify MS/MSD

Client informed by:	Call	Email	Voice Mail	Date: 3/2/18	Time: 1107
TSR Initials: JC	Client Contact: J. Franks				

Login Instructions: MW-104.

ANALYTICAL REPORT

March 19, 2018

SCS Engineers - KS

Sample Delivery Group:	L974282
Samples Received:	03/02/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Technical Service Representative

MW-101 L974282-01 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/27/18 09:05 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/12/18 13:05	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/12/18 13:05	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-102 L974282-02 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/27/18 10:06 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/12/18 13:05	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/12/18 13:05	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-103 L974282-03 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 16:45 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-104 L974282-04 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 15:35 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-105 L974282-05 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 14:45 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-106 L974282-06 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 13:45 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-107 L974282-07 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 11:45 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-108 L974282-08 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 10:40 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	DME
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-109 L974282-09 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/27/18 16:00 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-110 L974282-10 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/27/18 14:25 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

MW-111 L974282-11 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/27/18 12:20 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

DUPLICATE L974282-12 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 02/28/18 15:40 | Received date/time: 03/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1080514	1	03/05/18 08:54	03/13/18 15:22	JMR
Radiochemistry by Method Calculation	WG1078409	1	03/06/18 11:15	03/13/18 15:22	RRE
Radiochemistry by Method SM7500Ra B M	WG1078409	1	03/06/18 11:15	03/08/18 14:48	RGT

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

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.614		0.861	1.18	03/12/2018 13:05	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.177		1.08	1.49	03/12/2018 13:05	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.177		0.219	0.307	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.52		0.675	0.889	03/12/2018 13:05	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.89		0.957	1.22	03/12/2018 13:05	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.364		0.282	0.326	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.46		0.357	0.553	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.80		0.604	0.818	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.345		0.247	0.265	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.528		0.561	0.911	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.698		0.719	1.09	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.169		0.158	0.182	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.621		0.354	0.547	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.772		0.526	0.768	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.151		0.172	0.221	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.21		0.358	0.552	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.21		0.654	1.07	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	-0.0756		0.296	0.522	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.581		0.438	0.683	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.754		0.694	1.06	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.173		0.256	0.381	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.27		0.323	0.53	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.59		0.576	0.836	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.318		0.253	0.306	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.237		0.373	0.727	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.416		0.559	0.964	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.179		0.186	0.237	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.542		0.401	0.71	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.930		0.647	0.975	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.388		0.246	0.265	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.0393		0.432	0.771	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.472		0.689	0.968	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.433		0.257	0.197	03/08/2018 14:48	WG1078409

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.126		0.400	0.693	03/13/2018 15:22	WG1080514

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0671		0.586	1	03/13/2018 15:22	WG1078409

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0671		0.186	0.31	03/08/2018 14:48	WG1078409

Method Blank (MB)

(MB) R3293404-1 03/12/18 13:05

Analyte	MB Result pCi/L	MB Qualifier	MB MDA pCi/L
Radium-228	0.344		0.452

L974155-01 Original Sample (OS) • Duplicate (DUP)

(OS) L974155-01 03/12/18 13:05 • (DUP) R3293404-5 03/12/18 13:05

Analyte	Original Result pCi/L	DUP Result pCi/L	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/L
Radium-228	1.15	0.841	1	30.7	0.405		20	3

Laboratory Control Sample (LCS)

(LCS) R3293404-2 03/12/18 13:05

Analyte	Spike Amount pCi/L	LCS Result pCi/L	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.69	114	80.0-120	

L974282-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L974282-04 03/13/18 15:22 • (MS) R3293404-3 03/12/18 13:05 • (MSD) R3293404-4 03/12/18 13:05

Analyte	Spike Amount pCi/L	Original Result pCi/L	MS Result pCi/L	MSD Result pCi/L	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	25.0	0.528	24.1	20.0	94.3	77.8	1	70.0-130			18.7		20

Method Blank (MB)

(MB) R3292101-1 03/08/18 14:48

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.00206		0.0641

L974282-04 Original Sample (OS) • Duplicate (DUP)

(OS) L974282-04 03/08/18 14:48 • (DUP) R3292101-3 03/08/18 14:48

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.169	0.149	1	12.7	0.0880		20	3

Laboratory Control Sample (LCS)

(LCS) R3292101-2 03/08/18 14:48

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	6.40	5.14	80.4	80.0-120	

L974282-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L974282-04 03/08/18 14:48 • (MS) R3292101-4 03/09/18 18:17 • (MSD) R3292101-5 03/09/18 18:17

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	25.6	0.169	23.7	22.5	91.8	87.4	1	75.0-125			4.89		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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
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, 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

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

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

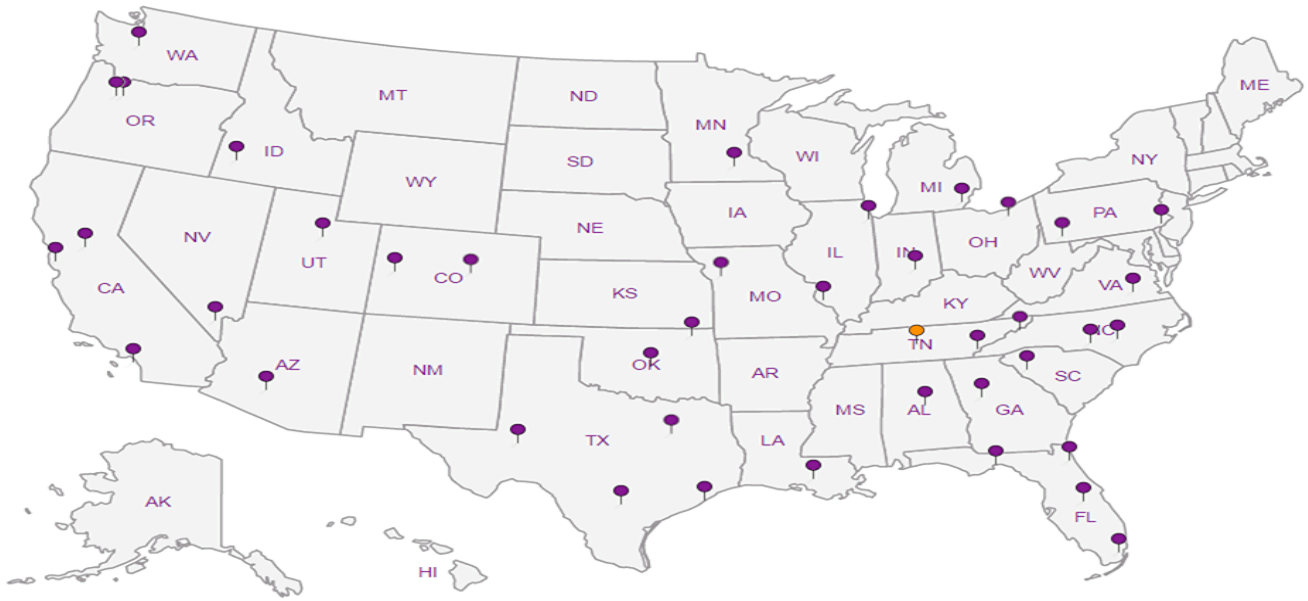
Third Party Federal Accreditations

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: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): Adam Parris

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: Standard

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

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

L# 974282

T: 1029

Acctnum: AQUAOPKS

Template: T132737

Prelogin: P639381

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-101	Grab	NPW	-	2/27/18	0905	2	X		01
MW-102		NPW	-	2/27/18	1005	2	X		02
MW-103		NPW	-	2/28/18	1645	2	X		03
MW-104		NPW	-	2/28/18	1535	2	X		04
MW-105		NPW	-	2/28/18	1445	2	X		05
MW-106		NPW	-	2/28/18	1345	2	X		06
MW-107		NPW	-	2/28/18	1145	2	X		07
MW-108		NPW	-	2/28/18	1040	2	X		08
MW-109		NPW	-	2/27/18	1600	2	X		09
MW-110		NPW	-	2/27/18	1425	2	X		10

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

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

pH ____ Temp ____

Flow ____ Other ____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	2/28/18	1114	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.1 °C Bottles Received: 28

Date: 3/2/18 Time: 0810

If preservation required by Login: Date/Time

Hold:

Condition: (NCF / OK)

Chain of Custody Page 2 of 2

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: **KCPL Iatan Gen Stat - Ash Imp CCR GW BG**

City/State Collected:

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

Client Project # **27213167.16**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): **Adam Parris**

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: **Standard**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-111	Grab	NPW	-	2/27/18	1220	2	X		11
DUPLICATE	↓	NPW	-	2/28/18	1540	2	X		04
MS		NPW	-	2/28/18	1545	2	X		04
MSD		NPW	-	2/28/18	1550	2	X		

Analysis / Container / Preservative

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

L # 97427

Table #

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P639381**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

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

pH _____ Temp _____
Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	2/28/18	1114	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.1 °C Bottles Received: 08

Date: 3/2/18 Time: 0945

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Matt Shacklock

ESC LAB SCIENCES

YOUR LAB OF CHOICE

Login #: 57428	Client: AQUAOPKS	Date: 3/2	Evaluated by: Matt 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 / Couri
	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: Please clarify MS/MSD

Client informed by:		Call		Email		Voice Mail		Date: 3/2/18	Time: 1107
TSR Initials: JC	Client Contact: J. Franks								

Login Instructions: MW-104.

Jared Morrison
December 16, 2022

ATTACHMENT 1-2

April 2018 Sampling Event Laboratory Report

ANALYTICAL REPORT

May 21, 2018

SCS Engineers - KS

Sample Delivery Group:	L986712
Samples Received:	04/18/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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-101 L986712-01 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 09:20 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-102 L986712-02 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 10:00 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-103 L986712-03 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 10:50 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-104 L986712-04 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 11:40 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-105 L986712-05 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 12:35 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-106 L986712-06 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 13:10 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/10/18 16:00	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/10/18 16:00	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/08/18 17:38	RGT

MW-107 L986712-07 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 14:30 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-108 L986712-08 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 18:00 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099238	1	05/03/18 11:41	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099238	1	05/03/18 11:41	05/07/18 14:41	RGT

MW-109 L986712-09 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 17:10 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099978	1	04/24/18 15:33	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099978	1	04/24/18 15:33	04/26/18 16:00	RGT

MW-110 L986712-10 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 16:20 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099978	1	04/24/18 15:33	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099978	1	04/24/18 15:33	04/26/18 21:00	RGT

MW-111 L986712-11 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 15:30 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099978	1	04/24/18 15:33	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099978	1	04/24/18 15:33	04/26/18 21:00	RGT

DUPLICATE L986712-12 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 04/16/18 13:15 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1104021	1	05/07/18 13:49	05/16/18 12:35	MK
Radiochemistry by Method Calculation	WG1099978	1	04/24/18 15:33	05/16/18 12:35	MK
Radiochemistry by Method SM7500Ra B M	WG1099978	1	04/24/18 15:33	04/26/18 21:00	RGT

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

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.334		0.521	0.583	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.870		0.825	0.909	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.536		0.304	0.326	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.160		0.535	0.69	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.539		0.823	0.87	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.539		0.288	0.18	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.33		0.535	0.716	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.68		0.786	0.956	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.348		0.251	0.24	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.323		0.394	0.478	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.368		0.556	0.774	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0454		0.162	0.296	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.359		0.520	0.618	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.539		0.755	0.954	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.180		0.235	0.336	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.829		0.615	0.36	05/10/2018 16:00	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.08		0.807	0.529	05/10/2018 16:00	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.249		0.192	0.169	05/08/2018 17:38	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.49		0.440	0.514	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.56		0.564	0.729	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0651		0.124	0.215	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.43		0.438	0.616	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.55		0.621	0.9	05/16/2018 12:35	WG1099238

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.115		0.183	0.284	05/07/2018 14:41	WG1099238

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.24		0.499	0.719	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.67		0.780	0.993	05/16/2018 12:35	WG1099978

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.426		0.281	0.274	04/26/2018 16:00	WG1099978

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.601		0.565	0.712	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.351		0.809	0.967	05/16/2018 12:35	WG1099978

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.351		0.244	0.255	04/26/2018 21:00	WG1099978

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.203		0.515	0.761	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.252		0.735	1.02	05/16/2018 12:35	WG1099978

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.252		0.220	0.258	04/26/2018 21:00	WG1099978

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.819		0.509	0.606	05/16/2018 12:35	WG1104021

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.48		1.03	0.857	05/16/2018 12:35	WG1099978

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.66		0.516	0.251	04/26/2018 21:00	WG1099978

Method Blank (MB)

(MB) R3308973-1 05/10/18 16:00

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/L		pCi/L
Radium-228	0.630		0.247

L982797-01 Original Sample (OS) • Duplicate (DUP)

(OS) L982797-01 05/10/18 16:00 • (DUP) R3308973-5 05/10/18 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/L	pCi/L		%			%	pCi/L
Radium-228	-1.68	-1.73	1	0.000	0.0499		20	3

Laboratory Control Sample (LCS)

(LCS) R3308973-2 05/10/18 16:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/L	pCi/L	%	%	
Radium-228	5.00	4.27	85.3	80.0-120	

L986712-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986712-06 05/10/18 16:00 • (MS) R3308973-3 05/10/18 16:00 • (MSD) R3308973-4 05/10/18 16:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/L	pCi/L	pCi/L	pCi/L	%	%		%			%		%
Radium-228	20.0	0.829	19.1	16.6	91.5	78.9	1	70.0-130			14.1		20

Method Blank (MB)

(MB) R3308366-1 05/07/18 14:41

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	-0.00409		0.0539

L986712-02 Original Sample (OS) • Duplicate (DUP)

(OS) L986712-02 05/07/18 14:41 • (DUP) R3308366-3 05/07/18 14:41

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.539	0.465	1	14.8	0.188		20	3

Laboratory Control Sample (LCS)

(LCS) R3308366-2 05/07/18 14:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.68	113	80.0-120	

L986712-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986712-06 05/08/18 17:38 • (MS) R3308366-4 05/08/18 17:38 • (MSD) R3308366-5 05/08/18 17:38

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.249	21.6	19.9	106	97.6	1	75.0-125			8.25		20

Method Blank (MB)

(MB) R3307618-1 04/26/18 16:00

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-226	0.000		0.0628

L986712-09 Original Sample (OS) • Duplicate (DUP)

(OS) L986712-09 04/26/18 16:00 • (DUP) R3307618-5 04/26/18 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	pCi/l
Radium-226	0.426	0.166	1	87.8	0.770		20	3

Laboratory Control Sample (LCS)

(LCS) R3307618-2 04/26/18 16:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.02	4.89	97.3	80.0-120	

L986445-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986445-09 04/26/18 16:00 • (MS) R3307618-3 04/26/18 16:00 • (MSD) R3307618-4 04/26/18 16:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.1	0.286	20.6	21.1	101	103	1	75.0-125			2.06		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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
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

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

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

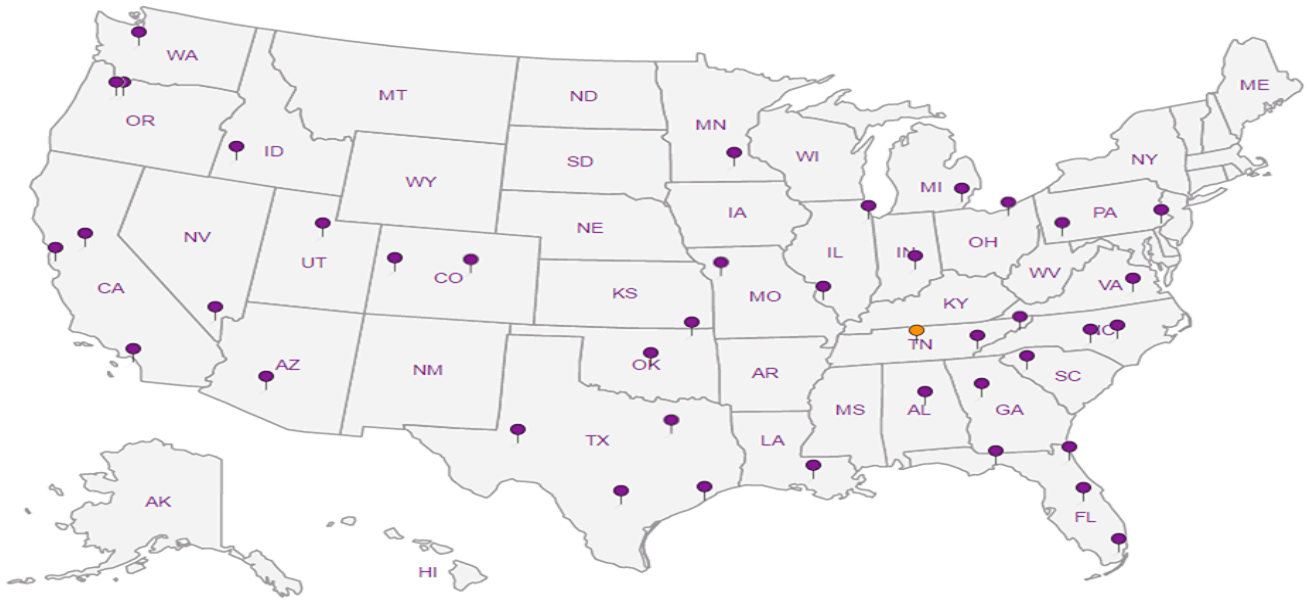
Third Party Federal Accreditations

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: (2)

Report to: **Jason Franks**

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

Project Description: **KCPL Iatan Gen Stat - Ash Imp CCR GW BG**

City/State Collected:

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

Client Project # **27213167.16**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): **Adam Parris**

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: Standard

Analysis / Container / Preservative

RA226, RA228 1L-HDPE-Add HNO3

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-101	Grab	NPW	-	4/16/2018	0920	2	X		01
MW-102		NPW	-		1000	2	X		02
MW-103		NPW	-		1050	2	X		03
MW-104		NPW	-		1140	2	X		04
MW-105		NPW	-		1235	2	X		05
MW-106		NPW	-		1310	2	X		06
MW-107		NPW	-		1430	2	X		07
MW-108		NPW	-		1800	2	X		08
MW-109		NPW	-		1710	2	X		09
MW-110		NPW	-		1620	2	X		10

Chain of Custody Page 1 of 2

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

L # 98672
Tab 1161

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P648418**
TSR: **206 - Jeff Carr**
PB:
Shipped Via: **FedEX Ground**

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

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

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier XCH

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
	4/17/2018	1135		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4°C Bottles Received: 28
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4/18/18 Time: 1325

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 2 of 2

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;

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

Project Description: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

L #

Table #

Collected by (print): Adam Parris

Site/Facility ID #

P.O. #

Acctnum: AQUAOPKS
Template: T132737
Prelogin: P648418
TSR: 206 - Jeff Carr
PB:

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: Standard

Shipped Via: FedEX Ground

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-111	Grab	NPW	-	4/16/2018	1530	2	X		11
DUPLICATE	↓	NPW	-	↓	1315	2	X		12
MS (MW-106)		NPW	-		1320	2	X		06
MSD (MW-106)	↓	NPW	-	↓	1325	2	X		06

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

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

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier X CH

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)
	4/17/2018	1135	Brandi K. Horvath
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Kelly Mercer 841

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.1 °C Bottles Received: 28

Date: 4/18/18 Time: 1325

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

April 26, 2018

SCS Engineers - KS

Sample Delivery Group:	L986716
Samples Received:	04/18/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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-101 L986716-01 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 09:20 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 01:08	04/19/18 01:08	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 12:54	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 04:55	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 18:58	WBD

MW-102 L986716-02 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 10:00 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 01:25	04/19/18 01:25	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 12:56	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 04:58	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:02	WBD

MW-103 L986716-03 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 10:50 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 01:42	04/19/18 01:42	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:03	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:01	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:07	WBD

MW-104 L986716-04 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 11:40 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 01:59	04/19/18 01:59	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 12:34	04/19/18 12:34	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:05	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:03	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:12	WBD

MW-105 L986716-05 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 12:35 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 02:16	04/19/18 02:16	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 12:51	04/19/18 12:51	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:08	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:06	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:16	WBD

MW-106 L986716-06 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 13:10 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 02:33	04/19/18 02:33	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 13:08	04/19/18 13:08	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 12:36	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 04:24	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 17:57	WBD

MW-107 L986716-07 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 14:30 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 04:14	04/19/18 04:14	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 13:41	04/19/18 13:41	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:10	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:08	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:21	WBD

MW-108 L986716-08 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 18:00 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 04:31	04/19/18 04:31	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 13:58	04/19/18 13:58	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:12	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:11	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:35	WBD

MW-109 L986716-09 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 17:10 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 04:48	04/19/18 04:48	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 14:15	04/19/18 14:15	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:15	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:19	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:40	WBD

MW-110 L986716-10 GW

Collected by: Adam Parris | Collected date/time: 04/16/18 16:20 | Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099897	1	04/19/18 16:47	04/19/18 17:11	BS
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 05:05	04/19/18 05:05	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 14:32	04/19/18 14:32	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:17	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:21	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:44	WBD

MW-111 L986716-11 GW

Collected by: Adam Parris
Collected date/time: 04/16/18 15:30
Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099901	1	04/19/18 15:20	04/19/18 16:01	MMF
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 05:22	04/19/18 05:22	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:19	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:24	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:49	WBD

DUPLICATE L986716-12 GW

Collected by: Adam Parris
Collected date/time: 04/16/18 13:15
Received date/time: 04/18/18 13:25

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1099901	1	04/19/18 15:20	04/19/18 16:01	MMF
Wet Chemistry by Method 9056A	WG1099904	1	04/19/18 05:39	04/19/18 05:39	MAJ
Wet Chemistry by Method 9056A	WG1099904	5	04/19/18 14:49	04/19/18 14:49	MAJ
Mercury by Method 7470A	WG1100105	1	04/19/18 00:49	04/19/18 13:21	ABL
Metals (ICP) by Method 6010B	WG1099876	1	04/20/18 14:41	04/24/18 05:27	TRB
Metals (ICPMS) by Method 6020	WG1099878	1	04/19/18 13:07	04/21/18 19:54	WBD

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	536000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5990		1000	1	04/19/2018 01:08	WG1099904
Fluoride	387		100	1	04/19/2018 01:08	WG1099904
Sulfate	ND		5000	1	04/19/2018 01:08	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 12:54	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	694		5.00	1	04/24/2018 04:55	WG1099876
Boron	ND		200	1	04/24/2018 04:55	WG1099876
Calcium	135000		1000	1	04/24/2018 04:55	WG1099876
Chromium	ND		10.0	1	04/24/2018 04:55	WG1099876
Cobalt	ND		10.0	1	04/24/2018 04:55	WG1099876
Lithium	36.9		15.0	1	04/24/2018 04:55	WG1099876
Molybdenum	ND		5.00	1	04/24/2018 04:55	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 18:58	WG1099878
Arsenic	ND		2.00	1	04/21/2018 18:58	WG1099878
Beryllium	ND		2.00	1	04/21/2018 18:58	WG1099878
Cadmium	ND		1.00	1	04/21/2018 18:58	WG1099878
Lead	ND		2.00	1	04/21/2018 18:58	WG1099878
Selenium	ND		2.00	1	04/21/2018 18:58	WG1099878
Thallium	ND		2.00	1	04/21/2018 18:58	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	492000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4890		1000	1	04/19/2018 01:25	WG1099904
Fluoride	335		100	1	04/19/2018 01:25	WG1099904
Sulfate	ND		5000	1	04/19/2018 01:25	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 12:56	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	806		5.00	1	04/24/2018 04:58	WG1099876
Boron	ND		200	1	04/24/2018 04:58	WG1099876
Calcium	129000		1000	1	04/24/2018 04:58	WG1099876
Chromium	ND		10.0	1	04/24/2018 04:58	WG1099876
Cobalt	ND		10.0	1	04/24/2018 04:58	WG1099876
Lithium	42.6		15.0	1	04/24/2018 04:58	WG1099876
Molybdenum	ND		5.00	1	04/24/2018 04:58	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:02	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:02	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:02	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:02	WG1099878
Lead	ND		2.00	1	04/21/2018 19:02	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:02	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:02	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	549000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4030		1000	1	04/19/2018 01:42	WG1099904
Fluoride	306		100	1	04/19/2018 01:42	WG1099904
Sulfate	ND		5000	1	04/19/2018 01:42	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:03	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	739		5.00	1	04/24/2018 05:01	WG1099876
Boron	ND		200	1	04/24/2018 05:01	WG1099876
Calcium	155000		1000	1	04/24/2018 05:01	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:01	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:01	WG1099876
Lithium	56.5		15.0	1	04/24/2018 05:01	WG1099876
Molybdenum	ND		5.00	1	04/24/2018 05:01	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:07	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:07	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:07	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:07	WG1099878
Lead	ND		2.00	1	04/21/2018 19:07	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:07	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:07	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	433000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23000		1000	1	04/19/2018 01:59	WG1099904
Fluoride	674		100	1	04/19/2018 01:59	WG1099904
Sulfate	136000		25000	5	04/19/2018 12:34	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:05	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	161		5.00	1	04/24/2018 05:03	WG1099876
Boron	1270		200	1	04/24/2018 05:03	WG1099876
Calcium	50200		1000	1	04/24/2018 05:03	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:03	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:03	WG1099876
Lithium	20.3		15.0	1	04/24/2018 05:03	WG1099876
Molybdenum	22.9		5.00	1	04/24/2018 05:03	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:12	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:12	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:12	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:12	WG1099878
Lead	ND		2.00	1	04/21/2018 19:12	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:12	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:12	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	677000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19000		1000	1	04/19/2018 02:16	WG1099904
Fluoride	837		100	1	04/19/2018 02:16	WG1099904
Sulfate	292000		25000	5	04/19/2018 12:51	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:08	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	377		5.00	1	04/24/2018 05:06	WG1099876
Boron	1260		200	1	04/24/2018 05:06	WG1099876
Calcium	99500		1000	1	04/24/2018 05:06	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:06	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:06	WG1099876
Lithium	36.2		15.0	1	04/24/2018 05:06	WG1099876
Molybdenum	16.7		5.00	1	04/24/2018 05:06	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:16	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:16	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:16	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:16	WG1099878
Lead	ND		2.00	1	04/21/2018 19:16	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:16	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:16	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	545000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20800		1000	1	04/19/2018 02:33	WG1099904
Fluoride	503		100	1	04/19/2018 02:33	WG1099904
Sulfate	156000		25000	5	04/19/2018 13:08	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 12:36	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	204		5.00	1	04/24/2018 04:24	WG1099876
Boron	1100	O1	200	1	04/24/2018 04:24	WG1099876
Calcium	83800	O1	1000	1	04/24/2018 04:24	WG1099876
Chromium	ND		10.0	1	04/24/2018 04:24	WG1099876
Cobalt	ND		10.0	1	04/24/2018 04:24	WG1099876
Lithium	39.2		15.0	1	04/24/2018 04:24	WG1099876
Molybdenum	ND		5.00	1	04/24/2018 04:24	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 17:57	WG1099878
Arsenic	ND		2.00	1	04/21/2018 17:57	WG1099878
Beryllium	ND		2.00	1	04/21/2018 17:57	WG1099878
Cadmium	ND		1.00	1	04/21/2018 17:57	WG1099878
Lead	ND		2.00	1	04/21/2018 17:57	WG1099878
Selenium	ND		2.00	1	04/21/2018 17:57	WG1099878
Thallium	ND		2.00	1	04/21/2018 17:57	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	637000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19700		1000	1	04/19/2018 04:14	WG1099904
Fluoride	790		100	1	04/19/2018 04:14	WG1099904
Sulfate	233000		25000	5	04/19/2018 13:41	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:10	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	102		5.00	1	04/24/2018 05:08	WG1099876
Boron	2570		200	1	04/24/2018 05:08	WG1099876
Calcium	54800		1000	1	04/24/2018 05:08	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:08	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:08	WG1099876
Lithium	ND		15.0	1	04/24/2018 05:08	WG1099876
Molybdenum	110		5.00	1	04/24/2018 05:08	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:21	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:21	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:21	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:21	WG1099878
Lead	ND		2.00	1	04/21/2018 19:21	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:21	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:21	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	761000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	16000		1000	1	04/19/2018 04:31	WG1099904
Fluoride	668		100	1	04/19/2018 04:31	WG1099904
Sulfate	283000		25000	5	04/19/2018 13:58	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:12	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	197		5.00	1	04/24/2018 05:11	WG1099876
Boron	1820		200	1	04/24/2018 05:11	WG1099876
Calcium	113000		1000	1	04/24/2018 05:11	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:11	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:11	WG1099876
Lithium	33.8		15.0	1	04/24/2018 05:11	WG1099876
Molybdenum	14.7		5.00	1	04/24/2018 05:11	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:35	WG1099878
Arsenic	2.51		2.00	1	04/21/2018 19:35	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:35	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:35	WG1099878
Lead	ND		2.00	1	04/21/2018 19:35	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:35	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:35	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	700000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23100		1000	1	04/19/2018 04:48	WG1099904
Fluoride	600		100	1	04/19/2018 04:48	WG1099904
Sulfate	233000		25000	5	04/19/2018 14:15	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:15	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	282		5.00	1	04/24/2018 05:19	WG1099876
Boron	664		200	1	04/24/2018 05:19	WG1099876
Calcium	117000		1000	1	04/24/2018 05:19	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:19	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:19	WG1099876
Lithium	34.7		15.0	1	04/24/2018 05:19	WG1099876
Molybdenum	20.5		5.00	1	04/24/2018 05:19	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:40	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:40	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:40	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:40	WG1099878
Lead	ND		2.00	1	04/21/2018 19:40	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:40	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:40	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	703000		10000	1	04/19/2018 17:11	WG1099897

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20000		1000	1	04/19/2018 05:05	WG1099904
Fluoride	648		100	1	04/19/2018 05:05	WG1099904
Sulfate	353000		25000	5	04/19/2018 14:32	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:17	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	173		5.00	1	04/24/2018 05:21	WG1099876
Boron	2300		200	1	04/24/2018 05:21	WG1099876
Calcium	57700		1000	1	04/24/2018 05:21	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:21	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:21	WG1099876
Lithium	17.5		15.0	1	04/24/2018 05:21	WG1099876
Molybdenum	88.7		5.00	1	04/24/2018 05:21	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:44	WG1099878
Arsenic	4.44		2.00	1	04/21/2018 19:44	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:44	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:44	WG1099878
Lead	ND		2.00	1	04/21/2018 19:44	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:44	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:44	WG1099878

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	04/19/2018 16:01	WG1099901

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	7710		1000	1	04/19/2018 05:22	WG1099904
Fluoride	608		100	1	04/19/2018 05:22	WG1099904
Sulfate	31300		5000	1	04/19/2018 05:22	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:19	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	441		5.00	1	04/24/2018 05:24	WG1099876
Boron	846		200	1	04/24/2018 05:24	WG1099876
Calcium	101000		1000	1	04/24/2018 05:24	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:24	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:24	WG1099876
Lithium	33.1		15.0	1	04/24/2018 05:24	WG1099876
Molybdenum	13.9		5.00	1	04/24/2018 05:24	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:49	WG1099878
Arsenic	2.15		2.00	1	04/21/2018 19:49	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:49	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:49	WG1099878
Lead	ND		2.00	1	04/21/2018 19:49	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:49	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:49	WG1099878

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	557000		10000	1	04/19/2018 16:01	WG1099901

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21000		1000	1	04/19/2018 05:39	WG1099904
Fluoride	503		100	1	04/19/2018 05:39	WG1099904
Sulfate	153000		25000	5	04/19/2018 14:49	WG1099904

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	04/19/2018 13:21	WG1100105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	203		5.00	1	04/24/2018 05:27	WG1099876
Boron	1100		200	1	04/24/2018 05:27	WG1099876
Calcium	83200		1000	1	04/24/2018 05:27	WG1099876
Chromium	ND		10.0	1	04/24/2018 05:27	WG1099876
Cobalt	ND		10.0	1	04/24/2018 05:27	WG1099876
Lithium	37.3		15.0	1	04/24/2018 05:27	WG1099876
Molybdenum	ND		5.00	1	04/24/2018 05:27	WG1099876

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	04/21/2018 19:54	WG1099878
Arsenic	ND		2.00	1	04/21/2018 19:54	WG1099878
Beryllium	ND		2.00	1	04/21/2018 19:54	WG1099878
Cadmium	ND		1.00	1	04/21/2018 19:54	WG1099878
Lead	ND		2.00	1	04/21/2018 19:54	WG1099878
Selenium	ND		2.00	1	04/21/2018 19:54	WG1099878
Thallium	ND		2.00	1	04/21/2018 19:54	WG1099878

Method Blank (MB)

(MB) R3303680-1 04/19/18 17:11

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

L986716-01 Original Sample (OS) • Duplicate (DUP)

(OS) L986716-01 04/19/18 17:11 • (DUP) R3303680-4 04/19/18 17:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	536000	528000	1	1.50		5

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

(LCS) R3303680-2 04/19/18 17:11 • (LCSD) R3303680-3 04/19/18 17:11

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	8600000	8610000	97.7	97.8	85.0-115			0.116	5

Method Blank (MB)

(MB) R3303675-1 04/19/18 16:01

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

L986570-01 Original Sample (OS) • Duplicate (DUP)

(OS) L986570-01 04/19/18 16:01 • (DUP) R3303675-4 04/19/18 16:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	1420000	1380000	1	2.58		5

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

(LCS) R3303675-2 04/19/18 16:01 • (LCSD) R3303675-3 04/19/18 16:01

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	8660000	8650000	98.4	98.3	85.0-115			0.116	5

Method Blank (MB)

(MB) R3303237-1 04/18/18 12:22

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

L986664-01 Original Sample (OS) • Duplicate (DUP)

(OS) L986664-01 04/19/18 00:01 • (DUP) R3303237-4 04/19/18 00:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	43400	42900	1	1.07		15
Fluoride	273	273	1	0.220		15
Sulfate	32200	32400	1	0.608		15

L986716-06 Original Sample (OS) • Duplicate (DUP)

(OS) L986716-06 04/19/18 02:33 • (DUP) R3303237-6 04/19/18 03:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	20800	21100	1	1.53		15
Fluoride	503	505	1	0.437		15

L986716-06 Original Sample (OS) • Duplicate (DUP)

(OS) L986716-06 04/19/18 13:08 • (DUP) R3303237-9 04/19/18 13:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	156000	156000	5	0.311		15

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

(LCS) R3303237-2 04/18/18 12:39 • (LCSD) R3303237-3 04/18/18 12:56

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	%	%	%			%	%
Chloride	40000	39100	39100	97.7	97.7	80.0-120			0.0752	15
Fluoride	8000	8050	8050	101	101	80.0-120			0.00497	15
Sulfate	40000	40000	40000	100	100	80.0-120			0.0430	15

L986664-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L986664-01 04/19/18 00:01 • (MS) R3303237-5 04/19/18 00:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	43400	98000	109	1	80.0-120	
Fluoride	5000	273	5380	102	1	80.0-120	
Sulfate	50000	32200	81200	97.9	1	80.0-120	

L986716-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986716-06 04/19/18 02:33 • (MS) R3303237-7 04/19/18 03:40 • (MSD) R3303237-8 04/19/18 03:57

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	20800	74500	70000	107	98.5	1	80.0-120			6.12	15
Fluoride	5000	503	5570	5660	101	103	1	80.0-120			1.63	15

Method Blank (MB)

(MB) R3303218-1 04/19/18 12:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3303218-2 04/19/18 12:25 • (LCSD) R3303218-3 04/19/18 12:27

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	%	%	%			%	%
Mercury	3.00	2.92	2.88	97.5	96.0	80.0-120			1.56	20

L986716-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986716-06 04/19/18 12:36 • (MS) R3303218-4 04/19/18 12:38 • (MSD) R3303218-5 04/19/18 12:40

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	%	%		%			%	%
Mercury	3.00	ND	2.98	2.87	99.4	95.8	1	75.0-125			3.74	20

Method Blank (MB)

(MB) R3304064-1 04/24/18 04:17

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3304064-2 04/24/18 04:19 • (LCSD) R3304064-3 04/24/18 04:22

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 %
Barium	1000	1030	1020	103	102	80.0-120			0.963	20
Boron	1000	1010	1010	101	101	80.0-120			0.333	20
Calcium	10000	10300	10100	103	101	80.0-120			2.11	20
Chromium	1000	992	988	99.2	98.8	80.0-120			0.465	20
Cobalt	1000	1030	1020	103	102	80.0-120			0.332	20
Lithium	1000	1010	1010	101	101	80.0-120			0.551	20
Molybdenum	1000	1030	1030	103	103	80.0-120			0.707	20

L986716-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986716-06 04/24/18 04:24 • (MS) R3304064-5 04/24/18 04:29 • (MSD) R3304064-6 04/24/18 04:32

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	204	1220	1200	102	99.8	1	75.0-125			1.68	20
Boron	1000	1100	2120	2080	102	98.0	1	75.0-125			1.81	20
Calcium	10000	83800	93100	93100	92.9	92.9	1	75.0-125			0.00205	20
Chromium	1000	ND	992	982	99.2	98.2	1	75.0-125			1.05	20
Cobalt	1000	ND	1060	1040	106	104	1	75.0-125			2.07	20
Lithium	1000	39.2	1030	1020	99.3	97.6	1	75.0-125			1.66	20
Molybdenum	1000	ND	1050	1040	105	103	1	75.0-125			1.74	20

Method Blank (MB)

(MB) R3303695-1 04/21/18 17:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	U		0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3303695-2 04/21/18 17:48 • (LCSD) R3303695-3 04/21/18 17:52

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 %
Antimony	50.0	49.1	48.8	98.2	97.7	80.0-120			0.506	20
Arsenic	50.0	52.0	51.5	104	103	80.0-120			1.06	20
Beryllium	50.0	50.1	50.2	100	100	80.0-120			0.178	20
Cadmium	50.0	50.7	51.6	101	103	80.0-120			1.75	20
Lead	50.0	49.5	50.6	99.0	101	80.0-120			2.09	20
Selenium	50.0	53.2	52.0	106	104	80.0-120			2.30	20
Thallium	50.0	50.2	50.7	100	101	80.0-120			1.16	20

L986716-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986716-06 04/21/18 17:57 • (MS) R3303695-5 04/21/18 18:06 • (MSD) R3303695-6 04/21/18 18:11

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 %
Antimony	50.0	ND	50.4	52.7	101	105	1	75.0-125			4.45	20
Arsenic	50.0	ND	50.6	50.8	101	102	1	75.0-125			0.536	20
Beryllium	50.0	ND	49.1	49.8	98.1	99.7	1	75.0-125			1.58	20
Cadmium	50.0	ND	51.6	52.7	103	105	1	75.0-125			2.23	20
Lead	50.0	ND	50.0	51.8	100	104	1	75.0-125			3.46	20
Selenium	50.0	ND	53.3	52.3	107	105	1	75.0-125			1.83	20
Thallium	50.0	ND	49.8	51.4	99.7	103	1	75.0-125			3.02	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, 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
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

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

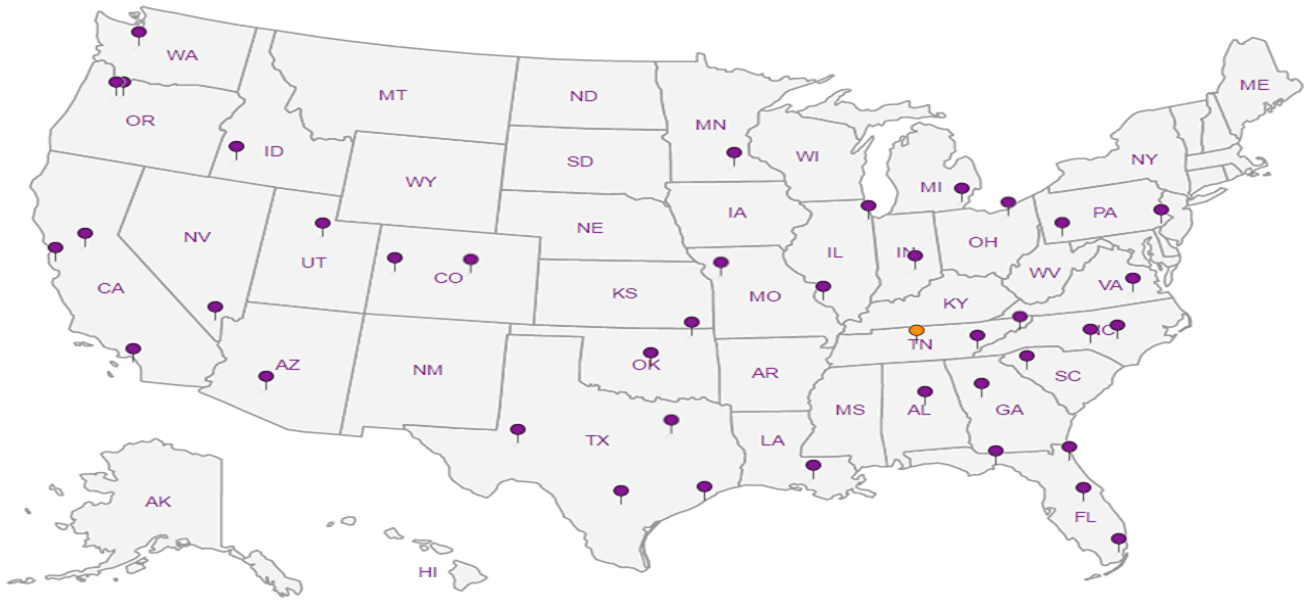
Third Party Federal Accreditations

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: 12

Report to: **Jason Franks**

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

Project Description: **KCPL Iatan Gen Stat - Ash Imp CCR GW BG**

City/State Collected:

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

Client Project # **27213167.16**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): Adam Parris

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

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

Date Results Needed: Standard

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	Grab	GW	-	4/16/2018	0920	3	X	X	X		-01
MW-102		GW	-		1000	3	X	X	X		-02
MW-103		GW	-		1050	3	X	X	X		-03
MW-104		GW	-		1140	3	X	X	X		-04
MW-105		GW	-		1235	3	X	X	X		-05
MW-106		GW	-		1310	3	X	X	X		-06
MW-107		GW	-		1430	3	X	X	X		-07
MW-108		GW	-		1800	3	X	X	X		-08
MW-109		GW	-		1710	3	X	X	X		-09
MW-110		GW	-		1620	3	X	X	X		-10

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

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

L # L986716
Table C165

Acctnum: **AQUAOPKS**
Template: **T132734**
Prelogin: **P648416**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

Remarks:6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier XSWA

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)
	4/17/2018	1135	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 0.6 °C Bottles Received: 42

Date: 4/18/18 Time: 1325

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): Adam Parris

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: Standard

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	Grab	GW	—	4/16/2018	1530	3	X	X	X		-11
DUPLICATE	↓	GW	—		1315	3	X	X	X		-12
MS (MW-106)		GW	—	↓	1320	3	X	X	X		
MSD (MW-106)	↓	GW	—		1325	3	X	X	X		

Chain of Custody Page 2 of 2

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

L# L986716

Table #

Acctnum: AQUAOPKS

Template: T132734

Prelogin: P648416

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier X SWA

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)
	4/17/2018	1135	Kenneth Horvath
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Kelly Thorn

Trip Blank Received: Yes / No
HCl / MeoH
TBR

Temp: 0.6 °C Bottles Received: 42

Date: 4/18/18 Time: 1325

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-3

May 2018 Sampling Event Laboratory Report

ANALYTICAL REPORT

June 25, 2018

SCS Engineers - KS

Sample Delivery Group:	L996132
Samples Received:	05/23/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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-101 L996132-01 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 12:45 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/19/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/19/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-102 L996132-02 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 13:35 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-103 L996132-03 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 14:20 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-104 L996132-04 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 15:10 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-105 L996132-05 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 15:55 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-106 L996132-06 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 15:25 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-107 L996132-07 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 15:40 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-108 L996132-08 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 09:55 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-109 L996132-09 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 10:40 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-110 L996132-10 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 11:30 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

MW-111 L996132-11 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 12:05 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

DUPLICATE L996132-12 Non-Potable Water

Collected by: Adam Parris | Collected date/time: 05/22/18 12:50 | Received date/time: 05/23/18 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1121125	1	06/07/18 13:33	06/18/18 16:29	MK
Radiochemistry by Method Calculation	WG1115557	1	05/31/18 10:48	06/18/18 16:29	MK
Radiochemistry by Method SM7500Ra B M	WG1115557	1	05/31/18 10:48	06/01/18 16:19	RGT

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

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.791		0.869	0.523	06/19/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.894		1.28	0.79	06/19/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.894		0.410	0.267	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.630		0.939	0.993	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.54		1.46	1.45	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.54		0.523	0.454	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.610		0.530	0.687	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.19		0.975	0.884	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.19		0.445	0.197	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.609		0.586	0.659	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.942		0.835	0.891	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.333		0.249	0.232	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.297		0.504	0.584	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.884		0.846	0.858	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.587		0.342	0.274	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.904		0.559	0.746	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0319		0.801	1.15	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0319		0.242	0.399	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-2.15		0.598	0.691	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.190		0.811	0.972	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.190		0.213	0.281	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.386		0.558	0.669	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.585		0.768	0.91	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.198		0.210	0.241	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-2.42		0.577	0.756	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.280		0.848	1.09	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.280		0.271	0.335	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-2.30		0.509	0.994	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.139		0.749	1.37	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.139		0.240	0.374	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-1.19		0.475	0.781	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.489		0.796	1.11	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.489		0.321	0.324	06/01/2018 16:19	WG1115557

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	-0.166		0.619	0.822	06/18/2018 16:29	WG1121125

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.811		0.962	0.993	06/18/2018 16:29	WG1115557

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.811		0.343	0.171	06/01/2018 16:19	WG1115557

Method Blank (MB)

(MB) R3319602-1 06/13/18 11:29

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/L		pCi/L
Radium-228	-1.32		0.375

L995389-02 Original Sample (OS) • Duplicate (DUP)

(OS) L995389-02 06/13/18 11:29 • (DUP) R3319602-5 06/13/18 11:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/L	pCi/L		%			%	pCi/L
Radium-228	3.56	3.56	1	0.000	0.000		20	3

Laboratory Control Sample (LCS)

(LCS) R3319602-2 06/13/18 11:29

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/L	pCi/L	%	%	
Radium-228	5.00	5.23	105	80.0-120	

L996132-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996132-01 06/19/18 16:29 • (MS) R3319602-3 06/13/18 11:29 • (MSD) R3319602-4 06/13/18 11:29

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/L	pCi/L	pCi/L	pCi/L	%	%		%			%		%
Radium-228	20.0	-0.791	20.8	17.2	104	86.0	1	70.0-130			19.2		20

Method Blank (MB)

(MB) R3315560-1 06/01/18 16:19

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-226	0.0133		0.0835

L996132-02 Original Sample (OS) • Duplicate (DUP)

(OS) L996132-02 06/01/18 16:19 • (DUP) R3315560-5 06/01/18 16:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	pCi/l
Radium-226	1.54	0.495	1	103	1.74		20	3

Laboratory Control Sample (LCS)

(LCS) R3315560-2 06/01/18 16:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.02	5.41	108	80.0-120	

L996132-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L996132-01 06/01/18 16:19 • (MS) R3315560-3 06/01/18 16:19 • (MSD) R3315560-4 06/01/18 16:19

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.1	0.894	19.6	21.4	93.1	102	1	75.0-125			8.64		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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
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

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

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

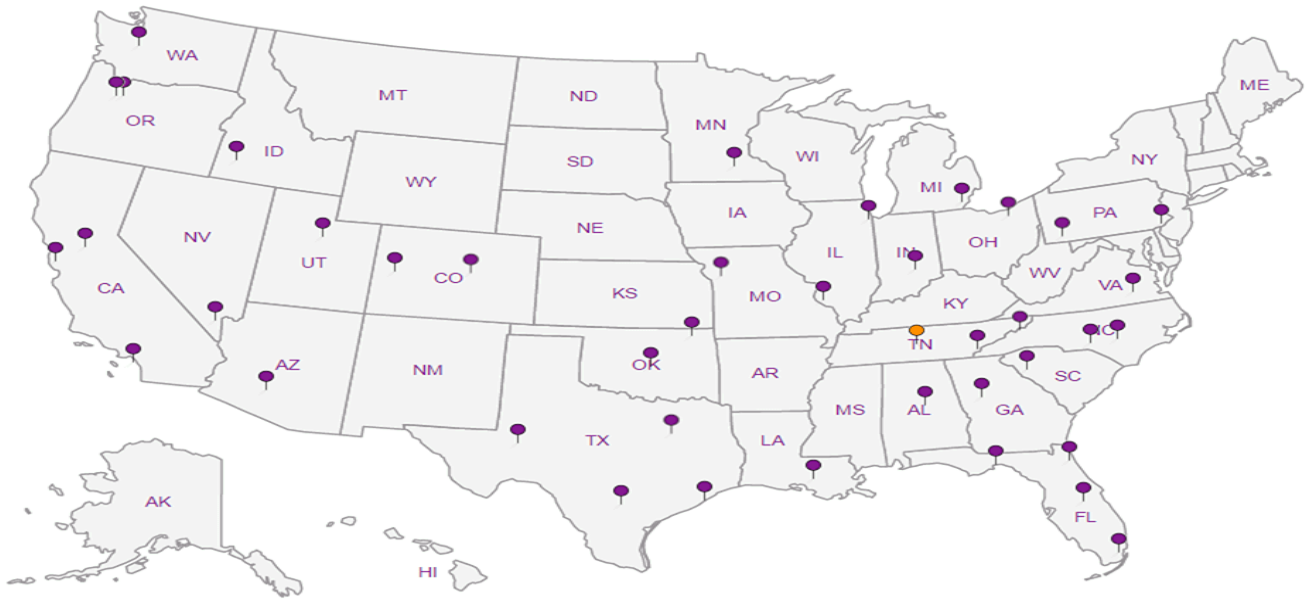
Third Party Federal Accreditations

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: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): Adam Parris

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: Standard

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnt/s	RA226, RA228 1L-HDPE-Add HNO3											Remarks	Sample # (lab only)
MW-101	Grab	NPW	-	5/21/2018	1245	2	X												01
MW-102		NPW	-		1335	2	X												02
MW-103		NPW	-		1420	2	X												03
MW-104		NPW	-		1510	2	X												04
MW-105		NPW	-		1555	2	X												05
MW-106		NPW	-		1525	2	X												06
MW-107		NPW	-		1540	2	X												07
MW-108		NPW	-		0955	2	X												08
MW-109		NPW	-		1040	2	X												09
MW-110		NPW	-		1130	2	X												10

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

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

L# 996132

Table I102

Acctnum: AQUAOPKS
Template: T132737
Prelogin: P652726
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

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

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

pH _____ Temp _____

Flow _____ Other _____

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 #

Relinquished by : (Signature)	Date: 5/22/2018	Time: 1205	Received by: (Signature) Brandi K Hoyt
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: 1.0°C Bottles Received: 22

Date: 5/23/18 Time: 1030

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): Adam Parris

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: Standard

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-111	Grab	NPW	-	5/21/2018	1205	2	X		11
DUPLICATE	↓	NPW	-	↓	1250	2	X		12
MS (MW-101)	↓	NPW	-	↓	1255	2	X		01
MSD (MW-101)	↓	NPW	-	↓	1300	2	X		01

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

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

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	5/22/2018	1206	Brandi K. Heydt
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.0 °C Bottles Received: 26

Date: 5/23/18 Time: 1030

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 2 of 2

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

L# 996132

Table #

Acctnum: AQUAOPKS

Template: T132737

Prelogin: P652726

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

ANALYTICAL REPORT

May 31, 2018

SCS Engineers - KS

Sample Delivery Group:	L996199
Samples Received:	05/23/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Technical Service Representative

MW-101 L996199-01 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 12:45 | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 01:27	05/25/18 01:27	MAJ
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 12:48	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 13:28	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 15:31	JPD

MW-102 L996199-02 GW

Collected by: Adam Parris | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 02:32	05/25/18 02:32	MAJ
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 12:55	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:04	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 15:49	JPD

MW-103 L996199-03 GW

Collected by: Adam Parris | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 03:22	05/25/18 03:22	MAJ
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 12:58	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:07	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:07	JPD

MW-104 L996199-04 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 15:10 | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 03:38	05/25/18 03:38	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 18:44	05/25/18 18:44	CSU
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:00	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:11	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:12	JPD

MW-105 L996199-05 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 15:55 | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 03:54	05/25/18 03:54	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 18:59	05/25/18 18:59	CSU
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:03	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:14	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:17	JPD

MW-106 L996199-06 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 15:25 | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 04:11	05/25/18 04:11	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 19:15	05/25/18 19:15	CSU
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:06	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:17	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:21	JPD

MW-107 L996199-07 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 15:40 | 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	WG1115886	1	05/26/18 14:11	05/26/18 15:06	MMF
Wet Chemistry by Method 9056A	WG1115314	1	05/25/18 04:27	05/25/18 04:27	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 19:30	05/25/18 19:30	CSU
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:08	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:21	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:26	JPD

MW-108 L996199-08 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 09:55 | 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 04:44	05/25/18 04:44	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 19:46	05/25/18 19:46	CSU
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:11	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:24	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:31	JPD

MW-109 L996199-09 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 10:40 | 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 05:00	05/25/18 05:00	MAJ
Wet Chemistry by Method 9056A	WG1116312	5	05/25/18 20:01	05/25/18 20:01	CSU
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:24	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:27	CCE
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:35	JPD

MW-110 L996199-10 GW

Collected by: Adam Parris | Collected date/time: 05/21/18 11:30 | 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 05:17	05/25/18 05:17	MAJ
Wet Chemistry by Method 9056A	WG1115314	10	05/25/18 05:33	05/25/18 05:33	MAJ
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:27	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:37	TRB
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:40	JPD

MW-111 L996199-11 GW

Collected by	Collected date/time	Received date/time
Adam Parris	05/21/18 12:05	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 05:49	05/25/18 05:49	MAJ
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:29	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:40	TRB
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 16:58	JPD

DUPLICATE L996199-12 GW

Collected by	Collected date/time	Received date/time
Adam Parris	05/21/18 12:50	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 07:12	05/25/18 07:12	MAJ
Mercury by Method 7470A	WG1115428	1	05/24/18 03:03	05/24/18 13:32	ABL
Metals (ICP) by Method 6010B	WG1115369	1	05/25/18 14:33	05/30/18 14:44	TRB
Metals (ICPMS) by Method 6020	WG1115382	1	05/25/18 14:36	05/30/18 17:03	JPD

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	522000		10000	1	05/26/2018 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	6520		1000	1	05/25/2018 01:27	WG1115314
Fluoride	300	P1	100	1	05/25/2018 01:27	WG1115314
Sulfate	ND		5000	1	05/25/2018 01:27	WG1115314

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 12:48	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	686		5.00	1	05/30/2018 13:28	WG1115369
Boron	ND		200	1	05/30/2018 13:28	WG1115369
Calcium	134000		1000	1	05/30/2018 13:28	WG1115369
Chromium	ND		10.0	1	05/30/2018 13:28	WG1115369
Cobalt	ND		10.0	1	05/30/2018 13:28	WG1115369
Lithium	38.1		15.0	1	05/30/2018 13:28	WG1115369
Molybdenum	ND		5.00	1	05/30/2018 13:28	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 15:31	WG1115382
Arsenic	ND		2.00	1	05/30/2018 15:31	WG1115382
Beryllium	ND		2.00	1	05/30/2018 15:31	WG1115382
Cadmium	ND		1.00	1	05/30/2018 15:31	WG1115382
Lead	ND		2.00	1	05/30/2018 15:31	WG1115382
Selenium	ND		2.00	1	05/30/2018 15:31	WG1115382
Thallium	ND		2.00	1	05/30/2018 15:31	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	506000		10000	1	05/26/2018 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4990		1000	1	05/25/2018 02:32	WG1115314
Fluoride	305		100	1	05/25/2018 02:32	WG1115314
Sulfate	ND		5000	1	05/25/2018 02:32	WG1115314

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 12:55	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	731		5.00	1	05/30/2018 14:04	WG1115369
Boron	ND		200	1	05/30/2018 14:04	WG1115369
Calcium	133000		1000	1	05/30/2018 14:04	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:04	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:04	WG1115369
Lithium	38.4		15.0	1	05/30/2018 14:04	WG1115369
Molybdenum	ND		5.00	1	05/30/2018 14:04	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 15:49	WG1115382
Arsenic	ND		2.00	1	05/30/2018 15:49	WG1115382
Beryllium	ND		2.00	1	05/30/2018 15:49	WG1115382
Cadmium	ND		1.00	1	05/30/2018 15:49	WG1115382
Lead	ND		2.00	1	05/30/2018 15:49	WG1115382
Selenium	ND		2.00	1	05/30/2018 15:49	WG1115382
Thallium	ND		2.00	1	05/30/2018 15:49	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	619000		10000	1	05/26/2018 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4080		1000	1	05/25/2018 03:22	WG1115314
Fluoride	277		100	1	05/25/2018 03:22	WG1115314
Sulfate	ND		5000	1	05/25/2018 03:22	WG1115314

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 12:58	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	739		5.00	1	05/30/2018 14:07	WG1115369
Boron	ND		200	1	05/30/2018 14:07	WG1115369
Calcium	177000		1000	1	05/30/2018 14:07	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:07	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:07	WG1115369
Lithium	60.5		15.0	1	05/30/2018 14:07	WG1115369
Molybdenum	ND		5.00	1	05/30/2018 14:07	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:07	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:07	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:07	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:07	WG1115382
Lead	ND		2.00	1	05/30/2018 16:07	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:07	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:07	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	425000		10000	1	05/26/2018 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23600		1000	1	05/25/2018 03:38	WG1115314
Fluoride	628		100	1	05/25/2018 03:38	WG1115314
Sulfate	138000		25000	5	05/25/2018 18:44	WG1116312

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:00	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	162		5.00	1	05/30/2018 14:11	WG1115369
Boron	1260		200	1	05/30/2018 14:11	WG1115369
Calcium	50900		1000	1	05/30/2018 14:11	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:11	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:11	WG1115369
Lithium	16.4		15.0	1	05/30/2018 14:11	WG1115369
Molybdenum	25.1		5.00	1	05/30/2018 14:11	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:12	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:12	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:12	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:12	WG1115382
Lead	ND		2.00	1	05/30/2018 16:12	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:12	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:12	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	713000		10000	1	05/26/2018 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18600		1000	1	05/25/2018 03:54	WG1115314
Fluoride	791		100	1	05/25/2018 03:54	WG1115314
Sulfate	286000		25000	5	05/25/2018 18:59	WG1116312

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:03	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	369		5.00	1	05/30/2018 14:14	WG1115369
Boron	1260		200	1	05/30/2018 14:14	WG1115369
Calcium	102000		1000	1	05/30/2018 14:14	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:14	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:14	WG1115369
Lithium	33.9		15.0	1	05/30/2018 14:14	WG1115369
Molybdenum	15.1		5.00	1	05/30/2018 14:14	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:17	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:17	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:17	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:17	WG1115382
Lead	ND		2.00	1	05/30/2018 16:17	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:17	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:17	WG1115382

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 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19000		1000	1	05/25/2018 04:11	WG1115314
Fluoride	444		100	1	05/25/2018 04:11	WG1115314
Sulfate	135000		25000	5	05/25/2018 19:15	WG1116312

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:06	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	198		5.00	1	05/30/2018 14:17	WG1115369
Boron	1080		200	1	05/30/2018 14:17	WG1115369
Calcium	87700		1000	1	05/30/2018 14:17	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:17	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:17	WG1115369
Lithium	41.1		15.0	1	05/30/2018 14:17	WG1115369
Molybdenum	ND		5.00	1	05/30/2018 14:17	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:21	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:21	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:21	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:21	WG1115382
Lead	ND		2.00	1	05/30/2018 16:21	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:21	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:21	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	628000		10000	1	05/26/2018 15:06	WG1115886

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20600		1000	1	05/25/2018 04:27	WG1115314
Fluoride	779		100	1	05/25/2018 04:27	WG1115314
Sulfate	222000		25000	5	05/25/2018 19:30	WG1116312

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:08	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	99.4		5.00	1	05/30/2018 14:21	WG1115369
Boron	2390		200	1	05/30/2018 14:21	WG1115369
Calcium	57500		1000	1	05/30/2018 14:21	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:21	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:21	WG1115369
Lithium	ND		15.0	1	05/30/2018 14:21	WG1115369
Molybdenum	103		5.00	1	05/30/2018 14:21	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:26	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:26	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:26	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:26	WG1115382
Lead	ND		2.00	1	05/30/2018 16:26	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:26	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:26	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	743000		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	16400		1000	1	05/25/2018 04:44	WG1115314
Fluoride	605		100	1	05/25/2018 04:44	WG1115314
Sulfate	278000		25000	5	05/25/2018 19:46	WG1116312

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:11	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	204		5.00	1	05/30/2018 14:24	WG1115369
Boron	1680		200	1	05/30/2018 14:24	WG1115369
Calcium	125000		1000	1	05/30/2018 14:24	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:24	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:24	WG1115369
Lithium	37.6		15.0	1	05/30/2018 14:24	WG1115369
Molybdenum	12.6		5.00	1	05/30/2018 14:24	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:31	WG1115382
Arsenic	2.26		2.00	1	05/30/2018 16:31	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:31	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:31	WG1115382
Lead	ND		2.00	1	05/30/2018 16:31	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:31	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:31	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	663000		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	25700		1000	1	05/25/2018 05:00	WG1115314
Fluoride	580		100	1	05/25/2018 05:00	WG1115314
Sulfate	200000		25000	5	05/25/2018 20:01	WG1116312

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:24	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	296		5.00	1	05/30/2018 14:27	WG1115369
Boron	630		200	1	05/30/2018 14:27	WG1115369
Calcium	110000		1000	1	05/30/2018 14:27	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:27	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:27	WG1115369
Lithium	30.6		15.0	1	05/30/2018 14:27	WG1115369
Molybdenum	17.9		5.00	1	05/30/2018 14:27	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:35	WG1115382
Arsenic	2.19		2.00	1	05/30/2018 16:35	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:35	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:35	WG1115382
Lead	ND		2.00	1	05/30/2018 16:35	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:35	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:35	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	728000		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	21000		1000	1	05/25/2018 05:17	WG1115314
Fluoride	621		100	1	05/25/2018 05:17	WG1115314
Sulfate	690000		50000	10	05/25/2018 05:33	WG1115314

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:27	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	125		5.00	1	05/30/2018 14:37	WG1115369
Boron	2170		200	1	05/30/2018 14:37	WG1115369
Calcium	62000		1000	1	05/30/2018 14:37	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:37	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:37	WG1115369
Lithium	21.7		15.0	1	05/30/2018 14:37	WG1115369
Molybdenum	76.7		5.00	1	05/30/2018 14:37	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:40	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:40	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:40	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:40	WG1115382
Lead	ND		2.00	1	05/30/2018 16:40	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:40	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:40	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	580000		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	9920		1000	1	05/25/2018 05:49	WG1115314
Fluoride	646		100	1	05/25/2018 05:49	WG1115314
Sulfate	64700		5000	1	05/25/2018 05:49	WG1115314

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:29	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	410		5.00	1	05/30/2018 14:40	WG1115369
Boron	904		200	1	05/30/2018 14:40	WG1115369
Calcium	91500		1000	1	05/30/2018 14:40	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:40	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:40	WG1115369
Lithium	30.2		15.0	1	05/30/2018 14:40	WG1115369
Molybdenum	15.5		5.00	1	05/30/2018 14:40	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 16:58	WG1115382
Arsenic	ND		2.00	1	05/30/2018 16:58	WG1115382
Beryllium	ND		2.00	1	05/30/2018 16:58	WG1115382
Cadmium	ND		1.00	1	05/30/2018 16:58	WG1115382
Lead	ND		2.00	1	05/30/2018 16:58	WG1115382
Selenium	ND		2.00	1	05/30/2018 16:58	WG1115382
Thallium	ND		2.00	1	05/30/2018 16:58	WG1115382

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	523000		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	6530		1000	1	05/25/2018 07:12	WG1115314
Fluoride	302		100	1	05/25/2018 07:12	WG1115314
Sulfate	ND		5000	1	05/25/2018 07:12	WG1115314

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	05/24/2018 13:32	WG1115428

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	694		5.00	1	05/30/2018 14:44	WG1115369
Boron	ND		200	1	05/30/2018 14:44	WG1115369
Calcium	135000		1000	1	05/30/2018 14:44	WG1115369
Chromium	ND		10.0	1	05/30/2018 14:44	WG1115369
Cobalt	ND		10.0	1	05/30/2018 14:44	WG1115369
Lithium	36.1		15.0	1	05/30/2018 14:44	WG1115369
Molybdenum	ND		5.00	1	05/30/2018 14:44	WG1115369

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	05/30/2018 17:03	WG1115382
Arsenic	ND		2.00	1	05/30/2018 17:03	WG1115382
Beryllium	ND		2.00	1	05/30/2018 17:03	WG1115382
Cadmium	ND		1.00	1	05/30/2018 17:03	WG1115382
Lead	ND		2.00	1	05/30/2018 17:03	WG1115382
Selenium	ND		2.00	1	05/30/2018 17:03	WG1115382
Thallium	ND		2.00	1	05/30/2018 17:03	WG1115382

Method Blank (MB)

(MB) R3313636-1 05/26/18 15:06

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

L996088-01 Original Sample (OS) • Duplicate (DUP)

(OS) L996088-01 05/26/18 15:06 • (DUP) R3313636-4 05/26/18 15:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	1510000	1510000	1	0.332		5

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

(LCS) R3313636-2 05/26/18 15:06 • (LCSD) R3313636-3 05/26/18 15:06

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	8550000	8690000	97.2	98.8	85.0-115			1.62	5

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) 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) 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) R3312826-1 05/24/18 12:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3312826-2 05/24/18 12:35 • (LCSD) R3312826-3 05/24/18 12:37

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	%	%	%			%	%
Mercury	3.00	3.36	3.34	112	111	80.0-120			0.501	20

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

(OS) L996199-01 05/24/18 12:48 • (MS) R3312826-4 05/24/18 12:50 • (MSD) R3312826-5 05/24/18 12:53

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	%	%		%			%	%
Mercury	3.00	ND	3.04	3.05	101	102	1	75.0-125			0.377	20

Method Blank (MB)

(MB) R3313890-1 05/30/18 13:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3313890-2 05/30/18 13:21 • (LCSD) R3313890-3 05/30/18 13:24

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 %
Barium	1000	1020	1020	102	102	80.0-120			0.0664	20
Boron	1000	1010	1010	101	101	80.0-120			0.306	20
Calcium	10000	9970	9930	99.7	99.3	80.0-120			0.391	20
Chromium	1000	972	967	97.2	96.7	80.0-120			0.525	20
Cobalt	1000	1010	1010	101	101	80.0-120			0.367	20
Lithium	1000	1030	1020	103	102	80.0-120			0.325	20
Molybdenum	1000	1030	1030	103	103	80.0-120			0.117	20

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

(OS) L996199-01 05/30/18 13:28 • (MS) R3313890-5 05/30/18 13:34 • (MSD) R3313890-6 05/30/18 13:37

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	686	1650	1650	96.4	96.3	1	75.0-125			0.0824	20
Boron	1000	ND	1140	1130	101	99.8	1	75.0-125			0.982	20
Calcium	10000	134000	142000	142000	81.7	80.0	1	75.0-125			0.119	20
Chromium	1000	ND	964	961	96.4	96.1	1	75.0-125			0.388	20
Cobalt	1000	ND	1030	1020	103	102	1	75.0-125			0.875	20
Lithium	1000	38.1	1060	1060	102	102	1	75.0-125			0.0532	20
Molybdenum	1000	ND	1020	1020	102	102	1	75.0-125			0.323	20

Method Blank (MB)

(MB) R3313985-1 05/30/18 15:17

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	0.495	J	0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3313985-2 05/30/18 15:21 • (LCSD) R3313985-3 05/30/18 15:26

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 %
Antimony	50.0	50.1	49.8	100	99.6	80.0-120			0.646	20
Arsenic	50.0	47.2	46.8	94.4	93.7	80.0-120			0.781	20
Beryllium	50.0	44.2	45.1	88.5	90.2	80.0-120			1.94	20
Cadmium	50.0	48.0	48.9	96.0	97.8	80.0-120			1.89	20
Lead	50.0	48.7	49.6	97.4	99.2	80.0-120			1.83	20
Selenium	50.0	53.0	52.7	106	105	80.0-120			0.548	20
Thallium	50.0	48.9	48.9	97.8	97.9	80.0-120			0.0657	20

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

(OS) L996199-01 05/30/18 15:31 • (MS) R3313985-5 05/30/18 15:40 • (MSD) R3313985-6 05/30/18 15:45

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	ND	49.7	48.1	99.3	96.2	1	75.0-125			3.17	20
Arsenic	50.0	ND	47.4	46.5	94.3	92.6	1	75.0-125			1.87	20
Beryllium	50.0	ND	46.4	46.0	92.7	92.0	1	75.0-125			0.832	20
Cadmium	50.0	ND	49.2	47.1	98.5	94.3	1	75.0-125			4.34	20
Lead	50.0	ND	48.6	48.7	96.2	96.3	1	75.0-125			0.155	20
Selenium	50.0	ND	54.7	52.4	109	105	1	75.0-125			4.35	20
Thallium	50.0	ND	48.5	48.4	97.0	96.8	1	75.0-125			0.139	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).
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

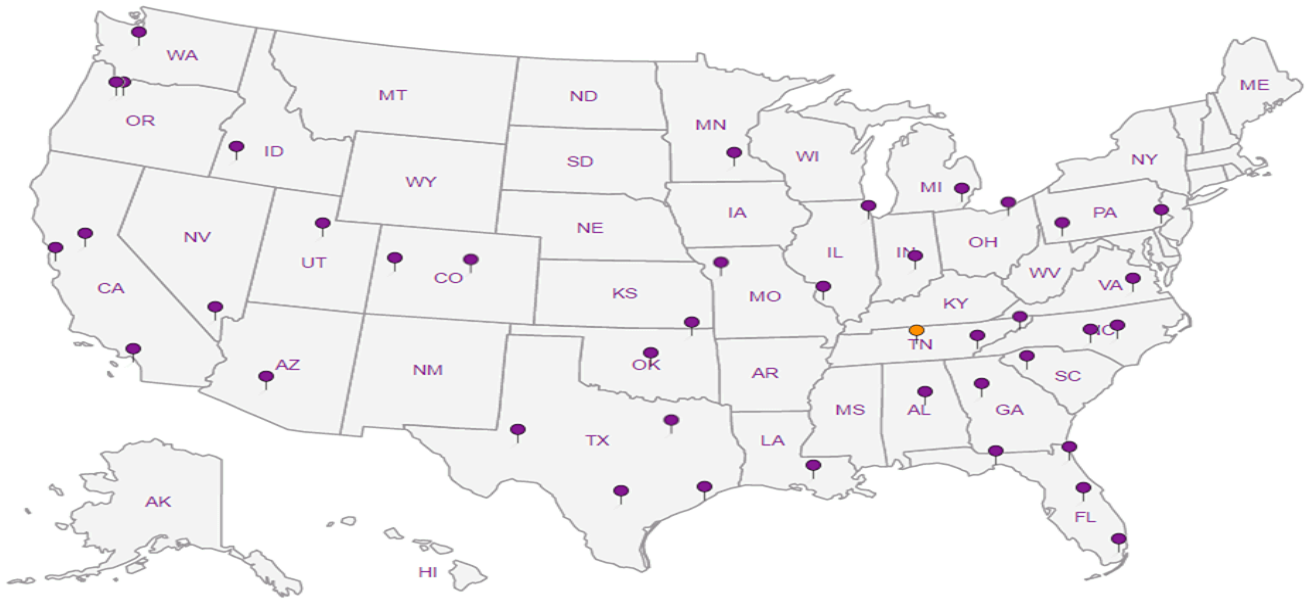
Third Party Federal Accreditations

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: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): Adam Parris

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: Standard

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

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

L# L996199
E118

Acctnum: AQUAOPKS
Template: T132734
Prelogin: P650023
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	Grab	GW	-	5/21/2018	1245	3	X	X	X		-01
MW-102		GW	-		1335	3	X	X	X		02
MW-103		GW	-		1420	3	X	X	X		03
MW-104		GW	-		1510	3	X	X	X		04
MW-105		GW	-		1555	3	X	X	X		05
MW-106		GW	-		1525	3	X	X	X		06
MW-107		GW	-		1540	3	X	X	X		07
MW-108		GW	-		0955	3	X	X	X		08
MW-109		GW	-		1040	3	X	X	X		09
MW-110		GW	-		1130	3	X	X	X		10

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH ____ Temp ____
Flow ____ Other ____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	5/22/2018	1205	Thaddeus K. Hayes
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			SCH

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

Temp: 1.0 °C Bottles Received: 42

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

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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: 2

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

ESC

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

Report to: Jason Franks

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

Project Description: KCPL Iatan Gen Stat - Ash Imp CCR GW BG

City/State Collected:

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

Client Project #: 27213167.16

Lab Project #: AQUAOPKS-IATAN

L# L996199

Table #

Collected by (print): Adam Parris

Site/Facility ID #

P.O. #

Acctnum: AQUAOPKS
Template: T132734
Prelogin: P650023
TSR: 206 - Jeff Carr
PB:
Shipped Via: FedEX Ground

Collected by (signature): [signature]

Immediately Packed on Ice N___ Y X

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

Quote #

Date Results Needed: Standard

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	Grab	GW	–	5/21/2018	1205	3	X	X	X		-11
DUPLICATE	↓	GW	–	↓	1250	3	X	X	X		12
MS (MW-101)	↓	GW	–	↓	1255	3	X	X	X		-01
MSD (MW-101)	↓	GW	–	↓	1300	3	X	X	X		01

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH ______ Temp ______
Flow ______ Other ______

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)		
[signature]	5/22/2018	1205	[signature]	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.0 °C Bottles Received: 42	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature] 8c	Date: 5/23/18 Time: 1045	Hold: Condition: NCF / (OK)

Jared Morrison
December 16, 2022

ATTACHMENT 1-4

July 2018 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

August 02, 2018

SCS Engineers - KS

Sample Delivery Group:	L1011390
Samples Received:	07/21/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

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

TABLE OF CONTENTS

MW-101 L1011390-01 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 10:40	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/23/18 23:25	07/23/18 23:25	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:37	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:37	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 13:27	JPD

MW-102 L1011390-02 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 10:05	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/23/18 23:35	07/23/18 23:35	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:39	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:45	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 13:32	JPD

MW-103 L1011390-03 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 10:10	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 00:04	07/24/18 00:04	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:41	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:48	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 13:36	JPD

MW-104 L1011390-04 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 11:05	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 00:13	07/24/18 00:13	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 02:52	07/26/18 02:52	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:43	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:51	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:01	JPD

MW-105 L1011390-05 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 11:55	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 00:23	07/24/18 00:23	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 03:40	07/26/18 03:40	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:24	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:21	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 13:09	JPD

MW-106 L1011390-06 GW

Collected by: Jason R. Franks | Collected date/time: 07/19/18 12:55 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 01:02	07/24/18 01:02	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 04:19	07/26/18 04:19	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:45	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:54	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:06	JPD

MW-107 L1011390-07 GW

Collected by: Jason R. Franks | Collected date/time: 07/19/18 13:35 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 01:11	07/24/18 01:11	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 04:29	07/26/18 04:29	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:48	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:56	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:10	JPD

MW-108 L1011390-08 GW

Collected by: Jason R. Franks | Collected date/time: 07/19/18 13:15 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 01:21	07/24/18 01:21	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 04:38	07/26/18 04:38	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:50	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 15:59	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:15	JPD

MW-109 L1011390-09 GW

Collected by: Jason R. Franks | Collected date/time: 07/19/18 12:30 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 01:31	07/24/18 01:31	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 04:48	07/26/18 04:48	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:52	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 16:02	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:19	JPD

MW-110 L1011390-10 GW

Collected by: Jason R. Franks | Collected date/time: 07/19/18 11:50 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 01:59	07/24/18 01:59	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 04:58	07/26/18 04:58	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:54	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 16:05	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:24	JPD

MW-111 L1011390-11 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 11:15	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 02:09	07/24/18 02:09	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 22:56	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 16:07	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:28	JPD

DUPLICATE L1011390-12 GW

Collected by	Collected date/time	Received date/time
Jason R. Franks	07/19/18 11:55	07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1142350	1	07/26/18 09:09	07/26/18 10:12	AJS
Wet Chemistry by Method 9056A	WG1141488	1	07/24/18 02:38	07/24/18 02:38	MAJ
Wet Chemistry by Method 9056A	WG1143068	5	07/26/18 05:07	07/26/18 05:07	MAJ
Mercury by Method 7470A	WG1141862	1	07/23/18 17:36	07/24/18 23:02	EL
Metals (ICP) by Method 6010B	WG1141416	1	07/23/18 15:14	07/24/18 16:10	CCE
Metals (ICPMS) by Method 6020	WG1141424	1	07/23/18 18:01	07/25/18 14:33	JPD

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
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	538000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	6180		1000	1	07/23/2018 23:25	WG1141488
Fluoride	297		100	1	07/23/2018 23:25	WG1141488
Sulfate	ND		5000	1	07/23/2018 23:25	WG1141488

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:37	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	689		5.00	1	07/24/2018 15:37	WG1141416
Boron	ND		200	1	07/24/2018 15:37	WG1141416
Calcium	132000		1000	1	07/24/2018 15:37	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:37	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:37	WG1141416
Lithium	33.9		15.0	1	07/24/2018 15:37	WG1141416
Molybdenum	ND		5.00	1	07/24/2018 15:37	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 13:27	WG1141424
Arsenic	ND		2.00	1	07/25/2018 13:27	WG1141424
Beryllium	ND		2.00	1	07/25/2018 13:27	WG1141424
Cadmium	ND		1.00	1	07/25/2018 13:27	WG1141424
Lead	ND		2.00	1	07/25/2018 13:27	WG1141424
Selenium	ND		2.00	1	07/25/2018 13:27	WG1141424
Thallium	ND		2.00	1	07/25/2018 13:27	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	506000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5100		1000	1	07/23/2018 23:35	WG1141488
Fluoride	229		100	1	07/23/2018 23:35	WG1141488
Sulfate	ND		5000	1	07/23/2018 23:35	WG1141488

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:39	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	729		5.00	1	07/24/2018 15:45	WG1141416
Boron	ND		200	1	07/24/2018 15:45	WG1141416
Calcium	129000		1000	1	07/24/2018 15:45	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:45	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:45	WG1141416
Lithium	36.3		15.0	1	07/24/2018 15:45	WG1141416
Molybdenum	ND		5.00	1	07/24/2018 15:45	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 13:32	WG1141424
Arsenic	2.46		2.00	1	07/25/2018 13:32	WG1141424
Beryllium	ND		2.00	1	07/25/2018 13:32	WG1141424
Cadmium	ND		1.00	1	07/25/2018 13:32	WG1141424
Lead	ND		2.00	1	07/25/2018 13:32	WG1141424
Selenium	ND		2.00	1	07/25/2018 13:32	WG1141424
Thallium	ND		2.00	1	07/25/2018 13:32	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	535000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4360		1000	1	07/24/2018 00:04	WG1141488
Fluoride	210		100	1	07/24/2018 00:04	WG1141488
Sulfate	ND		5000	1	07/24/2018 00:04	WG1141488

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:41	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	765		5.00	1	07/24/2018 15:48	WG1141416
Boron	ND		200	1	07/24/2018 15:48	WG1141416
Calcium	162000		1000	1	07/24/2018 15:48	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:48	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:48	WG1141416
Lithium	53.6		15.0	1	07/24/2018 15:48	WG1141416
Molybdenum	ND		5.00	1	07/24/2018 15:48	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 13:36	WG1141424
Arsenic	ND		2.00	1	07/25/2018 13:36	WG1141424
Beryllium	ND		2.00	1	07/25/2018 13:36	WG1141424
Cadmium	ND		1.00	1	07/25/2018 13:36	WG1141424
Lead	ND		2.00	1	07/25/2018 13:36	WG1141424
Selenium	ND		2.00	1	07/25/2018 13:36	WG1141424
Thallium	ND		2.00	1	07/25/2018 13:36	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	455000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21900		1000	1	07/24/2018 00:13	WG1141488
Fluoride	510		100	1	07/24/2018 00:13	WG1141488
Sulfate	147000		25000	5	07/26/2018 02:52	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:43	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	152		5.00	1	07/24/2018 15:51	WG1141416
Boron	1310		200	1	07/24/2018 15:51	WG1141416
Calcium	53000		1000	1	07/24/2018 15:51	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:51	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:51	WG1141416
Lithium	15.6		15.0	1	07/24/2018 15:51	WG1141416
Molybdenum	28.8		5.00	1	07/24/2018 15:51	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:01	WG1141424
Arsenic	ND		2.00	1	07/25/2018 14:01	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:01	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:01	WG1141424
Lead	ND		2.00	1	07/25/2018 14:01	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:01	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:01	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	684000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18400		1000	1	07/24/2018 00:23	WG1141488
Fluoride	637		100	1	07/24/2018 00:23	WG1141488
Sulfate	267000		25000	5	07/26/2018 03:40	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND	J3	0.200	1	07/24/2018 22:24	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	374		5.00	1	07/24/2018 15:21	WG1141416
Boron	1190		200	1	07/24/2018 15:21	WG1141416
Calcium	94300		1000	1	07/24/2018 15:21	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:21	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:21	WG1141416
Lithium	30.4		15.0	1	07/24/2018 15:21	WG1141416
Molybdenum	15.5		5.00	1	07/24/2018 15:21	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 13:09	WG1141424
Arsenic	ND		2.00	1	07/25/2018 13:09	WG1141424
Beryllium	ND		2.00	1	07/25/2018 13:09	WG1141424
Cadmium	ND		1.00	1	07/25/2018 13:09	WG1141424
Lead	ND		2.00	1	07/25/2018 13:09	WG1141424
Selenium	ND		2.00	1	07/25/2018 13:09	WG1141424
Thallium	ND		2.00	1	07/25/2018 13:09	WG1141424

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	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18300		1000	1	07/24/2018 01:02	WG1141488
Fluoride	336		100	1	07/24/2018 01:02	WG1141488
Sulfate	157000		25000	5	07/26/2018 04:19	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:45	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	205		5.00	1	07/24/2018 15:54	WG1141416
Boron	1000		200	1	07/24/2018 15:54	WG1141416
Calcium	95300		1000	1	07/24/2018 15:54	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:54	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:54	WG1141416
Lithium	39.5		15.0	1	07/24/2018 15:54	WG1141416
Molybdenum	ND		5.00	1	07/24/2018 15:54	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:06	WG1141424
Arsenic	ND		2.00	1	07/25/2018 14:06	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:06	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:06	WG1141424
Lead	ND		2.00	1	07/25/2018 14:06	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:06	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:06	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	634000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20100		1000	1	07/24/2018 01:11	WG1141488
Fluoride	604		100	1	07/24/2018 01:11	WG1141488
Sulfate	235000		25000	5	07/26/2018 04:29	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:48	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	99.5		5.00	1	07/24/2018 15:56	WG1141416
Boron	2330		200	1	07/24/2018 15:56	WG1141416
Calcium	57600		1000	1	07/24/2018 15:56	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:56	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:56	WG1141416
Lithium	ND		15.0	1	07/24/2018 15:56	WG1141416
Molybdenum	102		5.00	1	07/24/2018 15:56	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:10	WG1141424
Arsenic	ND		2.00	1	07/25/2018 14:10	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:10	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:10	WG1141424
Lead	ND		2.00	1	07/25/2018 14:10	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:10	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:10	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	796000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	16700		1000	1	07/24/2018 01:21	WG1141488
Fluoride	425		100	1	07/24/2018 01:21	WG1141488
Sulfate	304000		25000	5	07/26/2018 04:38	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:50	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	171		5.00	1	07/24/2018 15:59	WG1141416
Boron	1210		200	1	07/24/2018 15:59	WG1141416
Calcium	131000		1000	1	07/24/2018 15:59	WG1141416
Chromium	ND		10.0	1	07/24/2018 15:59	WG1141416
Cobalt	ND		10.0	1	07/24/2018 15:59	WG1141416
Lithium	34.6		15.0	1	07/24/2018 15:59	WG1141416
Molybdenum	11.2		5.00	1	07/24/2018 15:59	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:15	WG1141424
Arsenic	2.04		2.00	1	07/25/2018 14:15	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:15	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:15	WG1141424
Lead	ND		2.00	1	07/25/2018 14:15	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:15	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:15	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	653000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	27700		1000	1	07/24/2018 01:31	WG1141488
Fluoride	470		100	1	07/24/2018 01:31	WG1141488
Sulfate	203000		25000	5	07/26/2018 04:48	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:52	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	244		5.00	1	07/24/2018 16:02	WG1141416
Boron	569		200	1	07/24/2018 16:02	WG1141416
Calcium	104000		1000	1	07/24/2018 16:02	WG1141416
Chromium	ND		10.0	1	07/24/2018 16:02	WG1141416
Cobalt	ND		10.0	1	07/24/2018 16:02	WG1141416
Lithium	26.3		15.0	1	07/24/2018 16:02	WG1141416
Molybdenum	16.3		5.00	1	07/24/2018 16:02	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:19	WG1141424
Arsenic	3.34		2.00	1	07/25/2018 14:19	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:19	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:19	WG1141424
Lead	ND		2.00	1	07/25/2018 14:19	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:19	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:19	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	715000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20400		1000	1	07/24/2018 01:59	WG1141488
Fluoride	457		100	1	07/24/2018 01:59	WG1141488
Sulfate	343000		25000	5	07/26/2018 04:58	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:54	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	110		5.00	1	07/24/2018 16:05	WG1141416
Boron	1900		200	1	07/24/2018 16:05	WG1141416
Calcium	62500		1000	1	07/24/2018 16:05	WG1141416
Chromium	ND		10.0	1	07/24/2018 16:05	WG1141416
Cobalt	ND		10.0	1	07/24/2018 16:05	WG1141416
Lithium	19.1		15.0	1	07/24/2018 16:05	WG1141416
Molybdenum	62.2		5.00	1	07/24/2018 16:05	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:24	WG1141424
Arsenic	ND		2.00	1	07/25/2018 14:24	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:24	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:24	WG1141424
Lead	ND		2.00	1	07/25/2018 14:24	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:24	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:24	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	555000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	11000		1000	1	07/24/2018 02:09	WG1141488
Fluoride	488		100	1	07/24/2018 02:09	WG1141488
Sulfate	73100		5000	1	07/24/2018 02:09	WG1141488

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 22:56	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	370		5.00	1	07/24/2018 16:07	WG1141416
Boron	897		200	1	07/24/2018 16:07	WG1141416
Calcium	84500		1000	1	07/24/2018 16:07	WG1141416
Chromium	ND		10.0	1	07/24/2018 16:07	WG1141416
Cobalt	ND		10.0	1	07/24/2018 16:07	WG1141416
Lithium	27.0		15.0	1	07/24/2018 16:07	WG1141416
Molybdenum	14.9		5.00	1	07/24/2018 16:07	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:28	WG1141424
Arsenic	ND		2.00	1	07/25/2018 14:28	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:28	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:28	WG1141424
Lead	ND		2.00	1	07/25/2018 14:28	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:28	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:28	WG1141424

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	679000		10000	1	07/26/2018 10:12	WG1142350

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18400		1000	1	07/24/2018 02:38	WG1141488
Fluoride	640		100	1	07/24/2018 02:38	WG1141488
Sulfate	278000		25000	5	07/26/2018 05:07	WG1143068

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	07/24/2018 23:02	WG1141862

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	371		5.00	1	07/24/2018 16:10	WG1141416
Boron	1190		200	1	07/24/2018 16:10	WG1141416
Calcium	95000		1000	1	07/24/2018 16:10	WG1141416
Chromium	ND		10.0	1	07/24/2018 16:10	WG1141416
Cobalt	ND		10.0	1	07/24/2018 16:10	WG1141416
Lithium	28.8		15.0	1	07/24/2018 16:10	WG1141416
Molybdenum	15.4		5.00	1	07/24/2018 16:10	WG1141416

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	07/25/2018 14:33	WG1141424
Arsenic	ND		2.00	1	07/25/2018 14:33	WG1141424
Beryllium	ND		2.00	1	07/25/2018 14:33	WG1141424
Cadmium	ND		1.00	1	07/25/2018 14:33	WG1141424
Lead	ND		2.00	1	07/25/2018 14:33	WG1141424
Selenium	ND		2.00	1	07/25/2018 14:33	WG1141424
Thallium	ND		2.00	1	07/25/2018 14:33	WG1141424

Method Blank (MB)

(MB) R3329094-1 07/26/18 10:12

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

L1011148-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1011148-01 07/26/18 10:12 • (DUP) R3329094-4 07/26/18 10:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	1190000	1240000	1	4.44		5

L1011526-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1011526-01 07/26/18 10:12 • (DUP) R3329094-5 07/26/18 10:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	820000	848000	1	3.36		5

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

(LCS) R3329094-2 07/26/18 10:12 • (LCSD) R3329094-3 07/26/18 10:12

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	%	%	%			%	%
Dissolved Solids	8800000	8810000	8730000	100	99.2	85.0-115			0.912	5

Method Blank (MB)

(MB) R3328481-1 07/23/18 16:11

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

L1011390-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1011390-05 07/24/18 00:23 • (DUP) R3328481-4 07/24/18 00:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	18400	18600	1	1.23		15
Fluoride	637	654	1	2.76		15

L1011390-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1011390-11 07/24/18 02:09 • (DUP) R3328481-7 07/24/18 02:19

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	11000	12000	1	8.13		15
Fluoride	488	500	1	2.45		15
Sulfate	73100	72800	1	0.363		15

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

(LCS) R3328481-2 07/23/18 16:21 • (LCSD) R3328481-3 07/23/18 16:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40000	39500	39600	98.8	98.9	80.0-120			0.128	15
Fluoride	8000	8200	8280	103	103	80.0-120			0.932	15
Sulfate	40000	39400	40000	98.4	100	80.0-120			1.61	15

L1011390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1011390-05 07/24/18 00:23 • (MS) R3328481-5 07/24/18 00:42 • (MSD) R3328481-6 07/24/18 00:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	18400	69000	69400	101	102	1	80.0-120			0.601	15
Fluoride	5000	637	5540	5940	98.1	106	1	80.0-120			6.94	15

L1011390-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1011390-11 07/24/18 02:09 • (MS) R3328481-8 07/24/18 02:28

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	11000	61800	102	1	80.0-120	
Fluoride	5000	488	5360	97.5	1	80.0-120	
Sulfate	50000	73100	121000	95.8	1	80.0-120	E

Method Blank (MB)

(MB) R3328836-1 07/25/18 23:09

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

L1011390-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1011390-05 07/26/18 03:40 • (DUP) R3328836-7 07/26/18 03:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	267000	291000	5	8.43		15

L1012158-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1012158-01 07/26/18 06:15 • (DUP) R3328836-8 07/26/18 06:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	50600	57900	1	13.4		15

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

(LCS) R3328836-2 07/25/18 23:18 • (LCSD) R3328836-3 07/25/18 23:28

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	%	%	%			%	%
Sulfate	40000	39400	39500	98.6	98.7	80.0-120			0.0811	15

L1012158-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1012158-01 07/26/18 06:15 • (MS) R3328836-9 07/26/18 06:34

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Sulfate	50000	50600	106000	110	1	80.0-120	E

Method Blank (MB)

(MB) R3328163-1 07/24/18 22:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3328163-2 07/24/18 22:20 • (LCSD) R3328163-3 07/24/18 22:22

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	%	%	%			%	%
Mercury	3.00	2.95	2.85	98.3	95.0	80.0-120			3.35	20

L1011390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1011390-05 07/24/18 22:24 • (MS) R3328163-4 07/24/18 22:26 • (MSD) R3328163-5 07/24/18 22:28

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	ND	2.31	2.87	77.0	95.7	1	75.0-125		J3	21.6	20

Method Blank (MB)

(MB) R3328195-1 07/24/18 15:13

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3328195-2 07/24/18 15:16 • (LCSD) R3328195-3 07/24/18 15:18

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 %
Barium	1000	1000	1010	100	101	80.0-120			0.351	20
Boron	1000	984	984	98.4	98.4	80.0-120			0.0766	20
Calcium	10000	9730	9750	97.3	97.5	80.0-120			0.284	20
Chromium	1000	974	975	97.4	97.5	80.0-120			0.0752	20
Cobalt	1000	999	1000	99.9	100	80.0-120			0.285	20
Lithium	1000	992	992	99.2	99.2	80.0-120			0.0513	20
Molybdenum	1000	993	1000	99.3	100	80.0-120			1.11	20

L1011390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1011390-05 07/24/18 15:21 • (MS) R3328195-5 07/24/18 15:26 • (MSD) R3328195-6 07/24/18 15:29

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	374	1360	1350	98.4	97.7	1	75.0-125			0.499	20
Boron	1000	1190	2170	2170	98.3	97.5	1	75.0-125			0.349	20
Calcium	10000	94300	103000	103000	90.1	87.9	1	75.0-125			0.213	20
Chromium	1000	ND	969	965	96.9	96.5	1	75.0-125			0.411	20
Cobalt	1000	ND	1030	1020	103	102	1	75.0-125			1.04	20
Lithium	1000	30.4	1030	1030	100	99.7	1	75.0-125			0.584	20
Molybdenum	1000	15.5	1020	1020	101	100	1	75.0-125			0.894	20

Method Blank (MB)

(MB) R3328468-1 07/25/18 12:55

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	U		0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3328468-2 07/25/18 13:00 • (LCSD) R3328468-3 07/25/18 13:05

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 %
Antimony	50.0	54.5	55.7	109	111	80.0-120			2.16	20
Arsenic	50.0	47.6	49.8	95.1	99.6	80.0-120			4.66	20
Beryllium	50.0	45.2	48.0	90.4	95.9	80.0-120			5.99	20
Cadmium	50.0	47.4	48.4	94.8	96.7	80.0-120			2.01	20
Lead	50.0	47.3	48.4	94.6	96.8	80.0-120			2.34	20
Selenium	50.0	46.9	49.8	93.7	99.6	80.0-120			6.08	20
Thallium	50.0	46.7	48.3	93.4	96.5	80.0-120			3.28	20

L1011390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1011390-05 07/25/18 13:09 • (MS) R3328468-5 07/25/18 13:18 • (MSD) R3328468-6 07/25/18 13:23

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 %
Antimony	50.0	ND	56.2	57.8	112	116	1	75.0-125			2.79	20
Arsenic	50.0	ND	47.3	48.3	93.2	95.1	1	75.0-125			2.02	20
Beryllium	50.0	ND	46.4	46.6	92.8	93.2	1	75.0-125			0.482	20
Cadmium	50.0	ND	47.9	48.7	95.8	97.4	1	75.0-125			1.61	20
Lead	50.0	ND	47.7	47.6	95.3	95.2	1	75.0-125			0.131	20
Selenium	50.0	ND	48.6	49.2	97.2	98.4	1	75.0-125			1.20	20
Thallium	50.0	ND	46.8	47.6	93.5	95.2	1	75.0-125			1.75	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).
J3	The associated batch QC was outside the established quality control range for precision.

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	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

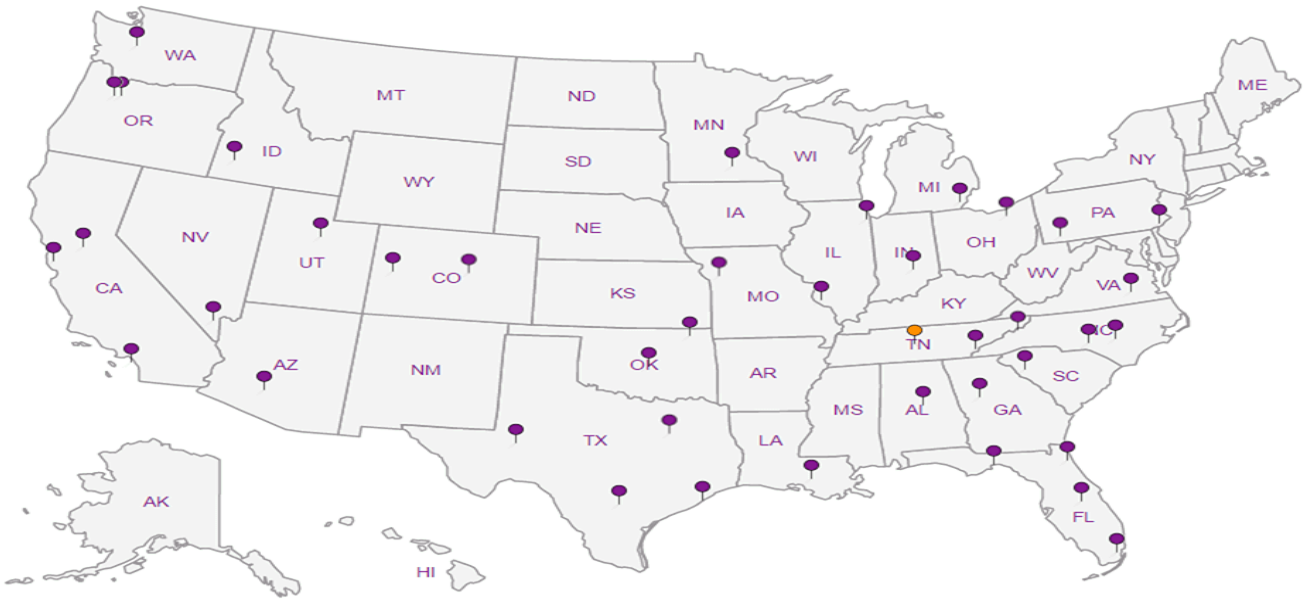
Third Party Federal Accreditations

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

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 # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

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

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	GRAB	GW		07/19/18	1040	3	X	X	X		01
MW-102		GW			1005	3	X	X	X		02
MW-103		GW			1010	3	X	X	X		03
MW-104		GW			1105	3	X	X	X		04
MW-105		GW			1155	3	X	X	X		05
MW-106		GW			1255	3	X	X	X		06
MW-107		GW			1335	3	X	X	X		07
MW-108		GW			1315	3	X	X	X		08
MW-109		GW			1230	3	X	X	X		09
MW-110		GW			1150	3	X	X	X		10

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH ____ Temp ____

Flow ____ Other ____

Samples returned via: ✓ UPS __ FedEx __ Courier ____

Tracking # 4510 1651 3542 / 17.5 3553 / 0.9 3564

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Jason R. Franks	7/20/18	1430	7-20-18 1438
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) 841

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: Amb / 0.9 °C Bottles Received: 42

Date: 7/21/18 Time: 8145

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

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 1 of 2

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

L# 101398
1149

Acctnum: AQUAOPKS
Template: T132734
Prelogin: P663128
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEx Ground

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 # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): JASON R FRANKS

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

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

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	GRAB	GW		07/19/18	1115	3	X	X	X		11
DUPLICATE		GW			1155	3	X	X	X		12
MS 105		GW			1200	3	X	X	X		05
MSD 105		GW			1200	3	X	X	X		05

Chain of Custody Page 2 of 2

Pace Analytical

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

L# 1011390

Table #

Acctnum: AQUAOPKS

Template: T132734

Prelogin: P663128

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
___ UPS ___ FedEx ___ Courier _____

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Jason R. Franks	7/20/18	1430		7-20-18 1438
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 42 — If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/24/18 Time: 8:45 — Hold: — Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 31, 2018

SCS Engineers - KS

Sample Delivery Group:	L1011405
Samples Received:	07/21/2018
Project Number:	27213167.16
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

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

TABLE OF CONTENTS

MW-101 L1011405-01 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 10:40 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-102 L1011405-02 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 10:05 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-103 L1011405-03 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 10:10 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-104 L1011405-04 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 11:05 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-105 L1011405-05 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 11:55 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-106 L1011405-06 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 12:55 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-107 L1011405-07 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 13:35 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/29/18 17:33	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/29/18 17:33	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/28/18 09:42	RRE

MW-108 L1011405-08 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 13:15 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/30/18 11:07	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/30/18 11:07	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-109 L1011405-09 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 12:30 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/30/18 11:07	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/30/18 11:07	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-110 L1011405-10 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 11:50 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/30/18 11:07	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/30/18 11:07	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

MW-111 L1011405-11 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 11:15 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/30/18 11:07	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/30/18 11:07	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

DUPLICATE L1011405-12 Non-Potable Water

Collected by: Jason R. Franks | Collected date/time: 07/19/18 00:00 | Received date/time: 07/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1141741	1	07/24/18 10:39	07/30/18 11:07	MK
Radiochemistry by Method Calculation	WG1141736	1	07/25/18 09:02	07/30/18 11:07	RRE
Radiochemistry by Method SM7500Ra B M	WG1141736	1	07/25/18 09:02	07/26/18 13:06	RRE

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
Project Manager

Radiochemistry by Method 904

Analyte	Result pCi/L	Qualifier	Uncertainty + / -	MDA pCi/L	Analysis Date date / time	Batch
RADIUM-228	1.03		0.448	0.522	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.82		0.803	0.862	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.792		0.355	0.34	07/26/2018 13:06	WG1141736
(T) Barium-133	*85.6*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result pCi/L	Qualifier	Uncertainty + / -	MDA pCi/L	Analysis Date date / time	Batch
RADIUM-228	-0.842		0.453	0.545	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*98.7*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.316		0.712	0.847	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.316		0.259	0.302	07/26/2018 13:06	WG1141736
(T) Barium-133	*88.7*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	1.93		0.450	0.438	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	3.53		0.960	0.703	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.61		0.510	0.265	07/26/2018 13:06	WG1141736
(T) Barium-133	*93.2*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result pCi/L	Qualifier	Uncertainty + / -	MDA pCi/L	Analysis Date date / time	Batch
RADIUM-228	0.102		0.385	0.429	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.396		0.680	0.811	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.294		0.295	0.382	07/26/2018 13:06	WG1141736
(T) Barium-133	*75.4*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.597		0.461	0.496	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*94.3*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.895		0.702	0.754	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.299		0.241	0.258	07/26/2018 13:06	WG1141736
(T) Barium-133	*82.9*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.932		0.380	0.47	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.42		0.654	0.701	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.490		0.274	0.231	07/26/2018 13:06	WG1141736
(T) Barium-133	*89.8*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.174		0.389	0.443	07/29/2018 17:33	WG1141741
(T) Barium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/29/2018 17:33*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.221		0.555	0.747	07/29/2018 17:33	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0465		0.166	0.304	07/28/2018 09:42	WG1141736
(T) Barium-133	*88.2*			*30.0-110*	*07/28/2018 09:42*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.620		0.379	0.547	07/30/2018 11:07	WG1141741
(T) Barium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.14		0.650	0.71	07/30/2018 11:07	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.524		0.271	0.163	07/26/2018 13:06	WG1141736
(T) Barium-133	*80.9*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.848		0.393	0.566	07/30/2018 11:07	WG1141741
(T) Barium	*98.1*			*30.0-110*	*07/30/2018 11:07*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.88		0.790	0.865	07/30/2018 11:07	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.03		0.397	0.299	07/26/2018 13:06	WG1141736
(T) Barium-133	*77.3*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.274		0.329	0.466	07/30/2018 11:07	WG1141741
(T) Barium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.590		0.595	0.752	07/30/2018 11:07	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.316		0.266	0.286	07/26/2018 13:06	WG1141736
(T) Barium-133	*69.1*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.935		0.410	0.541	07/30/2018 11:07	WG1141741
(T) Barium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.21		0.781	1.06	07/30/2018 11:07	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.271		0.371	0.52	07/26/2018 13:06	WG1141736
(T) Barium-133	*68.0*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	0.991		0.385	0.53	07/30/2018 11:07	WG1141741
(T) Barium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741
(T) Yttrium	*100*			*30.0-110*	*07/30/2018 11:07*	WG1141741

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.52		0.672	0.734	07/30/2018 11:07	WG1141736

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.525		0.287	0.204	07/26/2018 13:06	WG1141736
(T) Barium-133	*80.7*			*30.0-110*	*07/26/2018 13:06*	WG1141736

Method Blank (MB)

(MB) R3329617-1 07/29/18 17:33

Analyte	MB Result pCi/L	MB Qualifier	MB MDA pCi/L
Radium-228	-0.536		0.433
(T) Barium	*100*		*30.0-110*
(T) Yttrium	*100*		*30.0-110*

L1011405-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1011405-01 07/29/18 17:33 • (DUP) R3329617-5 07/29/18 17:33

Analyte	Original Result pCi/L	DUP Result pCi/L	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/L
Radium-228	1.03	-0.866	1	200	1.93		20	3
(T) Barium	*100*	*100*					*30.0-110*	*100*
(T) Yttrium	*90.1*	*90.1*					*30.0-110*	*90.1*

Laboratory Control Sample (LCS)

(LCS) R3329617-2 07/29/18 17:33

Analyte	Spike Amount pCi/L	LCS Result pCi/L	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.30	85.9	80.0-120	
(T) Barium			*100*	*30.0-110*	
(T) Yttrium			*100*	*30.0-110*	

L1011405-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1011405-05 07/29/18 17:33 • (MS) R3329617-3 07/29/18 17:33 • (MSD) R3329617-4 07/29/18 17:33

Analyte	Spike Amount pCi/L	Original Result pCi/L	MS Result pCi/L	MSD Result pCi/L	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	20.0	0.597	15.5	16.4	74.4	78.8	1	70.0-130			5.53		20
(T) Barium					*99.9*	*100*		*30.0-110*					
(T) Yttrium					*100*	*100*		*30.0-110*					

Method Blank (MB)

(MB) R3329618-1 07/26/18 13:06

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	-0.00207		0.0477
(T) Barium-133	*81.9*		*30.0-110*

L1011405-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1011405-06 07/26/18 13:06 • (DUP) R3329618-5 07/26/18 13:06

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.490	0.180	1	92.3	0.928		20	3
(T) Barium-133	*78.2*	*78.2*					*30.0-110*	*78.2*

Laboratory Control Sample (LCS)

(LCS) R3329618-2 07/26/18 13:06

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.96	119	80.0-120	
(T) Barium-133			*74.9*	*30.0-110*	

L1011405-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1011405-05 07/26/18 13:06 • (MS) R3329618-3 07/26/18 13:06 • (MSD) R3329618-4 07/26/18 13:06

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.299	18.7	20.2	91.7	99.1	1	75.0-125			7.55		20
(T) Barium-133					*85.9*	*72.0*		*30.0-110*					

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

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

Qualifier	Description

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	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

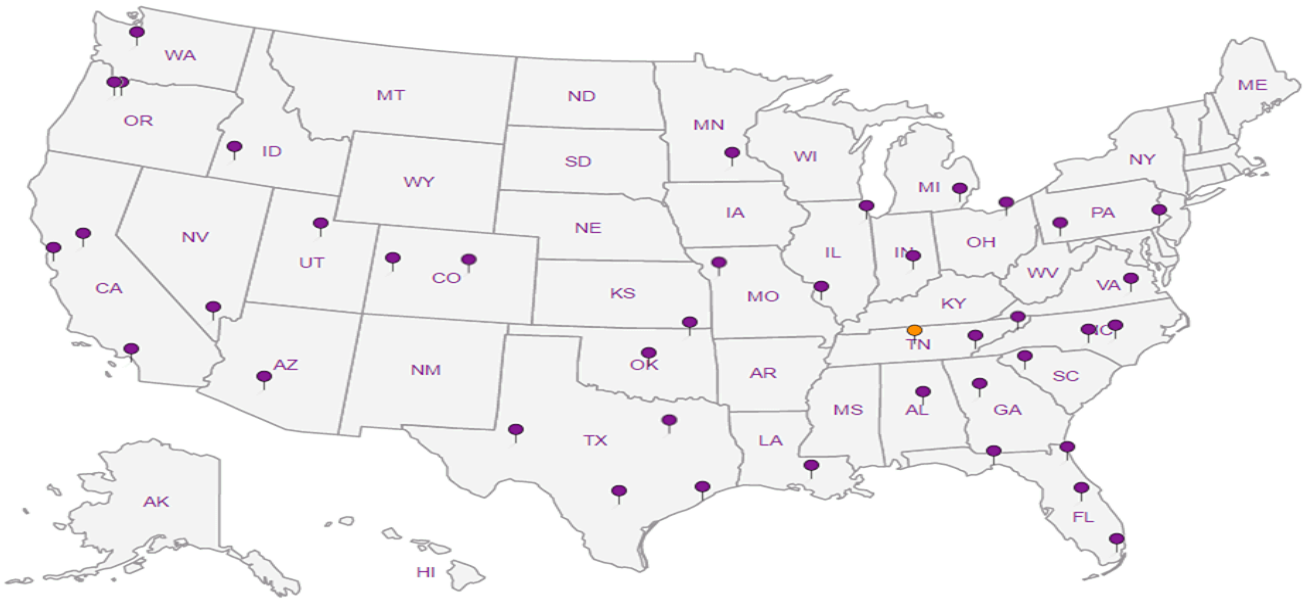
Third Party Federal Accreditations

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

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 # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): JASON FRANKS

Site/Facility ID #

P.O. #

Collected by (signature): Jason K. 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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntr	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-101	GRAB	NPW		07/19/18	1040	2	X		01
MW-102		NPW			1005	2	X		02
MW-103		NPW			1010	2	X		03
MW-104		NPW			1105	2	X		04
MW-105		NPW			1155	2	X		05
MW-106		NPW			1255	2	X		06
MW-107		NPW			1335	2	X		07
MW-108		NPW			1315	2	X		08
MW-109		NPW			1230	2	X		09
MW-110		NPW			1150	2	X		10

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace Analytical
National Center for Testing & Innovation

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

L# 101146
1148

Acctnum: AQUAOPKS
Template: T132737
Prelogin: P663129
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

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

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

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # 4510 1651 3542 17.3 3553

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 K. Franks	7/20/18	1435	7/20/18 1438	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: Amb °C Bottles Received: 28
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/21/18 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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 # **27213167.16**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

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

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-111	GRAB	NPW		07/19/18	1115	2	X		11
DUPLICATE		NPW				2	X		12
MS		NPW				2	X		06
MSD		NPW				2	X		06

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

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

L # 161405

Table #

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P663129**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

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

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
__ UPS __ FedEx __ Courier __

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Jason R. Franks	7/20/18	1430	7-20-18 1438
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: °C Bottles Received: 28

Date: 7/21/18 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Jared Morrison
December 16, 2022

ATTACHMENT 1-5

September 2018 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 10, 2018

SCS Engineers - KS

Sample Delivery Group:	L1024956
Samples Received:	09/12/2018
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

TABLE OF CONTENTS

MW-101 L1024956-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 14:46	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 13:18	RGT

MW-102 L1024956-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 16:01	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 13:18	RGT

MW-103 L1024956-03 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/11/18 12:22	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 17:26	RGT

MW-104 L1024956-04 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/11/18 11:47	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 17:26	RGT

MW-105 L1024956-05 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/11/18 11:17	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 17:26	RGT

MW-106 L1024956-06 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/11/18 09:56	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 17:26	RGT

MW-107 L1024956-07 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/11/18 10:27	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 17:26	RGT

MW-108 L1024956-08 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 13:43	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167222	1	09/17/18 15:36	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167222	1	09/17/18 15:36	09/19/18 17:26	RGT

MW-109 L1024956-09 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 13:02	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167725	1	09/19/18 14:46	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167725	1	09/19/18 14:46	09/21/18 14:15	RGT

MW-110 L1024956-10 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 14:20	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167725	1	09/19/18 14:46	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167725	1	09/19/18 14:46	09/21/18 14:15	RGT

MW-111 L1024956-11 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 15:27	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167725	1	09/19/18 14:46	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167725	1	09/19/18 14:46	09/21/18 14:46	RGT

DUPLICATE L1024956-12 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/10/18 16:06	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1168124	1	09/19/18 11:34	10/08/18 10:12	MK
Radiochemistry by Method Calculation	WG1167725	1	09/19/18 14:46	10/08/18 10:12	MK
Radiochemistry by Method SM7500Ra B M	WG1167725	1	09/19/18 14:46	09/21/18 14:46	RGT

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
Project Manager

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.430		0.436	0.607	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.08		0.769	0.858	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.652		0.333	0.251	09/19/2018 13:18	WG1167222
(T) Barium-133	*78.0*			*30.0-110*	*09/19/2018 13:18*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.22		0.422	0.558	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.12		0.789	0.758	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.894		0.367	0.2	09/19/2018 13:18	WG1167222
(T) Barium-133	*89.7*			*30.0-110*	*09/19/2018 13:18*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.884		0.384	0.528	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.27		0.614	0.725	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.386		0.230	0.197	09/19/2018 17:26	WG1167222
(T) Barium-133	*90.0*			*30.0-110*	*09/19/2018 17:26*	WG1167222

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.153		0.370	0.543	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.506		0.679	0.934	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.353		0.309	0.391	09/19/2018 17:26	WG1167222
(T) Barium-133	*77.8*			*30.0-110*	*09/19/2018 17:26*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.58		0.408	0.581	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.05		0.694	0.819	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.469		0.286	0.238	09/19/2018 17:26	WG1167222
(T) Barium-133	*83.2*			*30.0-110*	*09/19/2018 17:26*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.397		0.386	0.547	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.769		0.625	0.77	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.372		0.239	0.223	09/19/2018 17:26	WG1167222
(T) Barium-133	*92.7*			*30.0-110*	*09/19/2018 17:26*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0561		0.430	0.637	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.144		0.623	0.917	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.144		0.193	0.28	09/19/2018 17:26	WG1167222
(T) Barium-133	*69.9*			*30.0-110*	*09/19/2018 17:26*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.678		0.401	0.606	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.00		0.661	0.863	10/08/2018 10:12	WG1167222

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.322		0.260	0.257	09/19/2018 17:26	WG1167222
(T) Barium-133	*69.7*			*30.0-110*	*09/19/2018 17:26*	WG1167222

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.897		0.631	0.849	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.19		0.877	1.13	10/08/2018 10:12	WG1167725

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.295		0.246	0.282	09/21/2018 14:15	WG1167725
(T) Barium-133	*99.9*			*30.0-110*	*09/21/2018 14:15*	WG1167725

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.27		0.684	0.935	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.59		0.913	1.16	10/08/2018 10:12	WG1167725

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.328		0.229	0.222	09/21/2018 14:15	WG1167725
(T) Barium-133	*99.1*			*30.0-110*	*09/21/2018 14:15*	WG1167725

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.46		0.668	0.883	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.58		0.802	1.06	10/08/2018 10:12	WG1167725

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.120		0.134	0.177	09/21/2018 14:46	WG1167725
(T) Barium-133	*100*			*30.0-110*	*09/21/2018 14:46*	WG1167725

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.16		0.437	0.61	10/08/2018 10:12	WG1168124
(T) Barium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124
(T) Yttrium	*100*			*30.0-110*	*10/08/2018 10:12*	WG1168124

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.84		0.762	0.93	10/08/2018 10:12	WG1167725

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.678		0.325	0.32	09/21/2018 14:46	WG1167725
(T) Barium-133	*95.0*			*30.0-110*	*09/21/2018 14:46*	WG1167725

Method Blank (MB)

(MB) R3344946-1 09/25/18 09:22

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-228	0.270		0.442
(T) Barium	*100*		
(T) Yttrium	*100*		

L1024524-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1024524-02 09/25/18 09:22 • (DUP) R3344946-5 09/25/18 09:22

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-228	0.759	0.329	1	79.0	0.403		20	3
(T) Barium	*100*	*100*						
(T) Yttrium	*100*	*100*						

Laboratory Control Sample (LCS)

(LCS) R3344946-2 09/25/18 09:22

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.74	94.8	80.0-120	
(T) Barium			*100*		
(T) Yttrium			*100*		

L1024929-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1024929-01 09/25/18 09:22 • (MS) R3344946-3 09/25/18 09:22 • (MSD) R3344946-4 09/25/18 09:22

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	20.0	-0.358	17.2	20.4	85.8	102	1	70.0-130			17.3		20
(T) Barium		*100*			*100*	*100*							
(T) Yttrium		*100*			*100*	*100*							

Method Blank (MB)

(MB) R3344005-1 09/19/18 13:18

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-226	0.0146		0.0604
(T) Barium-133	*81.4*		

L1024524-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1024524-03 09/19/18 13:18 • (DUP) R3344005-5 09/19/18 13:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	pCi/l
Radium-226	0.713	1.15	1	47.2	0.841		20	3
(T) Barium-133	*95.0*	*90.2*						

Laboratory Control Sample (LCS)

(LCS) R3344005-2 09/19/18 13:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.02	5.62	112	80.0-120	
(T) Barium-133			*90.0*		

L1024524-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1024524-02 09/19/18 13:18 • (MS) R3344005-3 09/19/18 13:18 • (MSD) R3344005-4 09/19/18 13:18

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.1	0.871	24.1	19.9	116	94.6	1	75.0-125			19.1		20
(T) Barium-133		*87.4*			*85.6*	*95.8*							

Method Blank (MB)

(MB) R3344708-1 09/21/18 14:15

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.0219		0.0528
(T) Barium-133	*93.1*		

L1026264-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1026264-02 09/21/18 18:20 • (DUP) R3344708-5 09/21/18 14:15

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.0186	0.118	1	146	0.541		20	3
(T) Barium-133	*100*	*92.5*						

Laboratory Control Sample (LCS)

(LCS) R3344708-2 09/21/18 14:15

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.20	103	80.0-120	
(T) Barium-133			*96.0*		

L1026264-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1026264-01 09/21/18 18:20 • (MS) R3344708-3 09/21/18 14:15 • (MSD) R3344708-4 09/21/18 14:15

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.343	19.3	21.7	94.1	106	1	75.0-125			11.7		20
(T) Barium-133		*97.6*			*98.6*	*96.0*							

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

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

Qualifier	Description

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	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

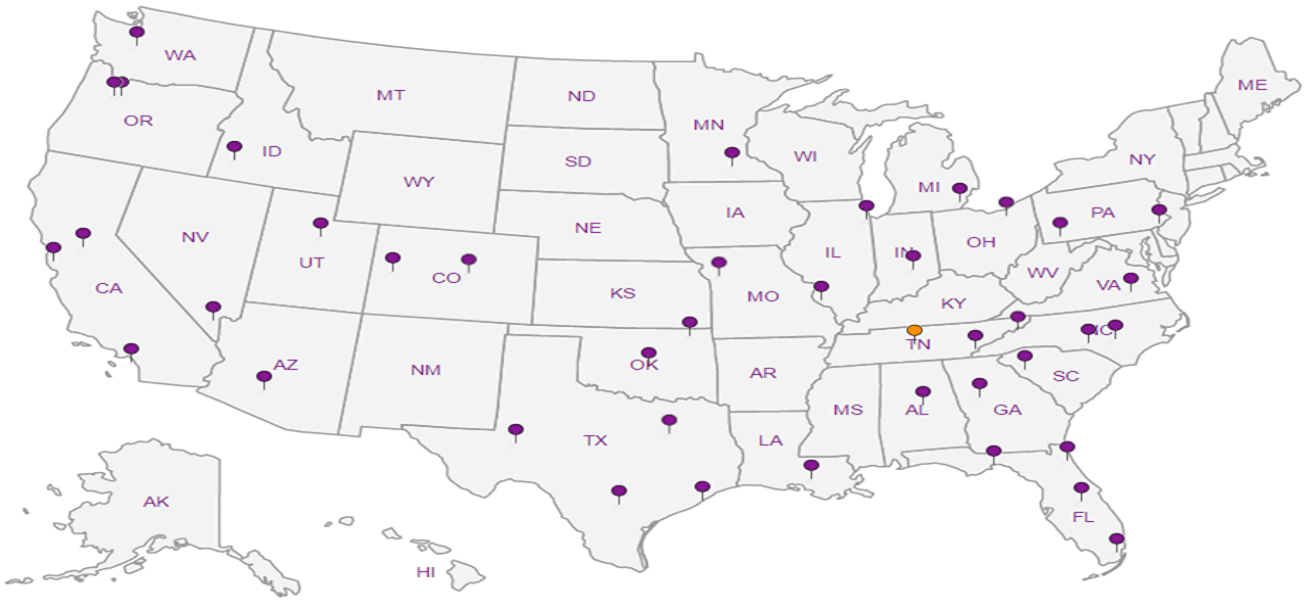
Third Party Federal Accreditations

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: Weston, MO

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

Client Project # **27217413.00**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): Gabby Pemflor

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: ST.

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-101	GRAB	NPW		9/10/18	1446	2	X		-01
MW-102		NPW		9/10/18	1601	2	X		-02
MW-103		NPW		9/10/18	1222	2	X		-03
MW-104		NPW			1147	2	X		-04
MW-105		NPW			1117	2	X		-05
MW-106		NPW			0956	2	X		-06
MW-107		NPW			1027	2	X		-07
MW-108		NPW		9/10/18	1343	2	X		-08
MW-109		NPW		9/10/18	1302	2	X		-09
MW-110		NPW		9/10/18	1420	2	X		-10

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# L024456

Table 1061

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P669256**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

Remarks: RA 226/228 - Report separately and combined.
RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: X UPS __ FedEx __ Courier __ _____
Tracking #

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Gabby Pemflor	9/11/18	1352		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 18.9°C Bottles Received: 24
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/12/18 Time: 852

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

SCS Engineers - KS
8575 W. 110th Street
Overland Park, KS 66210

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

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 # 27217413.00

Lab Project # AQUAOPKS-IATAN

Collected by (print): Gabby Penaflor

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

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

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3									
MW-111	GRAB	NPW		9/10/18	1527	2	X									
DUPLICATE		NPW			1606	2	X									
~~MS~~		~~NPW~~			~~1611~~	~~2~~	~~X~~	KH								
~~MSD~~		~~NPW~~			~~1611~~	~~2~~	~~X~~	KH								

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 # L1024956

Table #

Acctnum: AQUAOPKS

Template: T132737

Prelogin: P669256

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

Remarks	Sample # (lab only)
	-11
	-12

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

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

RAD SCREEN <

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)
Gabby Penaflor	9/11/18	1352	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 18.1°C Bottles Received: 24

Date: 9/12/18 Time: 0852

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 20, 2018

SCS Engineers - KS

Sample Delivery Group:	L1025698
Samples Received:	09/12/2018
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

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

MW-101 L1025698-01 GW

Collected by	Collected date/time	Received date/time
Gabby Penaflok	09/10/18 14:46	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 15:19	09/15/18 15:19	MAJ
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:11	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:28	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:29	JPD

MW-102 L1025698-02 GW

Collected by	Collected date/time	Received date/time
Gabby Penaflok	09/10/18 16:01	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 15:38	09/15/18 15:38	MAJ
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 11:42	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 01:57	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 00:34	JPD

MW-103 L1025698-03 GW

Collected by	Collected date/time	Received date/time
Gabby Penaflok	09/11/18 12:22	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1167279	1	09/18/18 19:10	09/18/18 19:36	MMF
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 16:50	09/15/18 16:50	MAJ
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:19	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:30	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:34	JPD

MW-104 L1025698-04 GW

Collected by	Collected date/time	Received date/time
Gabby Penaflok	09/11/18 11:47	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1167279	1	09/18/18 19:10	09/18/18 19:36	MMF
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 17:08	09/15/18 17:08	MAJ
Wet Chemistry by Method 9056A	WG1167487	5	09/18/18 15:40	09/18/18 15:40	ELN
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:21	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:33	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:39	JPD

MW-105 L1025698-05 GW

Collected by	Collected date/time	Received date/time
Gabby Penaflok	09/11/18 11:17	09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1167279	1	09/18/18 19:10	09/18/18 19:36	MMF
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 18:03	09/15/18 18:03	MAJ
Wet Chemistry by Method 9056A	WG1167487	5	09/18/18 15:58	09/18/18 15:58	ELN
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:24	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:35	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:43	JPD

MW-106 L1025698-06 GW

Collected by: Gabby Penaflok | Collected date/time: 09/11/18 09:56 | Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1167279	1	09/18/18 19:10	09/18/18 19:36	MMF
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 18:21	09/15/18 18:21	MAJ
Wet Chemistry by Method 9056A	WG1167487	5	09/18/18 16:16	09/18/18 16:16	ELN
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:26	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:38	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:48	JPD

MW-107 L1025698-07 GW

Collected by: Gabby Penaflok | Collected date/time: 09/11/18 10:27 | Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1167279	1	09/18/18 19:10	09/18/18 19:36	MMF
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 18:39	09/15/18 18:39	MAJ
Wet Chemistry by Method 9056A	WG1167487	5	09/18/18 16:34	09/18/18 16:34	ELN
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:29	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:41	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:53	JPD

MW-108 L1025698-08 GW

Collected by: Gabby Penaflok | Collected date/time: 09/10/18 13:43 | Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 18:57	09/15/18 18:57	MAJ
Wet Chemistry by Method 9056A	WG1167487	5	09/18/18 16:52	09/18/18 16:52	ELN
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:31	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:43	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 01:58	JPD

MW-109 L1025698-09 GW

Collected by: Gabby Penaflok | Collected date/time: 09/10/18 13:02 | Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 19:16	09/15/18 19:16	MAJ
Wet Chemistry by Method 9056A	WG1167487	5	09/18/18 17:10	09/18/18 17:10	ELN
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:33	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:51	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 02:12	JPD

MW-110 L1025698-10 GW

Collected by: Gabby Penaflok | Collected date/time: 09/10/18 14:20 | Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 20:10	09/15/18 20:10	MAJ
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:36	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:54	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 02:16	JPD

MW-111 L1025698-11 GW

Collected by: Gabby Penaflok
Collected date/time: 09/10/18 15:27
Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 20:28	09/15/18 20:28	MAJ
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:38	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:56	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 02:21	JPD

DUPLICATE L1025698-12 GW

Collected by: Gabby Penaflok
Collected date/time: 09/10/18 16:06
Received date/time: 09/12/18 08:52

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1166258	1	09/17/18 11:03	09/17/18 11:42	AJS
Wet Chemistry by Method 9056A	WG1166077	1	09/15/18 20:46	09/15/18 20:46	MAJ
Mercury by Method 7470A	WG1166096	1	09/14/18 11:23	09/16/18 12:41	EL
Metals (ICP) by Method 6010B	WG1166215	1	09/14/18 14:51	09/18/18 02:59	TRB
Metals (ICPMS) by Method 6020	WG1166228	1	09/14/18 14:47	09/18/18 02:26	JPD

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	545000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	6120		1000	1	09/15/2018 15:19	WG1166077
Fluoride	392		100	1	09/15/2018 15:19	WG1166077
Sulfate	ND		5000	1	09/15/2018 15:19	WG1166077

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:11	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	630		5.00	1	09/18/2018 02:28	WG1166215
Boron	ND		200	1	09/18/2018 02:28	WG1166215
Calcium	135000		1000	1	09/18/2018 02:28	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:28	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:28	WG1166215
Lithium	32.3		15.0	1	09/18/2018 02:28	WG1166215
Molybdenum	ND		5.00	1	09/18/2018 02:28	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:29	WG1166228
Arsenic	4.62		2.00	1	09/18/2018 01:29	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:29	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:29	WG1166228
Lead	ND		2.00	1	09/18/2018 01:29	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:29	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:29	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	526000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5260		1000	1	09/15/2018 15:38	WG1166077
Fluoride	300		100	1	09/15/2018 15:38	WG1166077
Sulfate	ND		5000	1	09/15/2018 15:38	WG1166077

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 11:42	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	726		5.00	1	09/18/2018 01:57	WG1166215
Boron	ND		200	1	09/18/2018 01:57	WG1166215
Calcium	135000		1000	1	09/18/2018 01:57	WG1166215
Chromium	ND		10.0	1	09/18/2018 01:57	WG1166215
Cobalt	ND		10.0	1	09/18/2018 01:57	WG1166215
Lithium	33.6		15.0	1	09/18/2018 01:57	WG1166215
Molybdenum	ND		5.00	1	09/18/2018 01:57	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 00:34	WG1166228
Arsenic	ND		2.00	1	09/18/2018 00:34	WG1166228
Beryllium	ND		2.00	1	09/18/2018 00:34	WG1166228
Cadmium	ND		1.00	1	09/18/2018 00:34	WG1166228
Lead	ND		2.00	1	09/18/2018 00:34	WG1166228
Selenium	ND		2.00	1	09/18/2018 00:34	WG1166228
Thallium	ND		2.00	1	09/18/2018 00:34	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	528000		10000	1	09/18/2018 19:36	WG1167279

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4540		1000	1	09/15/2018 16:50	WG1166077
Fluoride	273		100	1	09/15/2018 16:50	WG1166077
Sulfate	ND		5000	1	09/15/2018 16:50	WG1166077

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:19	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	703		5.00	1	09/18/2018 02:30	WG1166215
Boron	ND		200	1	09/18/2018 02:30	WG1166215
Calcium	149000		1000	1	09/18/2018 02:30	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:30	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:30	WG1166215
Lithium	51.3		15.0	1	09/18/2018 02:30	WG1166215
Molybdenum	ND		5.00	1	09/18/2018 02:30	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:34	WG1166228
Arsenic	ND		2.00	1	09/18/2018 01:34	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:34	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:34	WG1166228
Lead	ND		2.00	1	09/18/2018 01:34	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:34	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:34	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	450000		10000	1	09/18/2018 19:36	WG1167279

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21600		1000	1	09/15/2018 17:08	WG1166077
Fluoride	670		100	1	09/15/2018 17:08	WG1166077
Sulfate	139000		25000	5	09/18/2018 15:40	WG1167487

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:21	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	162		5.00	1	09/18/2018 02:33	WG1166215
Boron	1340		200	1	09/18/2018 02:33	WG1166215
Calcium	49500		1000	1	09/18/2018 02:33	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:33	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:33	WG1166215
Lithium	16.1		15.0	1	09/18/2018 02:33	WG1166215
Molybdenum	28.0		5.00	1	09/18/2018 02:33	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:39	WG1166228
Arsenic	ND		2.00	1	09/18/2018 01:39	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:39	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:39	WG1166228
Lead	ND		2.00	1	09/18/2018 01:39	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:39	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:39	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	676000		10000	1	09/18/2018 19:36	WG1167279

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18300		1000	1	09/15/2018 18:03	WG1166077
Fluoride	808		100	1	09/15/2018 18:03	WG1166077
Sulfate	255000		25000	5	09/18/2018 15:58	WG1167487

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:24	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	380		5.00	1	09/18/2018 02:35	WG1166215
Boron	1330		200	1	09/18/2018 02:35	WG1166215
Calcium	97100		1000	1	09/18/2018 02:35	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:35	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:35	WG1166215
Lithium	26.9		15.0	1	09/18/2018 02:35	WG1166215
Molybdenum	19.6		5.00	1	09/18/2018 02:35	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:43	WG1166228
Arsenic	ND		2.00	1	09/18/2018 01:43	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:43	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:43	WG1166228
Lead	ND		2.00	1	09/18/2018 01:43	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:43	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:43	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	629000		10000	1	09/18/2018 19:36	WG1167279

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20300		1000	1	09/15/2018 18:21	WG1166077
Fluoride	721		100	1	09/15/2018 18:21	WG1166077
Sulfate	185000		25000	5	09/18/2018 16:16	WG1167487

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:26	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	232		5.00	1	09/18/2018 02:38	WG1166215
Boron	937		200	1	09/18/2018 02:38	WG1166215
Calcium	110000		1000	1	09/18/2018 02:38	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:38	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:38	WG1166215
Lithium	38.9		15.0	1	09/18/2018 02:38	WG1166215
Molybdenum	ND		5.00	1	09/18/2018 02:38	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:48	WG1166228
Arsenic	ND		2.00	1	09/18/2018 01:48	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:48	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:48	WG1166228
Lead	ND		2.00	1	09/18/2018 01:48	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:48	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:48	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	639000		10000	1	09/18/2018 19:36	WG1167279

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19000		1000	1	09/15/2018 18:39	WG1166077
Fluoride	416		100	1	09/15/2018 18:39	WG1166077
Sulfate	225000		25000	5	09/18/2018 16:34	WG1167487

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:29	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	99.1		5.00	1	09/18/2018 02:41	WG1166215
Boron	2300		200	1	09/18/2018 02:41	WG1166215
Calcium	52700		1000	1	09/18/2018 02:41	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:41	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:41	WG1166215
Lithium	ND		15.0	1	09/18/2018 02:41	WG1166215
Molybdenum	89.7		5.00	1	09/18/2018 02:41	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:53	WG1166228
Arsenic	ND		2.00	1	09/18/2018 01:53	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:53	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:53	WG1166228
Lead	ND		2.00	1	09/18/2018 01:53	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:53	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:53	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	805000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	17500		1000	1	09/15/2018 18:57	WG1166077
Fluoride	480		100	1	09/15/2018 18:57	WG1166077
Sulfate	303000		25000	5	09/18/2018 16:52	WG1167487

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:31	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	175		5.00	1	09/18/2018 02:43	WG1166215
Boron	885		200	1	09/18/2018 02:43	WG1166215
Calcium	147000		1000	1	09/18/2018 02:43	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:43	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:43	WG1166215
Lithium	34.0		15.0	1	09/18/2018 02:43	WG1166215
Molybdenum	7.76		5.00	1	09/18/2018 02:43	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 01:58	WG1166228
Arsenic	ND		2.00	1	09/18/2018 01:58	WG1166228
Beryllium	ND		2.00	1	09/18/2018 01:58	WG1166228
Cadmium	ND		1.00	1	09/18/2018 01:58	WG1166228
Lead	ND		2.00	1	09/18/2018 01:58	WG1166228
Selenium	ND		2.00	1	09/18/2018 01:58	WG1166228
Thallium	ND		2.00	1	09/18/2018 01:58	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	739000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	27200		1000	1	09/15/2018 19:16	WG1166077
Fluoride	601		100	1	09/15/2018 19:16	WG1166077
Sulfate	193000		25000	5	09/18/2018 17:10	WG1167487

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:33	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	303		5.00	1	09/18/2018 02:51	WG1166215
Boron	565		200	1	09/18/2018 02:51	WG1166215
Calcium	127000		1000	1	09/18/2018 02:51	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:51	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:51	WG1166215
Lithium	25.8		15.0	1	09/18/2018 02:51	WG1166215
Molybdenum	13.0		5.00	1	09/18/2018 02:51	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 02:12	WG1166228
Arsenic	3.51		2.00	1	09/18/2018 02:12	WG1166228
Beryllium	ND		2.00	1	09/18/2018 02:12	WG1166228
Cadmium	ND		1.00	1	09/18/2018 02:12	WG1166228
Lead	ND		2.00	1	09/18/2018 02:12	WG1166228
Selenium	ND		2.00	1	09/18/2018 02:12	WG1166228
Thallium	ND		2.00	1	09/18/2018 02:12	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	572000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	11800		1000	1	09/15/2018 20:10	WG1166077
Fluoride	628		100	1	09/15/2018 20:10	WG1166077
Sulfate	67400		5000	1	09/15/2018 20:10	WG1166077

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:36	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	374		5.00	1	09/18/2018 02:54	WG1166215
Boron	888		200	1	09/18/2018 02:54	WG1166215
Calcium	87100		1000	1	09/18/2018 02:54	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:54	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:54	WG1166215
Lithium	25.7		15.0	1	09/18/2018 02:54	WG1166215
Molybdenum	13.2		5.00	1	09/18/2018 02:54	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 02:16	WG1166228
Arsenic	ND		2.00	1	09/18/2018 02:16	WG1166228
Beryllium	ND		2.00	1	09/18/2018 02:16	WG1166228
Cadmium	ND		1.00	1	09/18/2018 02:16	WG1166228
Lead	ND		2.00	1	09/18/2018 02:16	WG1166228
Selenium	ND		2.00	1	09/18/2018 02:16	WG1166228
Thallium	ND		2.00	1	09/18/2018 02:16	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	552000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	11800		1000	1	09/15/2018 20:28	WG1166077
Fluoride	620		100	1	09/15/2018 20:28	WG1166077
Sulfate	66800		5000	1	09/15/2018 20:28	WG1166077

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:38	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	373		5.00	1	09/18/2018 02:56	WG1166215
Boron	873		200	1	09/18/2018 02:56	WG1166215
Calcium	87200		1000	1	09/18/2018 02:56	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:56	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:56	WG1166215
Lithium	23.0		15.0	1	09/18/2018 02:56	WG1166215
Molybdenum	14.0		5.00	1	09/18/2018 02:56	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 02:21	WG1166228
Arsenic	ND		2.00	1	09/18/2018 02:21	WG1166228
Beryllium	ND		2.00	1	09/18/2018 02:21	WG1166228
Cadmium	73.3		1.00	1	09/18/2018 02:21	WG1166228
Lead	ND		2.00	1	09/18/2018 02:21	WG1166228
Selenium	ND		2.00	1	09/18/2018 02:21	WG1166228
Thallium	ND		2.00	1	09/18/2018 02:21	WG1166228

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	521000		10000	1	09/17/2018 11:42	WG1166258

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5230		1000	1	09/15/2018 20:46	WG1166077
Fluoride	294		100	1	09/15/2018 20:46	WG1166077
Sulfate	ND		5000	1	09/15/2018 20:46	WG1166077

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	09/16/2018 12:41	WG1166096

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	724		5.00	1	09/18/2018 02:59	WG1166215
Boron	ND		200	1	09/18/2018 02:59	WG1166215
Calcium	134000		1000	1	09/18/2018 02:59	WG1166215
Chromium	ND		10.0	1	09/18/2018 02:59	WG1166215
Cobalt	ND		10.0	1	09/18/2018 02:59	WG1166215
Lithium	32.8		15.0	1	09/18/2018 02:59	WG1166215
Molybdenum	ND		5.00	1	09/18/2018 02:59	WG1166215

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	09/18/2018 02:26	WG1166228
Arsenic	ND		2.00	1	09/18/2018 02:26	WG1166228
Beryllium	ND		2.00	1	09/18/2018 02:26	WG1166228
Cadmium	ND		1.00	1	09/18/2018 02:26	WG1166228
Lead	ND		2.00	1	09/18/2018 02:26	WG1166228
Selenium	ND		2.00	1	09/18/2018 02:26	WG1166228
Thallium	ND		2.00	1	09/18/2018 02:26	WG1166228

Method Blank (MB)

(MB) R3343142-1 09/17/18 11:42

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	5000		2820	10000

L1024900-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1024900-03 09/17/18 11:42 • (DUP) R3343142-4 09/17/18 11:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	378000	376000	1	0.531		5

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

(LCS) R3343142-2 09/17/18 11:42 • (LCSD) R3343142-3 09/17/18 11:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8920000	8780000	101	99.8	85.0-115			1.58	10

Method Blank (MB)

(MB) R3343333-1 09/18/18 19:36

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

L1025609-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1025609-01 09/18/18 19:36 • (DUP) R3343333-4 09/18/18 19:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	2880000	2830000	1	1.58		5

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

(LCS) R3343333-2 09/18/18 19:36 • (LCSD) R3343333-3 09/18/18 19:36

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	8800000	8510000	100	96.7	85.0-115			3.35	10

Method Blank (MB)

(MB) R3342579-1 09/15/18 08:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	169	J	51.9	1000
Fluoride	U		9.90	100
Sulfate	105	J	77.4	5000

L1025698-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1025698-02 09/15/18 15:38 • (DUP) R3342579-4 09/15/18 15:56

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5260	5250	1	0.226		15
Fluoride	300	300	1	0.233		15
Sulfate	ND	0.000	1	0.000		15

L1025698-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1025698-09 09/15/18 19:16 • (DUP) R3342579-7 09/15/18 19:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	27200	27200	1	0.0169		15
Fluoride	601	602	1	0.183		15

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

(LCS) R3342579-2 09/15/18 09:01 • (LCSD) R3342579-3 09/15/18 09:19

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	38900	39100	97.2	97.8	80.0-120			0.527	15
Fluoride	8000	7770	7810	97.1	97.7	80.0-120			0.589	15
Sulfate	40000	39700	39800	99.3	99.5	80.0-120			0.184	15

L1025698-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1025698-02 09/15/18 15:38 • (MS) R3342579-5 09/15/18 16:14 • (MSD) R3342579-6 09/15/18 16:32

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	5260	55500	56000	101	101	1	80.0-120			0.780	15
Fluoride	5000	300	5370	5410	101	102	1	80.0-120			0.766	15

L1025698-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1025698-02 09/15/18 15:38 • (MS) R3342579-5 09/15/18 16:14 • (MSD) R3342579-6 09/15/18 16:32

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	ND	50000	50200	99.9	100	1	80.0-120			0.550	15

L1025698-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1025698-09 09/15/18 19:16 • (MS) R3342579-8 09/15/18 19:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	27200	77000	99.6	1	80.0-120	
Fluoride	5000	601	5700	102	1	80.0-120	

Method Blank (MB)

(MB) R3343152-1 09/18/18 10:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	116	J	77.4	5000

L1026410-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1026410-06 09/18/18 18:23 • (DUP) R3343152-4 09/18/18 18:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	86200	86300	1	0.105		15

L1026540-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1026540-01 09/19/18 10:22 • (DUP) R3343152-9 09/19/18 10:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	169000	170000	5	0.292		15

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

(LCS) R3343152-2 09/18/18 10:56 • (LCSD) R3343152-3 09/18/18 11:14

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	39600	39600	99.1	99.1	80.0-120			0.0141	15

Method Blank (MB)

(MB) R3342309-1 09/16/18 11:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3342309-2 09/16/18 11:37 • (LCSD) R3342309-3 09/16/18 11:40

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	%	%	%			%	%
Mercury	3.00	2.84	2.87	94.7	95.6	80.0-120			0.946	20

L1025698-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1025698-02 09/16/18 11:42 • (MS) R3342309-4 09/16/18 11:49 • (MSD) R3342309-5 09/16/18 11:52

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	%	%		%			%	%
Mercury	3.00	ND	2.92	2.92	97.4	97.3	1	75.0-125			0.0993	20

Method Blank (MB)

(MB) R3342629-1 09/18/18 01:49

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3342629-2 09/18/18 01:52 • (LCSD) R3342629-3 09/18/18 01:54

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 %
Barium	1000	1010	1010	101	101	80.0-120			0.729	20
Boron	1000	1000	968	100	96.8	80.0-120			3.27	20
Calcium	10000	9890	9850	98.9	98.5	80.0-120			0.464	20
Chromium	1000	993	980	99.3	98.0	80.0-120			1.40	20
Cobalt	1000	996	988	99.6	98.8	80.0-120			0.728	20
Lithium	1000	986	986	98.6	98.6	80.0-120			0.0659	20
Molybdenum	1000	1030	1010	103	101	80.0-120			1.38	20

L1025698-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1025698-02 09/18/18 01:57 • (MS) R3342629-5 09/18/18 02:02 • (MSD) R3342629-6 09/18/18 02:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	726	1730	1730	101	101	1	75.0-125			0.0836	20
Boron	1000	ND	1130	1120	101	100	1	75.0-125			0.322	20
Calcium	10000	135000	143000	143000	83.6	83.3	1	75.0-125			0.0176	20
Chromium	1000	ND	986	984	98.6	98.4	1	75.0-125			0.214	20
Cobalt	1000	ND	990	991	99.0	99.1	1	75.0-125			0.0448	20
Lithium	1000	33.6	1040	1050	101	101	1	75.0-125			0.739	20
Molybdenum	1000	ND	1030	1030	103	103	1	75.0-125			0.827	20

Method Blank (MB)

(MB) R3342671-1 09/18/18 00:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	0.644	J	0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3342671-2 09/18/18 00:24 • (LCSD) R3342671-3 09/18/18 00:29

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 %
Antimony	50.0	56.7	54.5	113	109	80.0-120			3.87	20
Arsenic	50.0	48.8	48.8	97.7	97.7	80.0-120			0.0176	20
Beryllium	50.0	47.3	46.6	94.6	93.2	80.0-120			1.55	20
Cadmium	50.0	47.9	48.4	95.7	96.7	80.0-120			1.03	20
Lead	50.0	47.4	47.5	94.8	95.1	80.0-120			0.257	20
Selenium	50.0	44.7	47.2	89.3	94.4	80.0-120			5.58	20
Thallium	50.0	47.6	47.7	95.1	95.5	80.0-120			0.395	20

L1025698-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1025698-02 09/18/18 00:34 • (MS) R3342671-5 09/18/18 00:43 • (MSD) R3342671-6 09/18/18 00:48

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 %
Antimony	50.0	ND	57.4	55.9	115	112	1	75.0-125			2.51	20
Arsenic	50.0	ND	48.1	48.8	92.8	94.2	1	75.0-125			1.43	20
Beryllium	50.0	ND	47.5	47.1	94.9	94.2	1	75.0-125			0.741	20
Cadmium	50.0	ND	48.2	49.2	96.4	98.4	1	75.0-125			2.06	20
Lead	50.0	ND	48.3	48.4	95.0	95.2	1	75.0-125			0.210	20
Selenium	50.0	ND	49.8	48.0	99.6	96.0	1	75.0-125			3.65	20
Thallium	50.0	ND	47.5	48.0	95.0	96.0	1	75.0-125			1.05	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.

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

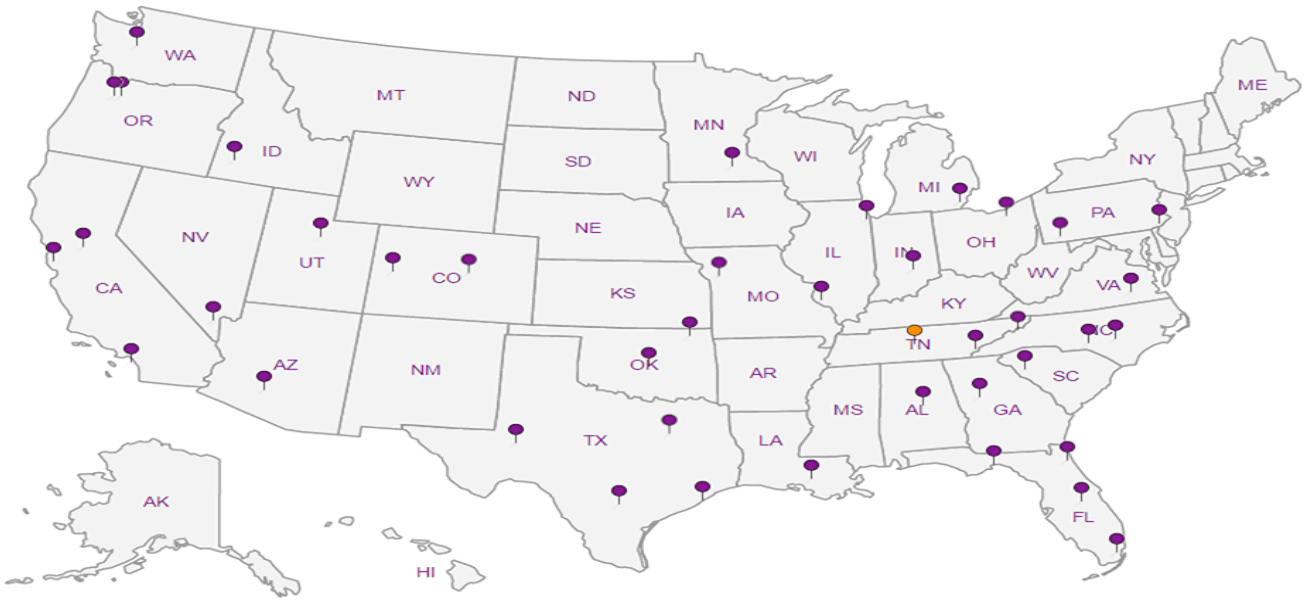
Third Party Federal Accreditations

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: V

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 # 27217413.00

Lab Project # AQUAOPKS-IATAN

Collected by (print): Gabby 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: Standard

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	GRAB	GW		9/10/18	1446	3	X	X	X		-01
MW-102	GRAB	GW		9/10/18	1601	3	X	X	X		02
MW-103	GRAB	GW		9/11/18	1222	3	X	X	X		03
MW-104		GW			1147	3	X	X	X		04
MW-105		GW			1117	3	X	X	X		05
MW-106		GW			0956	3	X	X	X		06
MW-107		GW			1027	3	X	X	X		07
MW-108	GRAB	GW	-	9/10/18	1343	3	X	X	X		08
MW-109	GRAB	GW	-	9/10/18	1302	3	X	X	X		09
MW-110	GRAB	GW	-	9/10/18	1420	3	X	X	X		10

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # Southwest

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	9/11/18	1352	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: 08°C Bottles Received: 42

Date: 9/12/18 Time: 8:32

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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

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# L1025698
H176

Acctnum: AQUAOPKS
Template: T132734
Prelogin: P669245
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Report to: Jason Franks

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

Project Description: KCP&L Iatan Generating Station

City/State Collected: Weston MO

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

Client Project # 27217413.00

Lab Project # AQUAOPKS-IATAN

Collected by (print): Gabby 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: Standard

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# L1025698

Table #

Acctnum: AQUAOPKS

Template: T132734

Prelogin: P669245

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	GRAB	GW		9/10/18	1527	3	X	X	X		-11
DUPLICATE	GRAB	GW		9/10/18	1606	3	X	X	X		12
MS	GRAB	GW		9/10/18	1611	3	X	X	X		02
MSD	GRAB	GW		9/10/18	1611	3	X	X	X		02

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # Southwest

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)
	9/11/18	1352	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: 0.89 °C Bottles Received: 42

Date: 9/12/18 Time: 8:52

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Jeremy W. Watkins

Login #: L1025698	Client: AQUAOPKS	Date: 9/12/18	Evaluated by: JEremy

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: What MS/MSD?

Client informed by:		Call		Email	X	Voice Mail		Date: 9/13/18	Time: 1603
TSR Initials: JC	Client Contact: J. Franks								

Login Instructions: MW-102

Jared Morrison
December 16, 2022

ATTACHMENT 1-6

October 2018 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 19, 2018

SCS Engineers - KS

Sample Delivery Group:	L1041031
Samples Received:	11/01/2018
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

MW-101 L1041031-01 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 11:10 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/12/18 10:26	MK
Radiochemistry by Method Calculation	WG1193404	1	11/12/18 13:21	11/15/18 12:01	RGT
Radiochemistry by Method SM7500Ra B M	WG1193404	1	11/12/18 13:21	11/15/18 12:01	RGT

MW-102 L1041031-02 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 11:50 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/12/18 10:26	MK
Radiochemistry by Method Calculation	WG1193404	1	11/12/18 13:21	11/15/18 12:01	RGT
Radiochemistry by Method SM7500Ra B M	WG1193404	1	11/12/18 13:21	11/15/18 12:01	RGT

MW-103 L1041031-03 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 12:30 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/12/18 10:26	MK
Radiochemistry by Method Calculation	WG1193404	1	11/12/18 13:21	11/15/18 12:01	RGT
Radiochemistry by Method SM7500Ra B M	WG1193404	1	11/12/18 13:21	11/15/18 12:01	RGT

MW-104 L1041031-04 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 13:15 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/12/18 10:26	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT

MW-105 L1041031-05 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 08:55 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/14/18 09:29	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT

MW-106 L1041031-06 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/29/18 12:20 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/14/18 09:29	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT

MW-107 L1041031-07 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/29/18 13:15 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/14/18 09:29	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 15:23	RGT

MW-108 L1041031-08 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/29/18 14:25 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/12/18 10:26	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT

MW-109 L1041031-09 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/29/18 15:35 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/12/18 10:26	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT

MW-110 L1041031-10 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 09:45 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/14/18 09:26	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT

MW-111 L1041031-11 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/30/18 10:25 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/14/18 09:26	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT

DUPLICATE L1041031-12 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 10/29/18 14:30 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1192049	1	11/06/18 13:35	11/14/18 09:26	MK
Radiochemistry by Method Calculation	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT
Radiochemistry by Method SM7500Ra B M	WG1196319	1	11/15/18 09:44	11/16/18 16:10	RGT

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
Project Manager

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.06		0.401	0.567	11/12/2018 10:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.78		0.738	0.82	11/15/2018 12:01	WG1193404

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.722		0.337	0.253	11/15/2018 12:01	WG1193404
(T) Barium-133	*100*			*30.0-110*	*11/15/2018 12:01*	WG1193404

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	3.12		0.740	1.12	11/12/2018 10:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	3.69		1.01	1.27	11/15/2018 12:01	WG1193404

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.578		0.271	0.15	11/15/2018 12:01	WG1193404
(T) Barium-133	*100*			*30.0-110*	*11/15/2018 12:01*	WG1193404

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.54		0.739	1.34	11/12/2018 10:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.97		0.977	1.52	11/15/2018 12:01	WG1193404

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.426		0.238	0.184	11/15/2018 12:01	WG1193404
(T) Barium-133	*96.7*			*30.0-110*	*11/15/2018 12:01*	WG1193404

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.53		0.369	0.599	11/12/2018 10:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.67		0.547	0.852	11/16/2018 15:23	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.139		0.178	0.253	11/16/2018 15:23	WG1196319
(T) Barium-133	*100*			*30.0-110*	*11/16/2018 15:23*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.66		0.415	0.546	11/14/2018 09:29	WG1192049
(T) Barium	*100*			*30.0-110*	*11/14/2018 09:29*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/14/2018 09:29*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.98		0.618	0.696	11/16/2018 15:23	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.318		0.203	0.15	11/16/2018 15:23	WG1196319
(T) Barium-133	*100*			*30.0-110*	*11/16/2018 15:23*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.32		0.410	0.631	11/14/2018 09:29	WG1192049
(T) Barium	*100*			*30.0-110*	*11/14/2018 09:29*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/14/2018 09:29*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.61		0.606	0.809	11/16/2018 15:23	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.289		0.196	0.178	11/16/2018 15:23	WG1196319
(T) Barium-133	*100*			*30.0-110*	*11/16/2018 15:23*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.672		0.493	0.686	11/14/2018 09:29	WG1192049
(T) Barium	*100*			*30.0-110*	*11/14/2018 09:29*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/14/2018 09:29*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.02		0.755	0.979	11/16/2018 15:23	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.344		0.262	0.293	11/16/2018 15:23	WG1196319
(T) Barium-133	*95.5*			*30.0-110*	*11/16/2018 15:23*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.303		0.416	0.59	11/12/2018 10:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.447		0.550	0.728	11/16/2018 16:10	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.144		0.134	0.138	11/16/2018 16:10	WG1196319
(T) Barium-133	*94.8*			*30.0-110*	*11/16/2018 16:10*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.13		0.418	0.661	11/12/2018 10:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/12/2018 10:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.34		0.682	1.03	11/16/2018 16:10	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.214		0.264	0.365	11/16/2018 16:10	WG1196319
(T) Barium-133	*96.9*			*30.0-110*	*11/16/2018 16:10*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.578		0.430	0.622	11/14/2018 09:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/14/2018 09:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/14/2018 09:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.810		0.644	0.877	11/16/2018 16:10	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.232		0.214	0.255	11/16/2018 16:10	WG1196319
(T) Barium-133	*89.5*			*30.0-110*	*11/16/2018 16:10*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.07		0.438	0.602	11/14/2018 09:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/14/2018 09:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/14/2018 09:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.29		0.616	0.778	11/16/2018 16:10	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.220		0.178	0.176	11/16/2018 16:10	WG1196319
(T) Barium-133	*95.2*			*30.0-110*	*11/16/2018 16:10*	WG1196319

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.38		0.383	0.605	11/14/2018 09:26	WG1192049
(T) Barium	*100*			*30.0-110*	*11/14/2018 09:26*	WG1192049
(T) Yttrium	*100*			*30.0-110*	*11/14/2018 09:26*	WG1192049

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.83		0.625	0.756	11/16/2018 16:10	WG1196319

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.452		0.242	0.151	11/16/2018 16:10	WG1196319
(T) Barium-133	*96.6*			*30.0-110*	*11/16/2018 16:10*	WG1196319

Method Blank (MB)

(MB) R3359290-1 11/12/18 10:26

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-228	-0.211		0.369
(T) Barium	*100*		
(T) Yttrium	*100*		

L1041031-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1041031-09 11/12/18 10:26 • (DUP) R3359290-5 11/12/18 10:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	pCi/l
Radium-228	1.13	2.52	1	76.1	1.27		20	3
(T) Barium	*100*	*100*						
(T) Yttrium	*100*	*100*						

Laboratory Control Sample (LCS)

(LCS) R3359290-2 11/12/18 10:26

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.19	104	80.0-120	
(T) Barium			*100*		
(T) Yttrium			*100*		

L1041031-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1041031-08 11/12/18 10:26 • (MS) R3359290-3 11/12/18 10:26 • (MSD) R3359290-4 11/12/18 10:26

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	20.0	0.303	24.1	21.3	119	105	1	70.0-130			12.6		20
(T) Barium		*100*			*100*	*100*							
(T) Yttrium		*100*			*100*	*100*							

Method Blank (MB)

(MB) R3360608-1 11/14/18 13:10

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-226	-0.00170		0.0393
(T) Barium-133	*98.7*		

L1039843-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1039843-12 11/14/18 13:10 • (DUP) R3360608-5 11/14/18 13:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	pCi/l
Radium-226	0.545	0.0954	1	140	1.63		20	3
(T) Barium-133	*98.2*	*95.2*						

Laboratory Control Sample (LCS)

(LCS) R3360608-2 11/14/18 13:10

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.02	4.85	96.7	80.0-120	
(T) Barium-133			*96.1*		

L1039843-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1039843-06 11/14/18 13:10 • (MS) R3360608-3 11/14/18 13:10 • (MSD) R3360608-4 11/14/18 13:10

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.1	0.251	21.1	22.0	103	108	1	75.0-125			4.37		20
(T) Barium-133		*88.2*			*89.7*	*89.1*							

Method Blank (MB)

(MB) R3360813-1 11/16/18 11:23

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.00678		0.0391
(T) Barium-133	*99.2*		

L1041031-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1041031-06 11/16/18 15:23 • (DUP) R3360813-5 11/16/18 11:23

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.289	0.358	1	21.4	0.236		20	3
(T) Barium-133	*100*	*97.9*						

Laboratory Control Sample (LCS)

(LCS) R3360813-2 11/16/18 11:23

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	5.08	101	80.0-120	
(T) Barium-133			*90.3*		

L1041031-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1041031-08 11/16/18 16:10 • (MS) R3360813-3 11/16/18 11:23 • (MSD) R3360813-4 11/16/18 11:23

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.144	22.0	21.8	109	108	1	75.0-125			0.731		20
(T) Barium-133		*94.8*			*96.1*	*94.6*							

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

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

Qualifier	Description

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	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

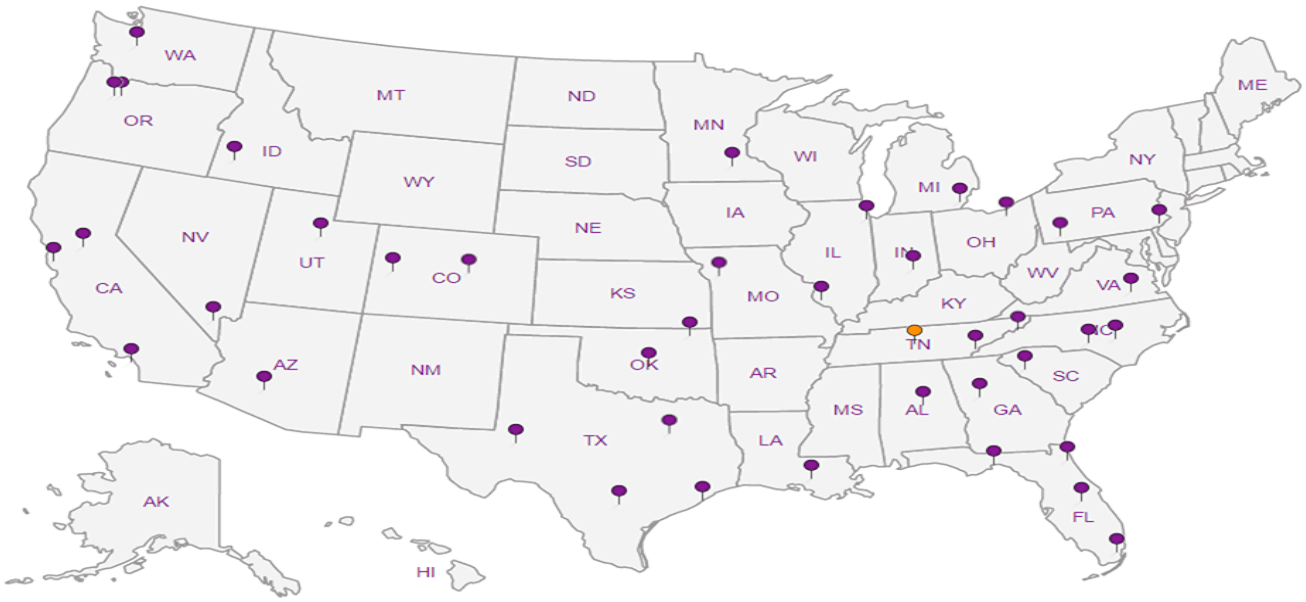
Third Party Federal Accreditations

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 # **27217413.00**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): **G. Panaflor**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: STD

Analysis / Container / Preservative

RA226, RA228 1L-HDPE-Add HNO3

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	
MW-101	Comp	NPW		10/30	1110	2	X
MW-102	Comp	NPW		10/30	1150	2	X
MW-103	Comp	NPW		10/30	1230	2	X
MW-104		NPW		10/30	1315	2	X
MW-105		NPW		10/30	0855	2	X
MW-106		NPW		10/29	1220	2	X
MW-107		NPW		10/29	1315	2	X
MW-108		NPW		10/29	1425	2	X
MW-109		NPW		10/29	1535	2	X
MW-110		NPW		10/30	0945	2	X

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

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

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier X SWA

Tracking # SW N/A

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# 84091

E061

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P677989**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEx Ground**

Remarks	Sample # (lab only)
	61
	62
	63
	64
	65
	66
	67
	68
	69
	70

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)
	10/31/18	1342	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			KCumeO

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received:
16.3+02=16.5² 28

Date: 11/1/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

SCS Engineers - KS
8575 W. 110th Street
Overland Park, KS 66210

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

Pres Chr

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 # **27217413.00**

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-111	Comp	NPW		10/30	1025	2	X		11
DUPLICATE		NPW		10/29	1430	2	X		12
MS		NPW		10/29	1435	2	X		13
MSD		NPW		10/29	1435	2	X		14

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# 164051

Table #

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P677989**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

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

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier X SWA

Tracking # N/A

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)
	10/31/18	1542	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			KCumera

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 15.3+0.2=15.5 °C Bottles Received: 28

Date: 11/1/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Matt Shacklock

Pace Analytical®
National Center for Testing & Innovation

Login #:1041031	Client:AQUAOPKS	Date:11/1	Evaluated by:Matt 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: what sample does MS/MSD go with

Client informed by:		Call		Email	X	Voice Mail		Date: 11/2/18	Time: 0738
TSR Initials: JC	Client Contact: J. Franks								

Login Instructions: MW-108

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 08, 2018

SCS Engineers - KS

Sample Delivery Group:	L1041039
Samples Received:	11/01/2018
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

TABLE OF CONTENTS

MW-101 L1041039-01 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	10/30/18 11:10	11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 05:43	11/07/18 05:43	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 19:48	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:31	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 15:49	JPD

MW-102 L1041039-02 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	10/30/18 11:50	11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 05:59	11/07/18 05:59	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 19:50	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:34	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 15:53	JPD

MW-103 L1041039-03 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	10/30/18 12:30	11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 06:16	11/07/18 06:16	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 19:53	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:37	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 15:58	JPD

MW-104 L1041039-04 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	10/30/18 13:15	11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 06:32	11/07/18 06:32	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 10:38	11/07/18 10:38	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 19:55	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:39	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 16:02	JPD

MW-105 L1041039-05 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	10/30/18 08:55	11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 06:49	11/07/18 06:49	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 10:55	11/07/18 10:55	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 19:58	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:42	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 16:45	JPD

MW-106 L1041039-06 GW

Collected by: G. Penaflor | Collected date/time: 10/29/18 12:20 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191310	1	11/05/18 17:32	11/05/18 17:58	AJS
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 07:05	11/07/18 07:05	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 11:11	11/07/18 11:11	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 20:05	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:44	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 16:49	JPD

MW-107 L1041039-07 GW

Collected by: G. Penaflor | Collected date/time: 10/29/18 13:15 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191310	1	11/05/18 17:32	11/05/18 17:58	AJS
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 07:21	11/07/18 07:21	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 11:28	11/07/18 11:28	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 20:07	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:47	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 16:53	JPD

MW-108 L1041039-08 GW

Collected by: G. Penaflor | Collected date/time: 10/29/18 14:25 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191310	1	11/05/18 17:32	11/05/18 17:58	AJS
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 07:38	11/07/18 07:38	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 12:17	11/07/18 12:17	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 19:16	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:00	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 14:53	JPD

MW-109 L1041039-09 GW

Collected by: G. Penaflor | Collected date/time: 10/29/18 15:35 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191310	1	11/05/18 17:32	11/05/18 17:58	AJS
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 09:16	11/07/18 09:16	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 12:50	11/07/18 12:50	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 20:10	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:55	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 16:58	JPD

MW-110 L1041039-10 GW

Collected by: G. Penaflor | Collected date/time: 10/30/18 09:45 | Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 09:33	11/07/18 09:33	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 09:49	11/07/18 09:49	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 20:12	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 14:57	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 17:02	JPD

MW-111 L1041039-11 GW

Collected by: G. Penaflor
Collected date/time: 10/30/18 10:25
Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191314	1	11/06/18 13:06	11/06/18 13:57	MMF
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 10:06	11/07/18 10:06	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 20:15	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 15:00	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 17:06	JPD

DUPLICATE L1041039-12 GW

Collected by: G. Penaflor
Collected date/time: 10/29/18 14:30
Received date/time: 11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1191310	1	11/05/18 17:32	11/05/18 17:58	AJS
Wet Chemistry by Method 9056A	WG1191671	1	11/07/18 10:22	11/07/18 10:22	ELN
Wet Chemistry by Method 9056A	WG1191671	5	11/07/18 13:06	11/07/18 13:06	ELN
Mercury by Method 7470A	WG1191170	1	11/05/18 11:53	11/05/18 20:17	TCT
Metals (ICP) by Method 6010B	WG1191225	1	11/05/18 10:19	11/06/18 15:03	ST
Metals (ICPMS) by Method 6020	WG1191223	1	11/05/18 10:18	11/06/18 17:11	JPD

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	526000		10000	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5900		1000	1	11/07/2018 05:43	WG1191671
Fluoride	318		100	1	11/07/2018 05:43	WG1191671
Sulfate	ND		5000	1	11/07/2018 05:43	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 19:48	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	678		5.00	1	11/06/2018 14:31	WG1191225
Boron	ND		200	1	11/06/2018 14:31	WG1191225
Calcium	135000		1000	1	11/06/2018 14:31	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:31	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:31	WG1191225
Lithium	28.7		15.0	1	11/06/2018 14:31	WG1191225
Molybdenum	ND		5.00	1	11/06/2018 14:31	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 15:49	WG1191223
Arsenic	ND		2.00	1	11/06/2018 15:49	WG1191223
Beryllium	ND		2.00	1	11/06/2018 15:49	WG1191223
Cadmium	ND		1.00	1	11/06/2018 15:49	WG1191223
Lead	ND		2.00	1	11/06/2018 15:49	WG1191223
Selenium	ND		2.00	1	11/06/2018 15:49	WG1191223
Thallium	ND		2.00	1	11/06/2018 15:49	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	516000		10000	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4950		1000	1	11/07/2018 05:59	WG1191671
Fluoride	244		100	1	11/07/2018 05:59	WG1191671
Sulfate	ND		5000	1	11/07/2018 05:59	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 19:50	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	681		5.00	1	11/06/2018 14:34	WG1191225
Boron	ND		200	1	11/06/2018 14:34	WG1191225
Calcium	139000		1000	1	11/06/2018 14:34	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:34	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:34	WG1191225
Lithium	29.0		15.0	1	11/06/2018 14:34	WG1191225
Molybdenum	ND		5.00	1	11/06/2018 14:34	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 15:53	WG1191223
Arsenic	15.0		2.00	1	11/06/2018 15:53	WG1191223
Beryllium	ND		2.00	1	11/06/2018 15:53	WG1191223
Cadmium	ND		1.00	1	11/06/2018 15:53	WG1191223
Lead	ND		2.00	1	11/06/2018 15:53	WG1191223
Selenium	ND		2.00	1	11/06/2018 15:53	WG1191223
Thallium	ND		2.00	1	11/06/2018 15:53	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	477000		10000	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4420		1000	1	11/07/2018 06:16	WG1191671
Fluoride	219		100	1	11/07/2018 06:16	WG1191671
Sulfate	ND		5000	1	11/07/2018 06:16	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 19:53	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	668		5.00	1	11/06/2018 14:37	WG1191225
Boron	ND		200	1	11/06/2018 14:37	WG1191225
Calcium	137000		1000	1	11/06/2018 14:37	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:37	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:37	WG1191225
Lithium	44.8		15.0	1	11/06/2018 14:37	WG1191225
Molybdenum	ND		5.00	1	11/06/2018 14:37	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 15:58	WG1191223
Arsenic	ND		2.00	1	11/06/2018 15:58	WG1191223
Beryllium	ND		2.00	1	11/06/2018 15:58	WG1191223
Cadmium	ND		1.00	1	11/06/2018 15:58	WG1191223
Lead	ND		2.00	1	11/06/2018 15:58	WG1191223
Selenium	ND		2.00	1	11/06/2018 15:58	WG1191223
Thallium	ND		2.00	1	11/06/2018 15:58	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	417000		14300	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20500		1000	1	11/07/2018 06:32	WG1191671
Fluoride	598		100	1	11/07/2018 06:32	WG1191671
Sulfate	109000		25000	5	11/07/2018 10:38	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 19:55	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	163		5.00	1	11/06/2018 14:39	WG1191225
Boron	1260		200	1	11/06/2018 14:39	WG1191225
Calcium	47800		1000	1	11/06/2018 14:39	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:39	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:39	WG1191225
Lithium	ND		15.0	1	11/06/2018 14:39	WG1191225
Molybdenum	24.9		5.00	1	11/06/2018 14:39	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 16:02	WG1191223
Arsenic	ND		2.00	1	11/06/2018 16:02	WG1191223
Beryllium	ND		2.00	1	11/06/2018 16:02	WG1191223
Cadmium	ND		1.00	1	11/06/2018 16:02	WG1191223
Lead	ND		2.00	1	11/06/2018 16:02	WG1191223
Selenium	ND		2.00	1	11/06/2018 16:02	WG1191223
Thallium	ND		2.00	1	11/06/2018 16:02	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	668000		10000	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	17900		1000	1	11/07/2018 06:49	WG1191671
Fluoride	744		100	1	11/07/2018 06:49	WG1191671
Sulfate	250000		25000	5	11/07/2018 10:55	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 19:58	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	358		5.00	1	11/06/2018 14:42	WG1191225
Boron	1680		200	1	11/06/2018 14:42	WG1191225
Calcium	94700		1000	1	11/06/2018 14:42	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:42	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:42	WG1191225
Lithium	23.2		15.0	1	11/06/2018 14:42	WG1191225
Molybdenum	34.0		5.00	1	11/06/2018 14:42	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 16:45	WG1191223
Arsenic	ND		2.00	1	11/06/2018 16:45	WG1191223
Beryllium	ND		2.00	1	11/06/2018 16:45	WG1191223
Cadmium	ND		1.00	1	11/06/2018 16:45	WG1191223
Lead	ND		2.00	1	11/06/2018 16:45	WG1191223
Selenium	ND		2.00	1	11/06/2018 16:45	WG1191223
Thallium	ND		2.00	1	11/06/2018 16:45	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	677000		13300	1	11/05/2018 17:58	WG1191310

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18900		1000	1	11/07/2018 07:05	WG1191671
Fluoride	349		100	1	11/07/2018 07:05	WG1191671
Sulfate	230000		25000	5	11/07/2018 11:11	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 20:05	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	255		5.00	1	11/06/2018 14:44	WG1191225
Boron	870		200	1	11/06/2018 14:44	WG1191225
Calcium	121000		1000	1	11/06/2018 14:44	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:44	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:44	WG1191225
Lithium	35.0		15.0	1	11/06/2018 14:44	WG1191225
Molybdenum	ND		5.00	1	11/06/2018 14:44	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 16:49	WG1191223
Arsenic	ND		2.00	1	11/06/2018 16:49	WG1191223
Beryllium	ND		2.00	1	11/06/2018 16:49	WG1191223
Cadmium	ND		1.00	1	11/06/2018 16:49	WG1191223
Lead	ND		2.00	1	11/06/2018 16:49	WG1191223
Selenium	ND		2.00	1	11/06/2018 16:49	WG1191223
Thallium	ND		2.00	1	11/06/2018 16:49	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	647000		13300	1	11/05/2018 17:58	WG1191310

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20200		1000	1	11/07/2018 07:21	WG1191671
Fluoride	667		100	1	11/07/2018 07:21	WG1191671
Sulfate	239000		25000	5	11/07/2018 11:28	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 20:07	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	103		5.00	1	11/06/2018 14:47	WG1191225
Boron	2110		200	1	11/06/2018 14:47	WG1191225
Calcium	52300		1000	1	11/06/2018 14:47	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:47	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:47	WG1191225
Lithium	ND		15.0	1	11/06/2018 14:47	WG1191225
Molybdenum	91.5		5.00	1	11/06/2018 14:47	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 16:53	WG1191223
Arsenic	ND		2.00	1	11/06/2018 16:53	WG1191223
Beryllium	ND		2.00	1	11/06/2018 16:53	WG1191223
Cadmium	ND		1.00	1	11/06/2018 16:53	WG1191223
Lead	ND		2.00	1	11/06/2018 16:53	WG1191223
Selenium	ND		2.00	1	11/06/2018 16:53	WG1191223
Thallium	ND		2.00	1	11/06/2018 16:53	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	906000		20000	1	11/05/2018 17:58	WG1191310

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18900		1000	1	11/07/2018 07:38	WG1191671
Fluoride	530		100	1	11/07/2018 07:38	WG1191671
Sulfate	374000		25000	5	11/07/2018 12:17	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 19:16	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	235		5.00	1	11/06/2018 14:00	WG1191225
Boron	1390		200	1	11/06/2018 14:00	WG1191225
Calcium	157000	O1	1000	1	11/06/2018 14:00	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:00	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:00	WG1191225
Lithium	31.0		15.0	1	11/06/2018 14:00	WG1191225
Molybdenum	11.0		5.00	1	11/06/2018 14:00	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 14:53	WG1191223
Arsenic	2.88		2.00	1	11/06/2018 14:53	WG1191223
Beryllium	ND		2.00	1	11/06/2018 14:53	WG1191223
Cadmium	ND		1.00	1	11/06/2018 14:53	WG1191223
Lead	ND		2.00	1	11/06/2018 14:53	WG1191223
Selenium	ND		2.00	1	11/06/2018 14:53	WG1191223
Thallium	ND		2.00	1	11/06/2018 14:53	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	708000		13300	1	11/05/2018 17:58	WG1191310

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	27100		1000	1	11/07/2018 09:16	WG1191671
Fluoride	557		100	1	11/07/2018 09:16	WG1191671
Sulfate	186000		25000	5	11/07/2018 12:50	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 20:10	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	315		5.00	1	11/06/2018 14:55	WG1191225
Boron	566		200	1	11/06/2018 14:55	WG1191225
Calcium	130000		1000	1	11/06/2018 14:55	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:55	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:55	WG1191225
Lithium	23.5		15.0	1	11/06/2018 14:55	WG1191225
Molybdenum	11.9		5.00	1	11/06/2018 14:55	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 16:58	WG1191223
Arsenic	4.87		2.00	1	11/06/2018 16:58	WG1191223
Beryllium	ND		2.00	1	11/06/2018 16:58	WG1191223
Cadmium	ND		1.00	1	11/06/2018 16:58	WG1191223
Lead	ND		2.00	1	11/06/2018 16:58	WG1191223
Selenium	ND		2.00	1	11/06/2018 16:58	WG1191223
Thallium	ND		2.00	1	11/06/2018 16:58	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	752000		13300	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20100		1000	1	11/07/2018 09:33	WG1191671
Fluoride	470		100	1	11/07/2018 09:33	WG1191671
Sulfate	346000		25000	5	11/07/2018 09:49	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 20:12	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	130		5.00	1	11/06/2018 14:57	WG1191225
Boron	2310		200	1	11/06/2018 14:57	WG1191225
Calcium	58600		1000	1	11/06/2018 14:57	WG1191225
Chromium	ND		10.0	1	11/06/2018 14:57	WG1191225
Cobalt	ND		10.0	1	11/06/2018 14:57	WG1191225
Lithium	ND		15.0	1	11/06/2018 14:57	WG1191225
Molybdenum	82.9		5.00	1	11/06/2018 14:57	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 17:02	WG1191223
Arsenic	4.64		2.00	1	11/06/2018 17:02	WG1191223
Beryllium	ND		2.00	1	11/06/2018 17:02	WG1191223
Cadmium	ND		1.00	1	11/06/2018 17:02	WG1191223
Lead	ND		2.00	1	11/06/2018 17:02	WG1191223
Selenium	ND		2.00	1	11/06/2018 17:02	WG1191223
Thallium	ND		2.00	1	11/06/2018 17:02	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	586000		10000	1	11/06/2018 13:57	WG1191314

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	9290		1000	1	11/07/2018 10:06	WG1191671
Fluoride	525		100	1	11/07/2018 10:06	WG1191671
Sulfate	62800		5000	1	11/07/2018 10:06	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 20:15	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	391		5.00	1	11/06/2018 15:00	WG1191225
Boron	863		200	1	11/06/2018 15:00	WG1191225
Calcium	98700		1000	1	11/06/2018 15:00	WG1191225
Chromium	ND		10.0	1	11/06/2018 15:00	WG1191225
Cobalt	ND		10.0	1	11/06/2018 15:00	WG1191225
Lithium	24.9		15.0	1	11/06/2018 15:00	WG1191225
Molybdenum	12.4		5.00	1	11/06/2018 15:00	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 17:06	WG1191223
Arsenic	ND		2.00	1	11/06/2018 17:06	WG1191223
Beryllium	ND		2.00	1	11/06/2018 17:06	WG1191223
Cadmium	ND		1.00	1	11/06/2018 17:06	WG1191223
Lead	ND		2.00	1	11/06/2018 17:06	WG1191223
Selenium	ND		2.00	1	11/06/2018 17:06	WG1191223
Thallium	ND		2.00	1	11/06/2018 17:06	WG1191223

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	936000		20000	1	11/05/2018 17:58	WG1191310

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18900		1000	1	11/07/2018 10:22	WG1191671
Fluoride	497		100	1	11/07/2018 10:22	WG1191671
Sulfate	373000		25000	5	11/07/2018 13:06	WG1191671

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	11/05/2018 20:17	WG1191170

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	237		5.00	1	11/06/2018 15:03	WG1191225
Boron	1370		200	1	11/06/2018 15:03	WG1191225
Calcium	159000		1000	1	11/06/2018 15:03	WG1191225
Chromium	ND		10.0	1	11/06/2018 15:03	WG1191225
Cobalt	ND		10.0	1	11/06/2018 15:03	WG1191225
Lithium	31.2		15.0	1	11/06/2018 15:03	WG1191225
Molybdenum	10.5		5.00	1	11/06/2018 15:03	WG1191225

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	11/06/2018 17:11	WG1191223
Arsenic	2.81		2.00	1	11/06/2018 17:11	WG1191223
Beryllium	ND		2.00	1	11/06/2018 17:11	WG1191223
Cadmium	ND		1.00	1	11/06/2018 17:11	WG1191223
Lead	ND		2.00	1	11/06/2018 17:11	WG1191223
Selenium	ND		2.00	1	11/06/2018 17:11	WG1191223
Thallium	ND		2.00	1	11/06/2018 17:11	WG1191223

Method Blank (MB)

(MB) R3357785-1 11/05/18 17:58

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

L1039599-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1039599-01 11/05/18 17:58 • (DUP) R3357785-3 11/05/18 17:58

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	327000	324000	1	0.922		5

Laboratory Control Sample (LCS)

(LCS) R3357785-2 11/05/18 17:58

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	9390000	107	85.0-115	

Method Blank (MB)

(MB) R3358244-1 11/06/18 13:57

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) R3358244-2 11/06/18 13:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8650000	98.3	85.0-115	

Method Blank (MB)

(MB) R3357789-1 11/06/18 23:06

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

L1040874-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1040874-02 11/07/18 04:04 • (DUP) R3357789-5 11/07/18 04:21

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	569	1	5.72	J	15
Fluoride	ND	0.000	1	0.000		15
Sulfate	ND	2970	1	18.7	J P1	15

L1041039-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1041039-08 11/07/18 07:38 • (DUP) R3357789-6 11/07/18 07:54

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	18900	18800	1	0.0557		15
Fluoride	530	532	1	0.339		15

L1041039-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1041039-08 11/07/18 12:17 • (DUP) R3357789-9 11/07/18 12:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	374000	376000	5	0.508		15

Laboratory Control Sample (LCS)

(LCS) R3357789-2 11/06/18 23:22

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39400	98.4	80.0-120	
Fluoride	8000	8080	101	80.0-120	
Sulfate	40000	39600	98.9	80.0-120	

L1040827-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040827-01 11/07/18 00:15 • (MS) R3357789-3 11/07/18 00:31 • (MSD) R3357789-4 11/07/18 00:47

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	1710000	1680000	1670000	0.000	0.000	1	80.0-120	E V	E V	0.136	15
Fluoride	5000	614	5350	5140	94.7	90.5	1	80.0-120			3.95	15
Sulfate	50000	637000	657000	655000	39.1	35.5	1	80.0-120	E V	E V	0.270	15

L1041039-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1041039-08 11/07/18 07:38 • (MS) R3357789-7 11/07/18 08:11 • (MSD) R3357789-8 11/07/18 09:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	18900	65400	67700	93.2	97.7	1	80.0-120			3.39	15
Fluoride	5000	530	5290	5510	95.2	99.7	1	80.0-120			4.18	15
Sulfate	50000	376000	407000	408000	61.5	64.0	1	80.0-120	E V	E V	0.313	15

Method Blank (MB)

(MB) R3357119-1 11/05/18 19:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3357119-2 11/05/18 19:11 • (LCSD) R3357119-3 11/05/18 19:14

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	%	%	%			%	%
Mercury	3.00	2.98	3.01	99.2	100	80.0-120			1.07	20

L1041039-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1041039-08 11/05/18 19:16 • (MS) R3357119-4 11/05/18 19:19 • (MSD) R3357119-5 11/05/18 19:21

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	%	%		%			%	%
Mercury	3.00	ND	3.21	3.10	107	103	1	75.0-125			3.49	20

Method Blank (MB)

(MB) R3357502-1 11/06/18 13:52

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3357502-2 11/06/18 13:55 • (LCSD) R3357502-3 11/06/18 13:57

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 %
Barium	1000	1010	1010	101	101	80.0-120			0.799	20
Boron	1000	948	948	94.8	94.8	80.0-120			0.0222	20
Calcium	10000	9420	9470	94.2	94.7	80.0-120			0.520	20
Chromium	1000	1000	1010	100	101	80.0-120			0.729	20
Cobalt	1000	1010	1020	101	102	80.0-120			0.825	20
Lithium	1000	946	951	94.6	95.1	80.0-120			0.609	20
Molybdenum	1000	1020	1030	102	103	80.0-120			1.08	20

L1041039-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1041039-08 11/06/18 14:00 • (MS) R3357502-5 11/06/18 14:05 • (MSD) R3357502-6 11/06/18 14:07

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	235	1220	1230	98.4	99.2	1	75.0-125			0.655	20
Boron	1000	1390	2310	2300	91.8	90.9	1	75.0-125			0.409	20
Calcium	10000	157000	165000	165000	80.9	81.9	1	75.0-125			0.0622	20
Chromium	1000	ND	992	1000	99.2	100	1	75.0-125			0.801	20
Cobalt	1000	ND	1020	1030	102	103	1	75.0-125			0.922	20
Lithium	1000	31.0	971	975	94.0	94.4	1	75.0-125			0.415	20
Molybdenum	1000	11.0	1030	1040	102	103	1	75.0-125			0.946	20

Method Blank (MB)

(MB) R3357470-1 11/06/18 14:40

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	U		0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3357470-2 11/06/18 14:44 • (LCSD) R3357470-3 11/06/18 14:49

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 %
Antimony	50.0	47.3	47.9	94.6	95.9	80.0-120			1.29	20
Arsenic	50.0	50.7	50.0	101	100	80.0-120			1.42	20
Beryllium	50.0	48.5	47.6	97.0	95.1	80.0-120			1.99	20
Cadmium	50.0	51.1	50.9	102	102	80.0-120			0.245	20
Lead	50.0	49.3	49.7	98.6	99.5	80.0-120			0.936	20
Selenium	50.0	52.3	51.7	105	103	80.0-120			1.12	20
Thallium	50.0	50.0	51.0	100	102	80.0-120			1.96	20

L1041039-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1041039-08 11/06/18 14:53 • (MS) R3357470-5 11/06/18 15:02 • (MSD) R3357470-6 11/06/18 15:06

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 %
Antimony	50.0	ND	50.3	50.3	101	101	1	75.0-125			0.0599	20
Arsenic	50.0	2.88	52.2	52.7	98.6	99.6	1	75.0-125			1.01	20
Beryllium	50.0	ND	46.9	48.3	93.9	96.7	1	75.0-125			2.92	20
Cadmium	50.0	ND	51.1	52.4	102	105	1	75.0-125			2.37	20
Lead	50.0	ND	48.6	49.6	97.3	99.1	1	75.0-125			1.89	20
Selenium	50.0	ND	52.7	51.9	105	104	1	75.0-125			1.47	20
Thallium	50.0	ND	49.9	51.4	99.7	103	1	75.0-125			3.02	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).
J	The identification of the analyte is acceptable; the reported value is an estimate.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
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

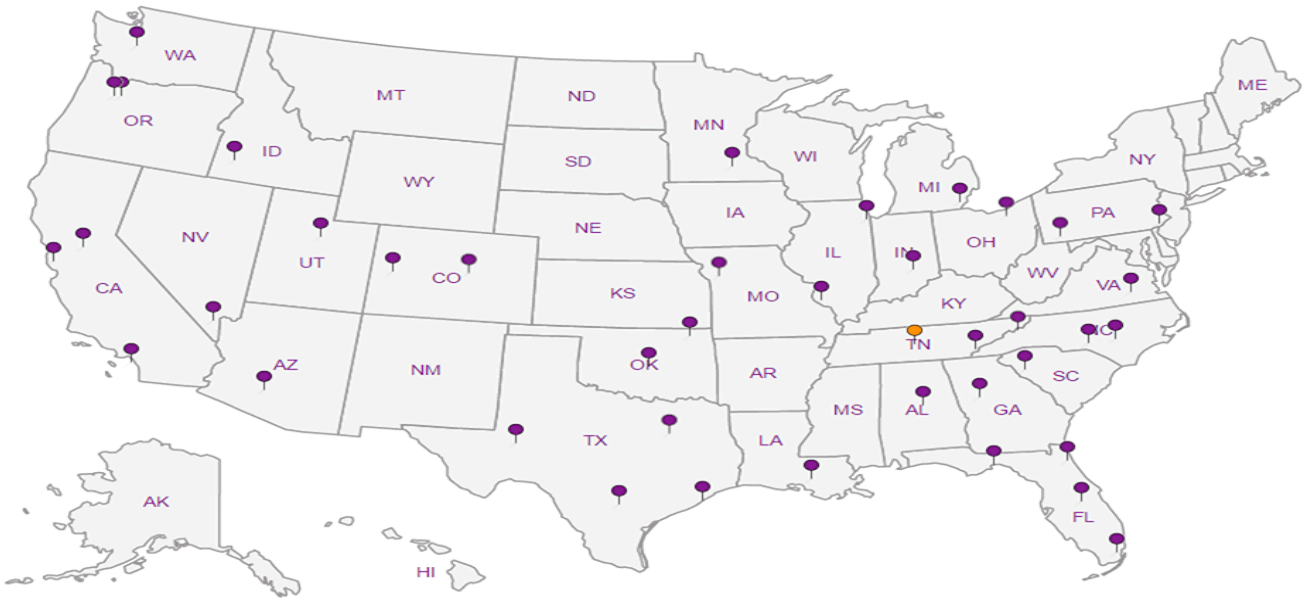
Third Party Federal Accreditations

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 # 27217413.00

Lab Project # AQUAOPKS-IATAN

Collected by (print): G. Pengaflor

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: STD

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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

L# 164 1095
E062

Acctnum: AQUAOPKS
Template: T132734
Prelogin: P677987
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	Comp	GW		10/30	1110	3	X	X	X		01
MW-102		GW		10/30	1150	3	X	X	X		02
MW-103		GW			1230	3	X	X	X		03
MW-104		GW			1315	3	X	X	X		04
MW-105		GW			0855	3	X	X	X		05
MW-106		GW		10/29	1220	3	X	X	X		06
MW-107		GW		10/29	1315	3	X	X	X		07
MW-108		GW		10/29	1425	3	X	X	X		08
MW-109		GW		10/29	1535	3	X	X	X		09
MW-110		GW		10/30	0945	3	X	X	X		10

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier X SWA

Tracking # N/A

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
	10/31/18	1342		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.1 °C Bottles Received: 42
				1.52.7
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/1/18 Time: 0845
				Hold:

If preservation required by Login: Date/Time

Condition: NCF / OK

SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Pres Chk

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 # **27217413.00**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): G. Penafiel

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Site/Facility ID #

P.O. #

Quote #

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

Date Results Needed: STD

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	Comp	GW		10/30	1025	3	X	X	X		11
DUPLICATE		GW		10/29	1430	3	X	X	X		12
MS		GW		10/29	1435	3	X	X	X		0D
MSD		GW		10/29	1435	3	X	X	X		0D

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

Remarks:6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier X SWA

Tracking # N/A

Chain of Custody Page ___ of ___

SCS Aquaterra

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

L# 102699

Table #

Acctnum: **AQUAOPKS**

Template: **T132734**

Prelogin: **P677987**

TSR: **206 - Jeff Carr**

PB:

Shipped Via: **FedEX Ground**

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)
	10/31/18	1342	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: -0.1°C 2.8 2.7 Bottles Received: 42

Date: 11/1/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-7

December 2018 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 23, 2019

SCS Engineers - KS

Sample Delivery Group:	L1055403
Samples Received:	12/21/2018
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

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

TABLE OF CONTENTS

MW-101 L1055403-01 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/20/18 10:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-102 L1055403-02 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/20/18 10:30 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-103 L1055403-03 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/20/18 12:15 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-104 L1055403-04 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/20/18 12:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-105 L1055403-05 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 11:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-106 L1055403-06 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 11:05 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-107 L1055403-07 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/20/18 10:00 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-108 L1055403-08 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 12:35 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-109 L1055403-09 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 13:35 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-110 L1055403-10 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 14:10 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

MW-111 L1055403-11 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 14:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

DUPLICATE L1055403-12 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 12/19/18 12:40 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215811	1	12/27/18 16:26	01/22/19 10:40	MK
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/22/19 10:40	MK
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

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
Project Manager

Project Narrative

The MS/MSD for sample MW-108 was missed due to a login error.

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.517		0.417	0.523	01/22/2019 10:40	WG1215811
(T) Barium	*96.9*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.16		0.727	0.761	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.645		0.310	0.238	01/15/2019 17:30	WG1223084
(T) Barium-133	*100*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.282		0.389	0.567	01/22/2019 10:40	WG1215811
(T) Barium	*90.5*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.82		0.932	0.863	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	1.53		0.543	0.296	01/15/2019 17:30	WG1223084
(T) Barium-133	*78.8*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.23		0.375	0.595	01/22/2019 10:40	WG1215811
(T) Barium	*94.4*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.67		0.678	0.89	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.447		0.303	0.295	01/15/2019 17:30	WG1223084
(T) Barium-133	*75.3*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.00		0.398	0.866	01/22/2019 10:40	WG1215811
(T) Barium	*80.9*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.72		0.806	1.17	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.717		0.408	0.3	01/15/2019 17:30	WG1223084
(T) Barium-133	*61.0*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.18		0.337	0.625	01/22/2019 10:40	WG1215811
(T) Barium	*86.6*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.68		0.677	0.956	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.501		0.340	0.331	01/15/2019 17:30	WG1223084
(T) Barium-133	*62.7*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.000		0.411	0.645	01/22/2019 10:40	WG1215811
(T) Barium	*88.6*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*98.4*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.551		0.775	0.981	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.551		0.364	0.336	01/15/2019 17:30	WG1223084
(T) Barium-133	*65.2*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.775		0.387	0.65	01/22/2019 10:40	WG1215811
(T) Barium	*84.9*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.64		0.868	1.02	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.861		0.481	0.372	01/15/2019 17:30	WG1223084
(T) Barium-133	*44.4*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.438		0.409	0.765	01/22/2019 10:40	WG1215811
(T) Barium	*81.4*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.488		0.764	1.36	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0503		0.355	0.594	01/15/2019 17:30	WG1223084
(T) Barium-133	*52.7*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.302		0.390	0.648	01/22/2019 10:40	WG1215811
(T) Barium	*83.2*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.480		0.763	1.02	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.480		0.373	0.376	01/15/2019 17:30	WG1223084
(T) Barium-133	*52.9*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.999		0.459	0.81	01/22/2019 10:40	WG1215811
(T) Barium	*89.4*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.772		0.939	1.35	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.772		0.480	0.537	01/15/2019 17:30	WG1223084
(T) Barium-133	*55.4*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.463		0.402	0.581	01/22/2019 10:40	WG1215811
(T) Barium	*98.9*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.13		0.807	0.918	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.664		0.405	0.337	01/15/2019 17:30	WG1223084
(T) Barium-133	*54.4*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.845		0.377	0.653	01/22/2019 10:40	WG1215811
(T) Barium	*89.0*			*30.0-110*	*01/22/2019 10:40*	WG1215811
(T) Yttrium	*100*			*30.0-110*	*01/22/2019 10:40*	WG1215811

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.32		0.690	0.915	01/22/2019 10:40	WG1223084

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.476		0.313	0.262	01/15/2019 17:30	WG1223084
(T) Barium-133	*64.0*			*30.0-110*	*01/15/2019 17:30*	WG1223084

Method Blank (MB)

(MB) R3377775-1 01/15/19 13:23

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-228	0.148		0.362
(T) Barium	*100*		
(T) Yttrium	*97.7*		

L1055791-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1055791-02 01/15/19 13:23 • (DUP) R3377775-5 01/15/19 13:23

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-228	0.726	0.644	1	12.0	0.0639		20	3
(T) Barium	*100*	*100*						
(T) Yttrium	*100*	*100*						

Laboratory Control Sample (LCS)

(LCS) R3377775-2 01/15/19 13:23

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.06	81.1	80.0-120	
(T) Barium			*96.2*		
(T) Yttrium			*95.8*		

L1055791-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055791-01 01/15/19 13:23 • (MS) R3377775-3 01/15/19 13:23 • (MSD) R3377775-4 01/15/19 13:23

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	20.0	-0.0693	19.5	20.6	97.3	103	1	70.0-130			5.55		20
(T) Barium		*100*			*86.6*	*92.6*							
(T) Yttrium		*97.1*			*100*	*100*							

Method Blank (MB)

(MB) R3376832-1 01/15/19 17:30

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.0195		0.0553
(T) Barium-133	*94.4*		

L1054673-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1054673-01 01/15/19 17:30 • (DUP) R3376832-5 01/15/19 17:30

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.450	0.281	1	46.1	0.465		20	3
(T) Barium-133	*100*	*79.8*						

Laboratory Control Sample (LCS)

(LCS) R3376832-2 01/15/19 17:30

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.17	83.1	80.0-120	
(T) Barium-133			*100*		

L1059269-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059269-01 01/15/19 17:30 • (MS) R3376832-3 01/15/19 17:30 • (MSD) R3376832-4 01/15/19 17:30

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.315	20.3	20.3	99.6	99.2	1	75.0-125			0.394		20
(T) Barium-133		*53.6*			*77.6*	*68.6*							

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

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

Qualifier	Description

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	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

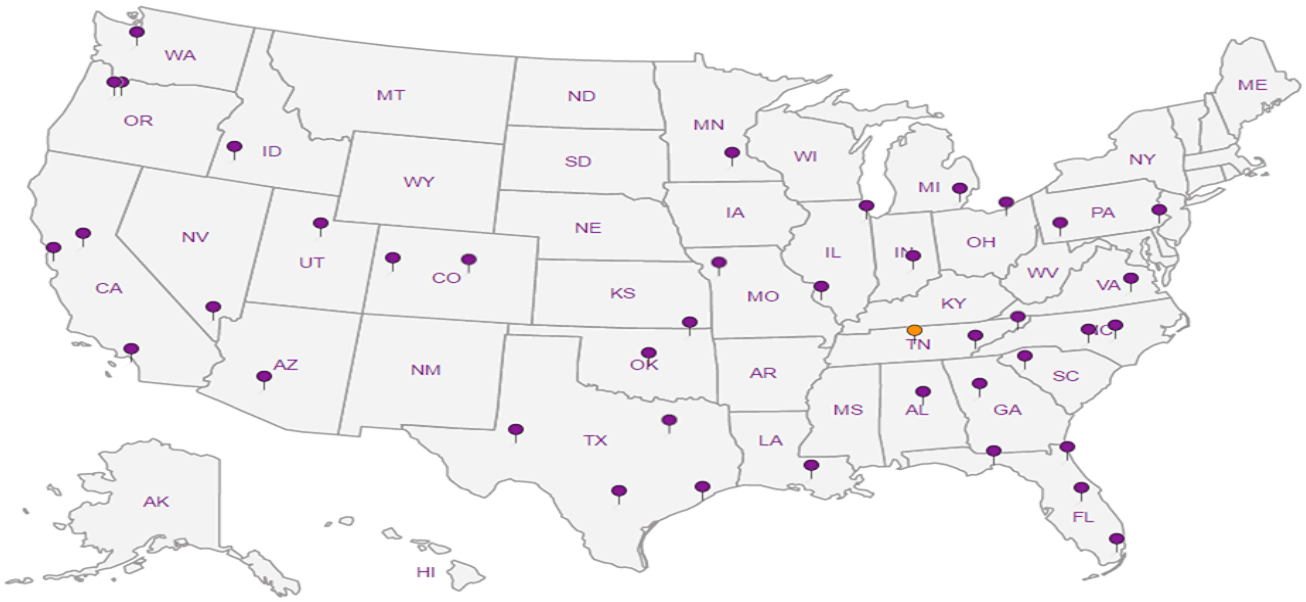
Third Party Federal Accreditations

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 # **27217413.00**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print): **G. Pendleton**

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: 5TD

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-101	GRAB	NPW		12/20	1050	2	X		01
MW-102		NPW		12/20	1030	2	X		02
MW-103		NPW		12/20	1215	2	X		03
MW-104		NPW		12/20	1250	2	X		04
MW-105		NPW		12/19	1150	2	X		05
MW-106		NPW		12/19	1105	2	X		06
MW-107		NPW		12/20	1000	2	X		07
MW-108		NPW		12/19	1235	2	X		08
MW-109		NPW		12/19	1335	2	X		09
MW-110		NPW		12/19	1410	2	X		10

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# 05543

1018

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P685863**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

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

pH _____ Temp _____
Flow _____ Other _____

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 XSWA

Tracking # NIA

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

Temp: 1d 0.9 2d °C Bottles Received: 28

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	12/20	1411	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Date: 12/21/18 Time: 0800

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 # 27217413.00

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

Analysis / Container / Preservative

RA226, RA228 1L-HDPE-Add HNO3

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs		Remarks	Sample # (lab only)
MW-111	GRAB	NPW		12/19	1450	2	X		11
DUPLICATE	↓	NPW			1240	2	X		12
MS 108		NPW			1245	2	X		13
MSD 108	↓	NPW		↓	1245	2	X		14

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# 105403

Table #

Acctnum: AQUAOPKS
Template: T132737
Prelogin: P685863
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

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

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

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
__ UPS __ FedEx __ Courier X SWA

Tracking # NIA

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)
	12-20-18	1411	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 0.9 °C Bottles Received: 28

Date: 12/21/18 Time: 0800

If preservation required by Login: Date/Time

Hold:

Condition: NCF OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 02, 2019

SCS Engineers - KS

Sample Delivery Group:	L1055592
Samples Received:	12/21/2018
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

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

MW-101 L1055592-01 GW

Collected by: G. Penaflor | Collected date/time: 12/20/18 10:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1215757	1	12/27/18 16:41	12/27/18 17:11	AJS
Wet Chemistry by Method 9056A	WG1216701	1	12/29/18 23:24	12/29/18 23:24	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 09:56	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:33	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 16:33	LAT

MW-102 L1055592-02 GW

Collected by: G. Penaflor | Collected date/time: 12/20/18 10:30 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1215757	1	12/27/18 16:41	12/27/18 17:11	AJS
Wet Chemistry by Method 9056A	WG1216701	1	12/29/18 23:39	12/29/18 23:39	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 09:59	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:36	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 16:47	LAT

MW-103 L1055592-03 GW

Collected by: G. Penaflor | Collected date/time: 12/20/18 12:15 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1215757	1	12/27/18 16:41	12/27/18 17:11	AJS
Wet Chemistry by Method 9056A	WG1216701	1	12/29/18 23:55	12/29/18 23:55	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:01	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:38	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 16:52	LAT

MW-104 L1055592-04 GW

Collected by: G. Penaflor | Collected date/time: 12/20/18 12:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1215757	1	12/27/18 16:41	12/27/18 17:11	AJS
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 16:08	12/28/18 16:08	ELN
Wet Chemistry by Method 9056A	WG1216702	5	12/29/18 08:50	12/29/18 08:50	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:04	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:46	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 16:56	LAT

MW-105 L1055592-05 GW

Collected by: G. Penaflor | Collected date/time: 12/19/18 11:50 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 16:19	12/28/18 16:19	ELN
Wet Chemistry by Method 9056A	WG1216702	5	12/28/18 16:30	12/28/18 16:30	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:06	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:48	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:01	LAT

MW-106 L1055592-06 GW

Collected by: G. Penaflor | Collected date/time: 12/19/18 11:05 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 16:41	12/28/18 16:41	ELN
Wet Chemistry by Method 9056A	WG1216702	5	12/29/18 09:01	12/29/18 09:01	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:13	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:51	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:05	LAT

MW-107 L1055592-07 GW

Collected by: G. Penaflor | Collected date/time: 12/20/18 10:00 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1215757	1	12/27/18 16:41	12/27/18 17:11	AJS
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 16:52	12/28/18 16:52	ELN
Wet Chemistry by Method 9056A	WG1216702	5	12/28/18 17:03	12/28/18 17:03	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:16	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:54	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:09	LAT

MW-108 L1055592-08 GW

Collected by: G. Penaflor | Collected date/time: 12/19/18 12:35 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 17:14	12/28/18 17:14	ELN
Wet Chemistry by Method 9056A	WG1216702	10	12/28/18 18:08	12/28/18 18:08	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 09:20	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:23	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 16:07	LAT

MW-109 L1055592-09 GW

Collected by: G. Penaflor | Collected date/time: 12/19/18 13:35 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 18:19	12/28/18 18:19	ELN
Wet Chemistry by Method 9056A	WG1216702	5	12/29/18 09:11	12/29/18 09:11	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:18	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:56	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:14	LAT

MW-110 L1055592-10 GW

Collected by: G. Penaflor | Collected date/time: 12/19/18 14:10 | Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 18:30	12/28/18 18:30	ELN
Wet Chemistry by Method 9056A	WG1216702	5	12/28/18 18:40	12/28/18 18:40	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:21	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 16:59	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:18	LAT

MW-111 L1055592-11 GW

Collected by: G. Penaflor
Collected date/time: 12/19/18 14:50
Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 18:51	12/28/18 18:51	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:23	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 17:02	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:22	LAT

DUPLICATE L1055592-12 GW

Collected by: G. Penaflor
Collected date/time: 12/19/18 12:40
Received date/time: 12/21/18 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1214966	1	12/22/18 17:19	12/22/18 17:58	AEC
Wet Chemistry by Method 9056A	WG1216702	1	12/28/18 19:02	12/28/18 19:02	ELN
Wet Chemistry by Method 9056A	WG1216702	10	12/28/18 19:13	12/28/18 19:13	ELN
Mercury by Method 7470A	WG1215917	1	12/27/18 10:47	12/28/18 10:26	TRB
Metals (ICP) by Method 6010B	WG1215462	1	12/28/18 10:17	12/28/18 17:04	WBD
Metals (ICPMS) by Method 6020	WG1214943	1	12/28/18 09:39	12/28/18 17:27	LAT

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	509000		10000	1	12/27/2018 17:11	WG1215757

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	6430		1000	1	12/29/2018 23:24	WG1216701
Fluoride	316		100	1	12/29/2018 23:24	WG1216701
Sulfate	ND		5000	1	12/29/2018 23:24	WG1216701

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 09:56	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	663		5.00	1	12/28/2018 16:33	WG1215462
Boron	ND		200	1	12/28/2018 16:33	WG1215462
Calcium	133000		1000	1	12/28/2018 16:33	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:33	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:33	WG1215462
Lithium	32.4		15.0	1	12/28/2018 16:33	WG1215462
Molybdenum	ND		5.00	1	12/28/2018 16:33	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 16:33	WG1214943
Arsenic	4.73		2.00	1	12/28/2018 16:33	WG1214943
Beryllium	ND		2.00	1	12/28/2018 16:33	WG1214943
Cadmium	ND		1.00	1	12/28/2018 16:33	WG1214943
Lead	ND		2.00	1	12/28/2018 16:33	WG1214943
Selenium	ND		2.00	1	12/28/2018 16:33	WG1214943
Thallium	ND		2.00	1	12/28/2018 16:33	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	474000		10000	1	12/27/2018 17:11	WG1215757

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5650		1000	1	12/29/2018 23:39	WG1216701
Fluoride	230		100	1	12/29/2018 23:39	WG1216701
Sulfate	ND		5000	1	12/29/2018 23:39	WG1216701

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 09:59	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	627		5.00	1	12/28/2018 16:36	WG1215462
Boron	ND		200	1	12/28/2018 16:36	WG1215462
Calcium	141000		1000	1	12/28/2018 16:36	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:36	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:36	WG1215462
Lithium	30.0		15.0	1	12/28/2018 16:36	WG1215462
Molybdenum	ND		5.00	1	12/28/2018 16:36	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 16:47	WG1214943
Arsenic	34.7		2.00	1	12/28/2018 16:47	WG1214943
Beryllium	ND		2.00	1	12/28/2018 16:47	WG1214943
Cadmium	ND		1.00	1	12/28/2018 16:47	WG1214943
Lead	ND		2.00	1	12/28/2018 16:47	WG1214943
Selenium	ND		2.00	1	12/28/2018 16:47	WG1214943
Thallium	ND		2.00	1	12/28/2018 16:47	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	465000		10000	1	12/27/2018 17:11	WG1215757

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4320		1000	1	12/29/2018 23:55	WG1216701
Fluoride	209		100	1	12/29/2018 23:55	WG1216701
Sulfate	ND		5000	1	12/29/2018 23:55	WG1216701

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:01	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	681		5.00	1	12/28/2018 16:38	WG1215462
Boron	ND		200	1	12/28/2018 16:38	WG1215462
Calcium	140000		1000	1	12/28/2018 16:38	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:38	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:38	WG1215462
Lithium	45.2		15.0	1	12/28/2018 16:38	WG1215462
Molybdenum	ND		5.00	1	12/28/2018 16:38	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 16:52	WG1214943
Arsenic	ND		2.00	1	12/28/2018 16:52	WG1214943
Beryllium	ND		2.00	1	12/28/2018 16:52	WG1214943
Cadmium	ND		1.00	1	12/28/2018 16:52	WG1214943
Lead	ND		2.00	1	12/28/2018 16:52	WG1214943
Selenium	ND		2.00	1	12/28/2018 16:52	WG1214943
Thallium	ND		2.00	1	12/28/2018 16:52	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	393000		10000	1	12/27/2018 17:11	WG1215757

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21400		1000	1	12/28/2018 16:08	WG1216702
Fluoride	453		100	1	12/28/2018 16:08	WG1216702
Sulfate	116000		25000	5	12/29/2018 08:50	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:04	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	165		5.00	1	12/28/2018 16:46	WG1215462
Boron	1310		200	1	12/28/2018 16:46	WG1215462
Calcium	51500		1000	1	12/28/2018 16:46	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:46	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:46	WG1215462
Lithium	15.9		15.0	1	12/28/2018 16:46	WG1215462
Molybdenum	22.5		5.00	1	12/28/2018 16:46	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 16:56	WG1214943
Arsenic	ND		2.00	1	12/28/2018 16:56	WG1214943
Beryllium	ND		2.00	1	12/28/2018 16:56	WG1214943
Cadmium	ND		1.00	1	12/28/2018 16:56	WG1214943
Lead	ND		2.00	1	12/28/2018 16:56	WG1214943
Selenium	ND		2.00	1	12/28/2018 16:56	WG1214943
Thallium	ND		2.00	1	12/28/2018 16:56	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	679000		13300	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18200		1000	1	12/28/2018 16:19	WG1216702
Fluoride	595		100	1	12/28/2018 16:19	WG1216702
Sulfate	248000		25000	5	12/28/2018 16:30	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:06	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	370		5.00	1	12/28/2018 16:48	WG1215462
Boron	1920		200	1	12/28/2018 16:48	WG1215462
Calcium	93500		1000	1	12/28/2018 16:48	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:48	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:48	WG1215462
Lithium	24.8		15.0	1	12/28/2018 16:48	WG1215462
Molybdenum	35.2		5.00	1	12/28/2018 16:48	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:01	WG1214943
Arsenic	ND		2.00	1	12/28/2018 17:01	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:01	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:01	WG1214943
Lead	ND		2.00	1	12/28/2018 17:01	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:01	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:01	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	612000		10000	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	19700		1000	1	12/28/2018 16:41	WG1216702
Fluoride	280		100	1	12/28/2018 16:41	WG1216702
Sulfate	186000		25000	5	12/29/2018 09:01	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:13	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	242		5.00	1	12/28/2018 16:51	WG1215462
Boron	950		200	1	12/28/2018 16:51	WG1215462
Calcium	105000		1000	1	12/28/2018 16:51	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:51	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:51	WG1215462
Lithium	34.3		15.0	1	12/28/2018 16:51	WG1215462
Molybdenum	ND		5.00	1	12/28/2018 16:51	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:05	WG1214943
Arsenic	ND		2.00	1	12/28/2018 17:05	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:05	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:05	WG1214943
Lead	ND		2.00	1	12/28/2018 17:05	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:05	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:05	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	583000		13300	1	12/27/2018 17:11	WG1215757

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20200		1000	1	12/28/2018 16:52	WG1216702
Fluoride	532		100	1	12/28/2018 16:52	WG1216702
Sulfate	255000		25000	5	12/28/2018 17:03	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:16	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	105		5.00	1	12/28/2018 16:54	WG1215462
Boron	2020		200	1	12/28/2018 16:54	WG1215462
Calcium	55800		1000	1	12/28/2018 16:54	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:54	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:54	WG1215462
Lithium	ND		15.0	1	12/28/2018 16:54	WG1215462
Molybdenum	70.3		5.00	1	12/28/2018 16:54	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:09	WG1214943
Arsenic	ND		2.00	1	12/28/2018 17:09	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:09	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:09	WG1214943
Lead	ND		2.00	1	12/28/2018 17:09	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:09	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:09	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	1490000		20000	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	28700		1000	1	12/28/2018 17:14	WG1216702
Fluoride	327	J3 J6	100	1	12/28/2018 17:14	WG1216702
Sulfate	666000	V	50000	10	12/28/2018 18:08	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 09:20	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	283		5.00	1	12/28/2018 16:23	WG1215462
Boron	1400		200	1	12/28/2018 16:23	WG1215462
Calcium	255000		1000	1	12/28/2018 16:23	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:23	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:23	WG1215462
Lithium	45.0		15.0	1	12/28/2018 16:23	WG1215462
Molybdenum	9.44		5.00	1	12/28/2018 16:23	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 16:07	WG1214943
Arsenic	3.02		2.00	1	12/28/2018 16:07	WG1214943
Beryllium	ND		2.00	1	12/28/2018 16:07	WG1214943
Cadmium	ND		1.00	1	12/28/2018 16:07	WG1214943
Lead	ND		2.00	1	12/28/2018 16:07	WG1214943
Selenium	ND		2.00	1	12/28/2018 16:07	WG1214943
Thallium	ND		2.00	1	12/28/2018 16:07	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	584000		10000	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	26500		1000	1	12/28/2018 18:19	WG1216702
Fluoride	445		100	1	12/28/2018 18:19	WG1216702
Sulfate	193000		25000	5	12/29/2018 09:11	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:18	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	208		5.00	1	12/28/2018 16:56	WG1215462
Boron	664		200	1	12/28/2018 16:56	WG1215462
Calcium	91500		1000	1	12/28/2018 16:56	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:56	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:56	WG1215462
Lithium	19.0		15.0	1	12/28/2018 16:56	WG1215462
Molybdenum	19.8		5.00	1	12/28/2018 16:56	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:14	WG1214943
Arsenic	ND		2.00	1	12/28/2018 17:14	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:14	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:14	WG1214943
Lead	ND		2.00	1	12/28/2018 17:14	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:14	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:14	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	751000		13300	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20300		1000	1	12/28/2018 18:30	WG1216702
Fluoride	374		100	1	12/28/2018 18:30	WG1216702
Sulfate	348000		25000	5	12/28/2018 18:40	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:21	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	133		5.00	1	12/28/2018 16:59	WG1215462
Boron	2350		200	1	12/28/2018 16:59	WG1215462
Calcium	67600		1000	1	12/28/2018 16:59	WG1215462
Chromium	ND		10.0	1	12/28/2018 16:59	WG1215462
Cobalt	ND		10.0	1	12/28/2018 16:59	WG1215462
Lithium	ND		15.0	1	12/28/2018 16:59	WG1215462
Molybdenum	67.5		5.00	1	12/28/2018 16:59	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:18	WG1214943
Arsenic	3.65		2.00	1	12/28/2018 17:18	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:18	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:18	WG1214943
Lead	ND		2.00	1	12/28/2018 17:18	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:18	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:18	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	572000		10000	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	9630		1000	1	12/28/2018 18:51	WG1216702
Fluoride	422		100	1	12/28/2018 18:51	WG1216702
Sulfate	61800		5000	1	12/28/2018 18:51	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:23	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	386		5.00	1	12/28/2018 17:02	WG1215462
Boron	909		200	1	12/28/2018 17:02	WG1215462
Calcium	96100		1000	1	12/28/2018 17:02	WG1215462
Chromium	ND		10.0	1	12/28/2018 17:02	WG1215462
Cobalt	ND		10.0	1	12/28/2018 17:02	WG1215462
Lithium	23.5		15.0	1	12/28/2018 17:02	WG1215462
Molybdenum	12.4		5.00	1	12/28/2018 17:02	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:22	WG1214943
Arsenic	ND		2.00	1	12/28/2018 17:22	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:22	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:22	WG1214943
Lead	ND		2.00	1	12/28/2018 17:22	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:22	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:22	WG1214943

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	1470000		20000	1	12/22/2018 17:58	WG1214966

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	29300		1000	1	12/28/2018 19:02	WG1216702
Fluoride	331		100	1	12/28/2018 19:02	WG1216702
Sulfate	687000		50000	10	12/28/2018 19:13	WG1216702

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	12/28/2018 10:26	WG1215917

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	278		5.00	1	12/28/2018 17:04	WG1215462
Boron	1410		200	1	12/28/2018 17:04	WG1215462
Calcium	254000		1000	1	12/28/2018 17:04	WG1215462
Chromium	ND		10.0	1	12/28/2018 17:04	WG1215462
Cobalt	ND		10.0	1	12/28/2018 17:04	WG1215462
Lithium	42.0		15.0	1	12/28/2018 17:04	WG1215462
Molybdenum	10.1		5.00	1	12/28/2018 17:04	WG1215462

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND		2.00	1	12/28/2018 17:27	WG1214943
Arsenic	3.15		2.00	1	12/28/2018 17:27	WG1214943
Beryllium	ND		2.00	1	12/28/2018 17:27	WG1214943
Cadmium	ND		1.00	1	12/28/2018 17:27	WG1214943
Lead	ND		2.00	1	12/28/2018 17:27	WG1214943
Selenium	ND		2.00	1	12/28/2018 17:27	WG1214943
Thallium	ND		2.00	1	12/28/2018 17:27	WG1214943

Method Blank (MB)

(MB) R3372171-1 12/22/18 17:58

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

L1055592-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1055592-08 12/22/18 17:58 • (DUP) R3372171-3 12/22/18 17:58

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1490000	1510000	1	1.20		5

Laboratory Control Sample (LCS)

(LCS) R3372171-2 12/22/18 17:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8790000	99.9	85.0-115	

Method Blank (MB)

(MB) R3372284-1 12/27/18 17:11

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

L1055603-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1055603-13 12/27/18 17:11 • (DUP) R3372284-3 12/27/18 17:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	5400000	5580000	1	3.28		5

Laboratory Control Sample (LCS)

(LCS) R3372284-2 12/27/18 17:11

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8030000	91.3	85.0-115	

Method Blank (MB)

(MB) R3372506-1 12/29/18 15:42

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

L1055464-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1055464-01 12/29/18 16:30 • (DUP) R3372506-3 12/29/18 16:46

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	17300	17300	1	0.231		15
Fluoride	ND	0.000	1	0.000		15
Sulfate	ND	1410	1	0.000		15

L1055469-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1055469-03 12/29/18 20:28 • (DUP) R3372506-6 12/29/18 20:44

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5550	1500	1	115	J3	15
Fluoride	309	226	1	30.9	P1	15
Sulfate	ND	3500	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3372506-2 12/29/18 15:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39300	98.2	80.0-120	
Fluoride	8000	8010	100	80.0-120	
Sulfate	40000	40000	99.9	80.0-120	

L1055464-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055464-01 12/29/18 16:30 • (MS) R3372506-4 12/29/18 17:02 • (MSD) R3372506-5 12/29/18 17:18

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	17300	67500	68200	100	102	1	80.0-120			1.06	15
Fluoride	5000	ND	5140	5220	103	104	1	80.0-120			1.52	15
Sulfate	50000	ND	52100	52800	101	103	1	80.0-120			1.24	15

L1055469-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1055469-03 12/29/18 20:28 • (MS) R3372506-7 12/29/18 21:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	5550	52200	93.3	1	80.0-120	
Fluoride	5000	309	5340	101	1	80.0-120	
Sulfate	50000	ND	53800	100	1	80.0-120	

Method Blank (MB)

(MB) R3372109-1 12/28/18 14:41

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

L1055603-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1055603-01 12/28/18 19:24 • (DUP) R3372109-5 12/28/18 19:57

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1530	1440	1	6.43		15
Fluoride	219	237	1	7.81		15
Sulfate	13000	13400	1	2.96		15

L1055603-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1055603-09 12/28/18 22:07 • (DUP) R3372109-6 12/28/18 22:18

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4780	4650	1	2.75		15
Fluoride	294	393	1	28.8	P1	15
Sulfate	83000	82900	1	0.208		15

Laboratory Control Sample (LCS)

(LCS) R3372109-2 12/28/18 14:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39900	99.8	80.0-120	
Fluoride	8000	8210	103	80.0-120	
Sulfate	40000	39800	99.4	80.0-120	

L1055592-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055592-08 12/28/18 17:14 • (MS) R3372109-3 12/28/18 17:46 • (MSD) R3372109-4 12/28/18 17:57

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	28700	77700	78600	97.9	99.7	1	80.0-120			1.11	15
Fluoride	5000	327	4080	5360	75.0	101	1	80.0-120	J6	J3	27.2	15
Sulfate	50000	661000	677000	677000	31.1	33.0	1	80.0-120	E V	E V	0.135	15

L1055603-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1055603-09 12/28/18 22:07 • (MS) R3372109-7 12/28/18 22:29

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	4780	53800	98.1	1	80.0-120	
Fluoride	5000	294	4180	77.7	1	80.0-120	J6
Sulfate	50000	83000	127000	87.1	1	80.0-120	E

Method Blank (MB)

(MB) R3371941-1 12/28/18 09:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3371941-2 12/28/18 09:15 • (LCSD) R3371941-3 12/28/18 09:17

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	%	%	%			%	%
Mercury	3.00	2.99	2.94	99.5	98.1	80.0-120			1.42	20

L1055592-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055592-08 12/28/18 09:20 • (MS) R3371941-4 12/28/18 09:22 • (MSD) R3371941-5 12/28/18 09:25

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	ND	3.13	3.06	104	102	1	75.0-125			2.26	20

Method Blank (MB)

(MB) R3372208-1 12/28/18 16:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3372208-2 12/28/18 16:18 • (LCSD) R3372208-3 12/28/18 16:20

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 %
Barium	1000	1010	1010	101	101	80.0-120			0.418	20
Boron	1000	981	992	98.1	99.2	80.0-120			1.06	20
Calcium	10000	10100	9990	101	99.9	80.0-120			0.633	20
Chromium	1000	943	941	94.3	94.1	80.0-120			0.137	20
Cobalt	1000	994	991	99.4	99.1	80.0-120			0.279	20
Lithium	1000	982	970	98.2	97.0	80.0-120			1.27	20
Molybdenum	1000	982	980	98.2	98.0	80.0-120			0.207	20

L1055592-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055592-08 12/28/18 16:23 • (MS) R3372208-5 12/28/18 16:28 • (MSD) R3372208-6 12/28/18 16:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	283	1270	1290	99.0	101	1	75.0-125			1.42	20
Boron	1000	1400	2380	2450	98.2	105	1	75.0-125			2.83	20
Calcium	10000	255000	266000	265000	106	94.2	1	75.0-125			0.461	20
Chromium	1000	ND	934	947	93.4	94.7	1	75.0-125			1.32	20
Cobalt	1000	ND	1030	1040	103	104	1	75.0-125			1.81	20
Lithium	1000	45.0	1040	1060	99.7	101	1	75.0-125			1.50	20
Molybdenum	1000	9.44	999	1020	98.9	101	1	75.0-125			1.79	20

Method Blank (MB)

(MB) R3372098-1 12/28/18 15:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	U		0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3372098-2 12/28/18 15:58 • (LCSD) R3372098-3 12/28/18 16:02

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 %
Antimony	50.0	49.6	51.4	99.1	103	80.0-120			3.52	20
Arsenic	50.0	48.3	49.0	96.7	98.0	80.0-120			1.34	20
Beryllium	50.0	47.9	48.0	95.8	96.0	80.0-120			0.195	20
Cadmium	50.0	48.9	50.4	97.7	101	80.0-120			3.14	20
Lead	50.0	47.1	48.5	94.2	96.9	80.0-120			2.90	20
Selenium	50.0	54.0	57.1	108	114	80.0-120			5.51	20
Thallium	50.0	47.7	49.1	95.3	98.2	80.0-120			2.96	20

L1055592-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055592-08 12/28/18 16:07 • (MS) R3372098-5 12/28/18 16:15 • (MSD) R3372098-6 12/28/18 16:20

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 %
Antimony	50.0	ND	53.5	53.5	107	107	1	75.0-125			0.0932	20
Arsenic	50.0	3.02	51.8	51.6	97.6	97.1	1	75.0-125			0.543	20
Beryllium	50.0	ND	48.4	49.1	96.7	98.2	1	75.0-125			1.49	20
Cadmium	50.0	ND	50.6	49.6	101	99.2	1	75.0-125			1.90	20
Lead	50.0	ND	47.7	47.4	95.4	94.7	1	75.0-125			0.644	20
Selenium	50.0	ND	56.1	54.6	112	109	1	75.0-125			2.63	20
Thallium	50.0	ND	48.5	48.1	96.9	96.2	1	75.0-125			0.737	20

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
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

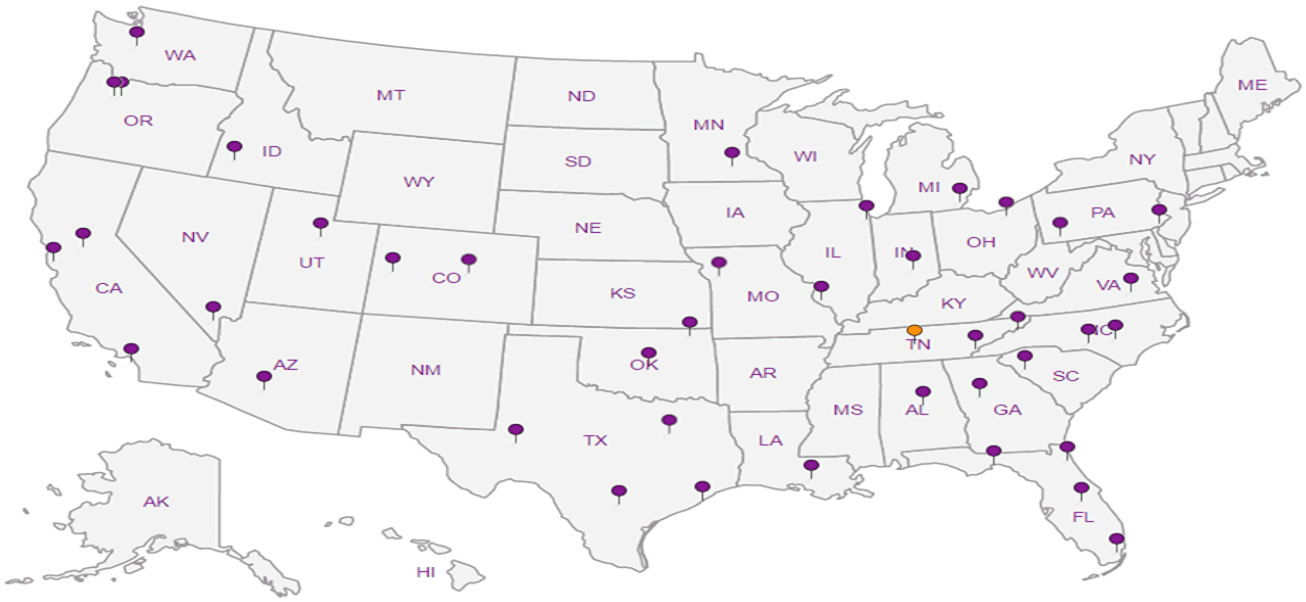
Third Party Federal Accreditations

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: 12

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 # 27217413.00

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	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	GRAB	GW		12/20	1050	3	X	X	X		01
MW-102		GW		12/20	1630	3	X	X	X		02
MW-103		GW		12/20	1215	3	X	X	X		03
MW-104		GW		12/20	1250	3	X	X	X		04
MW-105		GW		12/19	1150	3	X	X	X		05
MW-106		GW		12/19	1105	3	X	X	X		06
MW-107		GW		12/20	1000	3	X	X	X		07
MW-108		GW		12/19	1235	3	X	X	X		08
MW-109		GW		12/19	1335	3	X	X	X		09
MW-110		GW		12/19	1410	3	X	X	X		10

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# 1055592

Table H230

Acct.: AQUAOPKS
Template: T132734
Prelogin: P685859
TSR: 206 - Jeff Carr
PB:

Shipped Via: FedEX Ground

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

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 #

Relinquished by: (Signature) — Date: 12/20/18 — Time: 1411 — Received by: (Signature)

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

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

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

Temp: 0.9 °C Bottles Received: 39

Date: 12/21/18 Time: 0800

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Pres Chk: 12

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 # 27217413.00

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	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	GRAB	GW		12/19	1450	3	X	X	X		11
DUPLICATE	↓	GW		12/19	1240	3	X	X	X		12
108 MS/MSD	↓	GW		12/19	1245	3	X	X	X		08

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# 105592

Table #

Acctnum: AQUAOPKS

Template: T132734

Prelogin: P685859

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	12/20/18	1411			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.9 °C	Bottles Received: 39
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/21/18	Time: 0800

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Jared Morrison
December 16, 2022

ATTACHMENT 1-8

February 2019 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

February 26, 2019

SCS Engineers - KS

Sample Delivery Group:	L1071253
Samples Received:	02/16/2019
Project Number:	27217413.00
Description:	KCPL Iatan Gen Stat - Ash Imp CCR GW BG

Report To:

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

Entire Report Reviewed By:

Jeff Carr
Project Manager

TABLE OF CONTENTS

MW-101 L1071253-01 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	02/15/19 10:15	02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/18/19 23:58	02/18/19 23:58	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 19:46	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 12:44	JDG
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:03	LD

MW-102 L1071253-02 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	02/14/19 09:35	02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239257	1	02/21/19 15:05	02/21/19 15:37	AEC
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 01:00	02/19/19 01:00	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 19:49	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:28	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:08	LD

MW-103 L1071253-03 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	02/14/19 09:40	02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239257	1	02/21/19 15:05	02/21/19 15:37	AEC
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 01:15	02/19/19 01:15	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 19:51	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:31	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:12	LD

MW-104 L1071253-04 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	02/14/19 10:40	02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239257	1	02/21/19 15:05	02/21/19 15:37	AEC
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 01:30	02/19/19 01:30	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 09:09	02/19/19 09:09	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 19:58	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:33	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:17	LD

MW-105 L1071253-05 GW

Collected by	Collected date/time	Received date/time
G. Penaflor	02/14/19 10:40	02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239257	1	02/21/19 15:05	02/21/19 15:37	AEC
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 01:46	02/19/19 01:46	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 09:24	02/19/19 09:24	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 20:01	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:36	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:21	LD

MW-106 L1071253-06 GW

Collected by: G. Penaflor | Collected date/time: 02/14/19 11:35 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239257	1	02/21/19 15:05	02/21/19 15:37	AEC
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 02:32	02/19/19 02:32	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 09:39	02/19/19 09:39	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 20:03	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:39	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:40	LD

MW-107 L1071253-07 GW

Collected by: G. Penaflor | Collected date/time: 02/15/19 08:35 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 02:47	02/19/19 02:47	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 09:55	02/19/19 09:55	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 20:06	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:41	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:44	LD

MW-108 L1071253-08 GW

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:05 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 03:03	02/19/19 03:03	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 10:10	02/19/19 10:10	ELN
Mercury by Method 7470A	WG1238891	1	02/19/19 11:10	02/19/19 19:00	TCT
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 12:28	TRB
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 19:44	LD

MW-109 L1071253-09 GW

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:15 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 03:18	02/19/19 03:18	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 10:56	02/19/19 10:56	ELN
Mercury by Method 7470A	WG1239223	1	02/19/19 18:11	02/20/19 11:07	ABL
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:44	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:49	LD

MW-110 L1071253-10 GW

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:55 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 03:34	02/19/19 03:34	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 11:12	02/19/19 11:12	ELN
Mercury by Method 7470A	WG1239223	1	02/19/19 18:11	02/20/19 11:09	ABL
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:48	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:53	LD

MW-111 L1071253-11 GW

Collected by: G. Penaflor
Collected date/time: 02/15/19 10:30
Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 03:49	02/19/19 03:49	ELN
Mercury by Method 7470A	WG1239223	1	02/19/19 18:11	02/20/19 11:12	ABL
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:50	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 21:57	LD

DUPLICATE L1071253-12 GW

Collected by: G. Penaflor
Collected date/time: 02/15/19 09:10
Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1239608	1	02/20/19 17:06	02/20/19 17:47	MMF
Wet Chemistry by Method 9056A	WG1238907	1	02/19/19 04:04	02/19/19 04:04	ELN
Wet Chemistry by Method 9056A	WG1238907	5	02/19/19 11:27	02/19/19 11:27	ELN
Mercury by Method 7470A	WG1239223	1	02/19/19 18:11	02/20/19 11:14	ABL
Metals (ICP) by Method 6010B	WG1240700	1	02/22/19 09:02	02/22/19 15:58	WBD
Metals (ICPMS) by Method 6020	WG1239118	1	02/19/19 14:32	02/20/19 22:02	LD

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	521000		10000	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5920		1000	1	02/18/2019 23:58	WG1238907
Fluoride	318		100	1	02/18/2019 23:58	WG1238907
Sulfate	ND		5000	1	02/18/2019 23:58	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 19:46	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	637		5.00	1	02/22/2019 12:44	WG1240700
Boron	ND		200	1	02/22/2019 12:44	WG1240700
Calcium	130000		1000	1	02/22/2019 12:44	WG1240700
Chromium	ND		10.0	1	02/22/2019 12:44	WG1240700
Cobalt	ND		10.0	1	02/22/2019 12:44	WG1240700
Lithium	32.5		15.0	1	02/22/2019 12:44	WG1240700
Molybdenum	ND		5.00	1	02/22/2019 12:44	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:03	WG1239118
Arsenic	4.12		2.00	1	02/20/2019 21:03	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:03	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:03	WG1239118
Lead	ND		2.00	1	02/20/2019 21:03	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:03	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:03	WG1239118

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	02/21/2019 15:37	WG1239257

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5110		1000	1	02/19/2019 01:00	WG1238907
Fluoride	257		100	1	02/19/2019 01:00	WG1238907
Sulfate	ND		5000	1	02/19/2019 01:00	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 19:49	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	645		5.00	1	02/22/2019 15:28	WG1240700
Boron	ND		200	1	02/22/2019 15:28	WG1240700
Calcium	131000		1000	1	02/22/2019 15:28	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:28	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:28	WG1240700
Lithium	33.6		15.0	1	02/22/2019 15:28	WG1240700
Molybdenum	ND		5.00	1	02/22/2019 15:28	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:08	WG1239118
Arsenic	24.2		2.00	1	02/20/2019 21:08	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:08	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:08	WG1239118
Lead	ND		2.00	1	02/20/2019 21:08	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:08	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:08	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	491000		10000	1	02/21/2019 15:37	WG1239257

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4000		1000	1	02/19/2019 01:15	WG1238907
Fluoride	231		100	1	02/19/2019 01:15	WG1238907
Sulfate	ND		5000	1	02/19/2019 01:15	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 19:51	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	687		5.00	1	02/22/2019 15:31	WG1240700
Boron	ND		200	1	02/22/2019 15:31	WG1240700
Calcium	135000		1000	1	02/22/2019 15:31	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:31	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:31	WG1240700
Lithium	50.9		15.0	1	02/22/2019 15:31	WG1240700
Molybdenum	ND		5.00	1	02/22/2019 15:31	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:12	WG1239118
Arsenic	ND		2.00	1	02/20/2019 21:12	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:12	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:12	WG1239118
Lead	ND		2.00	1	02/20/2019 21:12	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:12	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:12	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	421000		10000	1	02/21/2019 15:37	WG1239257

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23600		1000	1	02/19/2019 01:30	WG1238907
Fluoride	537		100	1	02/19/2019 01:30	WG1238907
Sulfate	115000		25000	5	02/19/2019 09:09	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 19:58	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	163		5.00	1	02/22/2019 15:33	WG1240700
Boron	1320		200	1	02/22/2019 15:33	WG1240700
Calcium	50500		1000	1	02/22/2019 15:33	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:33	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:33	WG1240700
Lithium	ND		15.0	1	02/22/2019 15:33	WG1240700
Molybdenum	22.0		5.00	1	02/22/2019 15:33	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:17	WG1239118
Arsenic	ND		2.00	1	02/20/2019 21:17	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:17	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:17	WG1239118
Lead	ND		2.00	1	02/20/2019 21:17	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:17	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:17	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	704000		13300	1	02/21/2019 15:37	WG1239257

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	17500		1000	1	02/19/2019 01:46	WG1238907
Fluoride	690		100	1	02/19/2019 01:46	WG1238907
Sulfate	262000		25000	5	02/19/2019 09:24	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 20:01	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	374		5.00	1	02/22/2019 15:36	WG1240700
Boron	1260		200	1	02/22/2019 15:36	WG1240700
Calcium	93400		1000	1	02/22/2019 15:36	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:36	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:36	WG1240700
Lithium	27.3		15.0	1	02/22/2019 15:36	WG1240700
Molybdenum	19.4		5.00	1	02/22/2019 15:36	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:21	WG1239118
Arsenic	ND		2.00	1	02/20/2019 21:21	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:21	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:21	WG1239118
Lead	ND		2.00	1	02/20/2019 21:21	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:21	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:21	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	705000		13300	1	02/21/2019 15:37	WG1239257

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21000		1000	1	02/19/2019 02:32	WG1238907
Fluoride	364		100	1	02/19/2019 02:32	WG1238907
Sulfate	209000		25000	5	02/19/2019 09:39	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 20:03	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	276		5.00	1	02/22/2019 15:39	WG1240700
Boron	1070		200	1	02/22/2019 15:39	WG1240700
Calcium	113000		1000	1	02/22/2019 15:39	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:39	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:39	WG1240700
Lithium	37.1		15.0	1	02/22/2019 15:39	WG1240700
Molybdenum	ND		5.00	1	02/22/2019 15:39	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:40	WG1239118
Arsenic	ND		2.00	1	02/20/2019 21:40	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:40	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:40	WG1239118
Lead	ND		2.00	1	02/20/2019 21:40	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:40	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:40	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	679000		13300	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	25900		1000	1	02/19/2019 02:47	WG1238907
Fluoride	652		100	1	02/19/2019 02:47	WG1238907
Sulfate	266000		25000	5	02/19/2019 09:55	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 20:06	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	116		5.00	1	02/22/2019 15:41	WG1240700
Boron	1870		200	1	02/22/2019 15:41	WG1240700
Calcium	60800		1000	1	02/22/2019 15:41	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:41	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:41	WG1240700
Lithium	ND		15.0	1	02/22/2019 15:41	WG1240700
Molybdenum	71.1		5.00	1	02/22/2019 15:41	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:44	WG1239118
Arsenic	ND		2.00	1	02/20/2019 21:44	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:44	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:44	WG1239118
Lead	ND		2.00	1	02/20/2019 21:44	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:44	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:44	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	835000		13300	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18800		1000	1	02/19/2019 03:03	WG1238907
Fluoride	482		100	1	02/19/2019 03:03	WG1238907
Sulfate	303000		25000	5	02/19/2019 10:10	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/19/2019 19:00	WG1238891

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	153	O1	5.00	1	02/22/2019 12:28	WG1240700
Boron	1500	O1	200	1	02/22/2019 12:28	WG1240700
Calcium	127000		1000	1	02/22/2019 12:28	WG1240700
Chromium	ND		10.0	1	02/22/2019 12:28	WG1240700
Cobalt	ND		10.0	1	02/22/2019 12:28	WG1240700
Lithium	35.3		15.0	1	02/22/2019 12:28	WG1240700
Molybdenum	11.8		5.00	1	02/22/2019 12:28	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4 J5	2.00	1	02/20/2019 19:44	WG1239118
Arsenic	2.11		2.00	1	02/20/2019 19:44	WG1239118
Beryllium	ND		2.00	1	02/20/2019 19:44	WG1239118
Cadmium	ND		1.00	1	02/20/2019 19:44	WG1239118
Lead	ND		2.00	1	02/20/2019 19:44	WG1239118
Selenium	ND		2.00	1	02/20/2019 19:44	WG1239118
Thallium	ND		2.00	1	02/20/2019 19:44	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	711000		13300	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	21200		1000	1	02/19/2019 03:18	WG1238907
Fluoride	517		100	1	02/19/2019 03:18	WG1238907
Sulfate	249000		25000	5	02/19/2019 10:56	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/20/2019 11:07	WG1239223

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	246		5.00	1	02/22/2019 15:44	WG1240700
Boron	772		200	1	02/22/2019 15:44	WG1240700
Calcium	111000		1000	1	02/22/2019 15:44	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:44	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:44	WG1240700
Lithium	28.1		15.0	1	02/22/2019 15:44	WG1240700
Molybdenum	20.3		5.00	1	02/22/2019 15:44	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:49	WG1239118
Arsenic	ND		2.00	1	02/20/2019 21:49	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:49	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:49	WG1239118
Lead	ND		2.00	1	02/20/2019 21:49	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:49	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:49	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	727000		13300	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20700		1000	1	02/19/2019 03:34	WG1238907
Fluoride	461		100	1	02/19/2019 03:34	WG1238907
Sulfate	345000		25000	5	02/19/2019 11:12	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/20/2019 11:09	WG1239223

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	119		5.00	1	02/22/2019 15:48	WG1240700
Boron	2400		200	1	02/22/2019 15:48	WG1240700
Calcium	64400		1000	1	02/22/2019 15:48	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:48	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:48	WG1240700
Lithium	ND		15.0	1	02/22/2019 15:48	WG1240700
Molybdenum	88.4		5.00	1	02/22/2019 15:48	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:53	WG1239118
Arsenic	2.35		2.00	1	02/20/2019 21:53	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:53	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:53	WG1239118
Lead	ND		2.00	1	02/20/2019 21:53	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:53	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:53	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	567000		10000	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8190		1000	1	02/19/2019 03:49	WG1238907
Fluoride	513		100	1	02/19/2019 03:49	WG1238907
Sulfate	27800		5000	1	02/19/2019 03:49	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/20/2019 11:12	WG1239223

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	454		5.00	1	02/22/2019 15:50	WG1240700
Boron	908		200	1	02/22/2019 15:50	WG1240700
Calcium	99000		1000	1	02/22/2019 15:50	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:50	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:50	WG1240700
Lithium	27.0		15.0	1	02/22/2019 15:50	WG1240700
Molybdenum	12.7		5.00	1	02/22/2019 15:50	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 21:57	WG1239118
Arsenic	3.70		2.00	1	02/20/2019 21:57	WG1239118
Beryllium	ND		2.00	1	02/20/2019 21:57	WG1239118
Cadmium	ND		1.00	1	02/20/2019 21:57	WG1239118
Lead	ND		2.00	1	02/20/2019 21:57	WG1239118
Selenium	ND		2.00	1	02/20/2019 21:57	WG1239118
Thallium	ND		2.00	1	02/20/2019 21:57	WG1239118

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	836000		13300	1	02/20/2019 17:47	WG1239608

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18900		1000	1	02/19/2019 04:04	WG1238907
Fluoride	476		100	1	02/19/2019 04:04	WG1238907
Sulfate	305000		25000	5	02/19/2019 11:27	WG1238907

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	02/20/2019 11:14	WG1239223

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Barium	154		5.00	1	02/22/2019 15:58	WG1240700
Boron	1480		200	1	02/22/2019 15:58	WG1240700
Calcium	130000		1000	1	02/22/2019 15:58	WG1240700
Chromium	ND		10.0	1	02/22/2019 15:58	WG1240700
Cobalt	ND		10.0	1	02/22/2019 15:58	WG1240700
Lithium	37.7		15.0	1	02/22/2019 15:58	WG1240700
Molybdenum	13.2		5.00	1	02/22/2019 15:58	WG1240700

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Antimony	ND	J4	2.00	1	02/20/2019 22:02	WG1239118
Arsenic	2.47		2.00	1	02/20/2019 22:02	WG1239118
Beryllium	ND		2.00	1	02/20/2019 22:02	WG1239118
Cadmium	ND		1.00	1	02/20/2019 22:02	WG1239118
Lead	ND		2.00	1	02/20/2019 22:02	WG1239118
Selenium	ND		2.00	1	02/20/2019 22:02	WG1239118
Thallium	ND		2.00	1	02/20/2019 22:02	WG1239118

Method Blank (MB)

(MB) R3386323-1 02/21/19 15:37

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

L1068962-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1068962-07 02/21/19 15:37 • (DUP) R3386323-3 02/21/19 15:37

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1170000	1150000	1	2.41		5

Laboratory Control Sample (LCS)

(LCS) R3386323-2 02/21/19 15:37

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8650000	98.3	85.0-115	

Method Blank (MB)

(MB) R3386259-1 02/20/19 17:47

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

L1071531-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1071531-01 02/20/19 17:47 • (DUP) R3386259-3 02/20/19 17:47

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	6070000	6150000	1	1.31		5

Laboratory Control Sample (LCS)

(LCS) R3386259-2 02/20/19 17:47

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

Method Blank (MB)

(MB) R3385030-1 02/18/19 23:10

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

L1071253-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1071253-01 02/18/19 23:58 • (DUP) R3385030-3 02/19/19 00:13

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5920	5880	1	0.605		15
Fluoride	318	323	1	1.78		15
Sulfate	ND	0.000	1	0.000		15

L1071253-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1071253-12 02/19/19 04:04 • (DUP) R3385030-6 02/19/19 04:20

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	18900	18900	1	0.221		15
Fluoride	476	476	1	0.0630		15

L1071253-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1071253-12 02/19/19 11:27 • (DUP) R3385030-10 02/19/19 12:13

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	305000	303000	5	0.578		15

Laboratory Control Sample (LCS)

(LCS) R3385030-2 02/18/19 23:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	40600	102	80.0-120	
Fluoride	8000	8430	105	80.0-120	
Sulfate	40000	41500	104	80.0-120	

L1071253-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071253-01 02/18/19 23:58 • (MS) R3385030-4 02/19/19 00:29 • (MSD) R3385030-5 02/19/19 00:44

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 %
Chloride	50000	5920	56100	56300	100	101	1	80.0-120			0.379	15
Fluoride	5000	318	5370	5380	101	101	1	80.0-120			0.225	15
Sulfate	50000	ND	48600	48600	97.2	97.2	1	80.0-120			0.0874	15

L1071253-12 Original Sample (OS) • Matrix Spike (MS)

(OS) L1071253-12 02/19/19 04:04 • (MS) R3385030-7 02/19/19 04:35

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	18900	69300	101	1	80.0-120	
Fluoride	5000	476	5620	103	1	80.0-120	
Sulfate	50000	317000	351000	68.0	1	80.0-120	E V

L1071253-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071253-08 02/19/19 03:03 • (MS) R3385030-8 02/19/19 10:25 • (MSD) R3385030-9 02/19/19 10:41

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	18800	69400	69300	101	101	1	80.0-120			0.0454	15
Fluoride	5000	482	5660	5650	104	103	1	80.0-120			0.253	15
Sulfate	50000	317000	349000	349000	64.0	65.3	1	80.0-120	E V	E V	0.191	15

Method Blank (MB)

(MB) R3385153-1 02/19/19 18:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3385153-5 02/19/19 19:07 • (LCSD) R3385153-2 02/19/19 18:50

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	%	%	%			%	%
Mercury	3.00	2.94	2.87	97.8	95.6	80.0-120			2.32	20

L1071253-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071253-08 02/19/19 19:00 • (MS) R3385153-3 02/19/19 19:02 • (MSD) R3385153-4 02/19/19 19:05

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	%	%		%			%	%
Mercury	3.00	ND	2.97	3.03	99.1	101	1	75.0-125			2.05	20

Method Blank (MB)

(MB) R3385445-1 02/20/19 10:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

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

(LCS) R3385445-2 02/20/19 10:55 • (LCSD) R3385445-3 02/20/19 10:57

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	%	%	%			%	%
Mercury	3.00	2.97	2.71	99.1	90.4	80.0-120			9.19	20

L1071451-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071451-01 02/20/19 11:00 • (MS) R3385445-4 02/20/19 11:02 • (MSD) R3385445-5 02/20/19 11:04

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	%	%		%			%	%
Mercury	3.00	U	3.16	3.06	105	102	1	75.0-125			3.14	20

Method Blank (MB)

(MB) R3386220-1 02/22/19 12:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Boron	U		12.6	200
Calcium	U		46.3	1000
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

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

(LCS) R3386220-2 02/22/19 12:23 • (LCSD) R3386220-3 02/22/19 12:25

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 %
Barium	1000	1030	1010	103	101	80.0-120			1.97	20
Boron	1000	1020	1010	102	101	80.0-120			0.911	20
Calcium	10000	10000	9860	100	98.6	80.0-120			1.51	20
Chromium	1000	985	962	98.5	96.2	80.0-120			2.29	20
Cobalt	1000	1010	990	101	99.0	80.0-120			1.79	20
Lithium	1000	974	959	97.4	95.9	80.0-120			1.57	20
Molybdenum	1000	1030	1010	103	101	80.0-120			1.52	20

L1071253-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071253-08 02/22/19 12:28 • (MS) R3386220-5 02/22/19 12:33 • (MSD) R3386220-6 02/22/19 12:35

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	153	1170	1150	102	100	1	75.0-125			1.39	20
Boron	1000	1500	2550	2500	104	99.5	1	75.0-125			1.96	20
Calcium	10000	127000	135000	136000	81.1	91.3	1	75.0-125			0.751	20
Chromium	1000	ND	989	964	98.9	96.4	1	75.0-125			2.55	20
Cobalt	1000	ND	1040	1010	104	101	1	75.0-125			2.92	20
Lithium	1000	35.3	1020	1010	98.6	97.0	1	75.0-125			1.55	20
Molybdenum	1000	11.8	1060	1040	105	103	1	75.0-125			1.99	20

Method Blank (MB)

(MB) R3385591-1 02/20/19 19:31

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Lead	U		0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

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

(LCS) R3385591-2 02/20/19 19:35 • (LCSD) R3385591-3 02/20/19 19:40

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 %
Antimony	50.0	70.8	70.3	142	141	80.0-120	J4	J4	0.672	20
Arsenic	50.0	51.7	51.3	103	103	80.0-120			0.767	20
Beryllium	50.0	45.8	45.7	91.6	91.4	80.0-120			0.242	20
Cadmium	50.0	49.1	48.3	98.1	96.5	80.0-120			1.61	20
Lead	50.0	51.0	50.5	102	101	80.0-120			0.954	20
Selenium	50.0	48.2	49.6	96.3	99.2	80.0-120			2.93	20
Thallium	50.0	49.8	50.3	99.6	101	80.0-120			0.952	20

L1071253-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071253-08 02/20/19 19:44 • (MS) R3385591-5 02/20/19 19:53 • (MSD) R3385591-6 02/20/19 19:57

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 %
Antimony	50.0	ND	70.9	74.1	142	148	1	75.0-125	J5	J5	4.54	20
Arsenic	50.0	2.11	50.7	51.3	97.1	98.4	1	75.0-125			1.27	20
Beryllium	50.0	ND	46.2	47.0	92.5	93.9	1	75.0-125			1.52	20
Cadmium	50.0	ND	48.8	50.2	97.6	100	1	75.0-125			2.80	20
Lead	50.0	ND	48.3	50.3	95.3	99.3	1	75.0-125			4.10	20
Selenium	50.0	ND	49.3	51.0	98.6	102	1	75.0-125			3.45	20
Thallium	50.0	ND	47.4	49.5	94.9	99.0	1	75.0-125			4.24	20

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

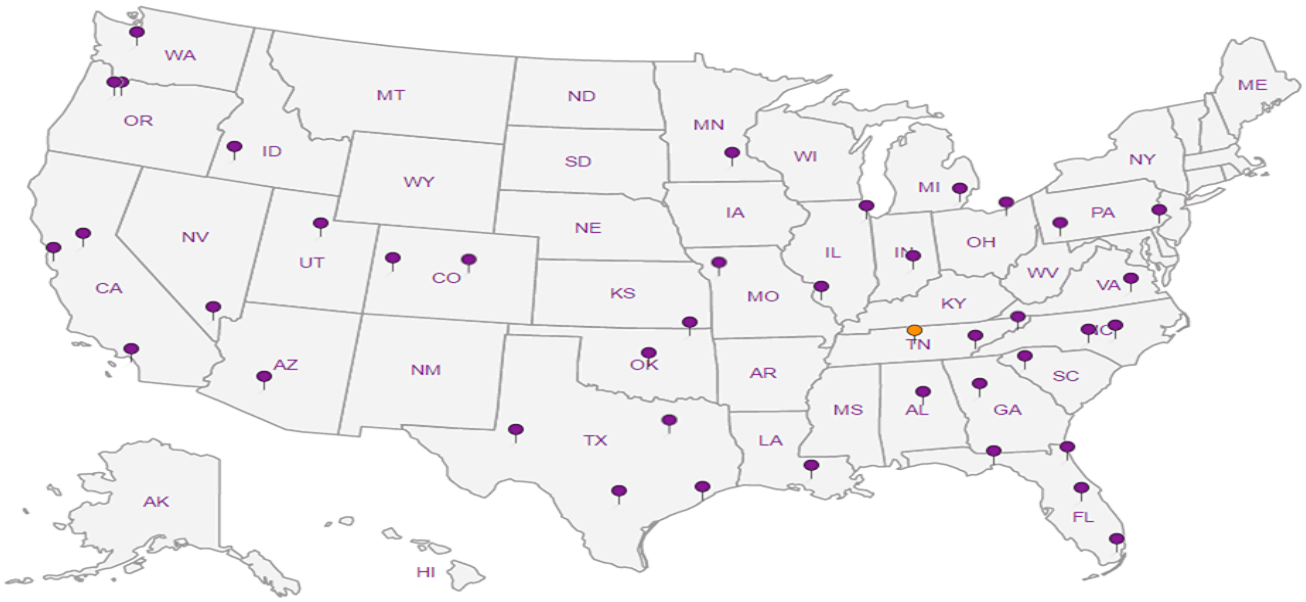
Third Party Federal Accreditations

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

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

Our Locations

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



SCS Engineers - KS

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:

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

Client Project # **27213167.16**

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

Pres Chk: 2

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-101	GRAB	GW		2/15	1015	3	X	X	X		-01
MW-102		GW		2/14	0935	3	X	X	X		02
MW-103		GW		2/14	0940	3	X	X	X		03
MW-104		GW		2/14	1040	3	X	X	X		04
MW-105		GW		2/14	1040	3	X	X	X		05
MW-106		GW		2/14	1135	3	X	X	X		06
MW-107		GW		2/15	0835	3	X	X	X		07
MW-108		GW		2/15	0905	3	X	X	X		08
MW-109		GW		2/15	0915	3	X	X	X		09
MW-110		GW		2/15	0955	3	X	X	X		10

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 # L1071253
H227

Acctnum: **AQUAOPKS**
Template: **T132734**
Prelogin: **P668919**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

Remarks:6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

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

Tracking # 4670 1655 8504

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)
	2/15/19	1227	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

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

Temp: 2.1±0 °C Bottles Received: 42

Date: 2/16/19 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

AJ 2/13/19

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: <2

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 # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): G. Pendlor

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	CCR Metals 250mlHDPE-HNO3	Chloride, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-111	GRAB	GW		2/15	1030	3	X	X	X		11
DUPLICATE	↓	GW		2/15	0910	3	X	X	X		12
MS 108		GW		2/15	0915	3	X	X	X		08
MSD 108		GW		2/15	0920	3	X	X	X		08

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# L1071753

Table #

Acctnum: AQUAOPKS

Template: T132734

Prelogin: P668919

TSR: 206 - Jeff Carr

PB:

Shipped Via: FedEX Ground

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

Remarks: 6010 Metals-B,BA,CA,CR,CO,LI,MO, 6020 Metals-SB,AS,BE,CD,PB,SE,TL, 7470 Metals-HG.

RAD SCREEN: <0.5 mR/hr

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)
	2/15/19	1227	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			BK Faris

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

Temp: 2.1 2.0 °C Bottles Received: 42

Date: 2/16/19 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Andy Vann

Pace Analytical®
National Center for Testing & Innovation

Login #:L1071253	Client:AQUAOPKS	Date:	Evaluated by:

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	X	Login Clarification Needed		**If Broken Container:**
	Temperature not in range		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	pH not in range.		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
	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: Please clarify MS/MSD. One COC states MW-108 but time matches MW-109.

Client informed by:		Call		Email		Voice Mail		Date: 2/18	Time: 0811
TSR Initials: JC	Client Contact:								

Login Instructions: MW-108.

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 19, 2019

SCS Engineers - KS

Sample Delivery Group:	L1071255
Samples Received:	02/16/2019
Project Number:	27213167.16
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-101 L1071255-01 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 10:15 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1239872	1	03/12/19 14:00	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-102 L1071255-02 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/14/19 09:35 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1239872	1	03/12/19 14:00	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-103 L1071255-03 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/14/19 09:40 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1239872	1	03/12/19 14:00	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-104 L1071255-04 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/14/19 10:40 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1243978	1	03/04/19 09:23	03/06/19 08:51	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/06/19 08:51	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-105 L1071255-05 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/14/19 10:40 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-106 L1071255-06 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/14/19 11:35 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-107 L1071255-07 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 08:35 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-108 L1071255-08 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:05 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1239872	1	03/12/19 14:00	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/14/19 12:00	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-109 L1071255-09 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:15 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-110 L1071255-10 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:55 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/11/19 11:47	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/11/19 11:47	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

MW-111 L1071255-11 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 10:30 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:48	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:48	02/27/19 13:24	RGT	Mt. Juliet, TN

DUPLICATE L1071255-12 Non-Potable Water

Collected by: G. Penaflor | Collected date/time: 02/15/19 09:10 | Received date/time: 02/16/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1245169	1	03/08/19 17:00	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1242104	1	02/26/19 10:46	03/18/19 10:34	MK	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1242104	1	02/26/19 10:46	02/27/19 13:24	RGT	Mt. Juliet, TN

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

Jeff Carr
Project Manager

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.57		0.360	0.609	03/14/2019 12:00	WG1239872
(T) Barium	*120*			*62.0-143*	*03/14/2019 12:00*	WG1239872
(T) Yttrium	*104*			*79.0-136*	*03/14/2019 12:00*	WG1239872

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.28		0.712	0.815	03/14/2019 12:00	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.706		0.352	0.206	02/27/2019 13:24	WG1242104
(T) Barium-133	*84.0*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.400		0.409	0.676	03/14/2019 12:00	WG1239872
(T) Barium	*120*			*62.0-143*	*03/14/2019 12:00*	WG1239872
(T) Yttrium	*104*			*79.0-136*	*03/14/2019 12:00*	WG1239872

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.28		0.829	1.03	03/14/2019 12:00	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.876		0.420	0.355	02/27/2019 13:24	WG1242104
(T) Barium-133	*76.6*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.12		0.384	0.481	03/14/2019 12:00	WG1239872
(T) Barium	*126*			*62.0-143*	*03/14/2019 12:00*	WG1239872
(T) Yttrium	*112*			*79.0-136*	*03/14/2019 12:00*	WG1239872

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	3.00		0.778	0.758	03/14/2019 12:00	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.880		0.394	0.277	02/27/2019 13:24	WG1242104
(T) Barium-133	*83.0*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.418		0.544	0.623	03/06/2019 08:51	WG1243978
(T) Barium	*101*			*62.0-143*	*03/06/2019 08:51*	WG1243978
(T) Yttrium	*93.1*			*79.0-136*	*03/06/2019 08:51*	WG1243978

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.953		0.830	0.802	03/06/2019 08:51	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.535		0.286	0.179	02/27/2019 13:24	WG1242104
(T) Barium-133	*81.6*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.214		0.408	0.811	03/18/2019 10:34	WG1245169
(T) Barium	*90.2*			*62.0-143*	*03/18/2019 10:34*	WG1245169
(T) Yttrium	*101*			*79.0-136*	*03/18/2019 10:34*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.434		0.679	1.03	03/18/2019 10:34	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.434		0.271	0.216	02/27/2019 13:24	WG1242104
(T) Barium-133	*86.0*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0346		0.375	0.553	03/18/2019 10:34	WG1245169
(T) Barium	*98.9*			*62.0-143*	*03/18/2019 10:34*	WG1245169
(T) Yttrium	*98.5*			*79.0-136*	*03/18/2019 10:34*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.282		0.579	0.76	03/18/2019 10:34	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.282		0.204	0.207	02/27/2019 13:24	WG1242104
(T) Barium-133	*90.9*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.134		0.342	0.538	03/18/2019 10:34	WG1245169
(T) Barium	*104*			*62.0-143*	*03/18/2019 10:34*	WG1245169
(T) Yttrium	*104*			*79.0-136*	*03/18/2019 10:34*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.309		0.584	0.885	03/18/2019 10:34	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.175		0.242	0.347	02/27/2019 13:24	WG1242104
(T) Barium-133	*81.9*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.258		0.463	0.666	03/14/2019 12:00	WG1239872
(T) Barium	*105*			*62.0-143*	*03/14/2019 12:00*	WG1239872
(T) Yttrium	*110*			*79.0-136*	*03/14/2019 12:00*	WG1239872

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.470		0.731	0.887	03/14/2019 12:00	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.470		0.268	0.221	02/27/2019 13:24	WG1242104
(T) Barium-133	*96.2*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.453		0.331	0.526	03/18/2019 10:34	WG1245169
(T) Barium	*105*			*62.0-143*	*03/18/2019 10:34*	WG1245169
(T) Yttrium	*102*			*79.0-136*	*03/18/2019 10:34*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.765		0.574	0.82	03/18/2019 10:34	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.312		0.243	0.294	02/27/2019 13:24	WG1242104
(T) Barium-133	*92.2*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.793		0.364	0.652	03/11/2019 11:47	WG1245169
(T) Barium	*85.3*			*62.0-143*	*03/11/2019 11:47*	WG1245169
(T) Yttrium	*96.4*			*79.0-136*	*03/11/2019 11:47*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.983		0.552	0.87	03/11/2019 11:47	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.190		0.188	0.218	02/27/2019 13:24	WG1242104
(T) Barium-133	*77.5*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.769		0.364	0.517	03/18/2019 10:34	WG1245169
(T) Barium	*112*			*62.0-143*	*03/18/2019 10:34*	WG1245169
(T) Yttrium	*101*			*79.0-136*	*03/18/2019 10:34*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.18		0.630	0.748	03/18/2019 10:34	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.415		0.266	0.231	02/27/2019 13:24	WG1242104
(T) Barium-133	*79.9*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.669		0.341	0.64	03/18/2019 10:34	WG1245169
(T) Barium	*100*			*62.0-143*	*03/18/2019 10:34*	WG1245169
(T) Yttrium	*98.5*			*79.0-136*	*03/18/2019 10:34*	WG1245169

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.24		0.648	0.869	03/18/2019 10:34	WG1242104

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.570		0.307	0.229	02/27/2019 13:24	WG1242104
(T) Barium-133	*84.8*			*30.0-110*	*02/27/2019 13:24*	WG1242104

Method Blank (MB)

(MB) R3392119-1 03/14/19 16:24

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-228	0.357		0.259
(T) Barium	*112*		
(T) Yttrium	*102*		

L1071255-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1071255-01 03/14/19 12:00 • (DUP) R3392119-2 03/14/19 16:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	
Radium-228	1.57	1.41	1	10.9	0.179		20	3
(T) Barium	*120*	*115*						
(T) Yttrium	*104*	*106*						

Laboratory Control Sample (LCS)

(LCS) R3392119-3 03/15/19 09:24

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	4.18	83.7	80.0-120	
(T) Barium			*115*		
(T) Yttrium			*109*		

L1071255-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071255-08 03/14/19 12:00 • (MS) R3392119-4 03/15/19 09:24 • (MSD) R3392119-5 03/15/19 09:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	20.0	-0.258	21.5	23.3	107	116	1	70.0-130			8.04		20
(T) Barium		*105*			*98.3*	*101*							
(T) Yttrium		*110*			*107*	*103*							

Method Blank (MB)

(MB) R3389244-1 03/06/19 08:51

Analyte	MB Result	MB Qualifier	MB MDA
	pCi/l		pCi/l
Radium-228	0.599		0.397
(T) Barium	*99.9*		
(T) Yttrium	*90.7*		

L1068557-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1068557-01 03/06/19 08:51 • (DUP) R3389244-5 03/06/19 08:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	pCi/l		%			%	
Radium-228	2.49	2.44	1	1.70	0.0489		20	3
(T) Barium	*108*	*108*						
(T) Yttrium	*94.6*	*98.0*						

Laboratory Control Sample (LCS)

(LCS) R3389244-2 03/06/19 08:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.33	107	80.0-120	
(T) Barium			*106*		
(T) Yttrium			*97.1*		

L1068214-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1068214-01 03/06/19 08:51 • (MS) R3389244-3 03/06/19 08:51 • (MSD) R3389244-4 03/06/19 08:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	20.0	1.40	23.9	27.1	112	128	1	70.0-130			12.5		20
(T) Barium		*103*			*91.2*	*90.8*							
(T) Yttrium		*93.5*			*100*	*81.8*							

Method Blank (MB)

(MB) R3390595-1 03/11/19 11:47

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-228	0.350		0.406
(T) Barium	*108*		
(T) Yttrium	*107*		

L1071255-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1071255-10 03/11/19 11:47 • (DUP) R3390595-5 03/11/19 11:47

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.793	0.00858	1	196	1.29		20	3
(T) Barium	*85.3*	*98.2*						
(T) Yttrium	*96.4*	*119*						

Laboratory Control Sample (LCS)

(LCS) R3390595-2 03/11/19 11:47

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.07	101	80.0-120	
(T) Barium			*101*		
(T) Yttrium			*95.2*		

L1071526-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071526-03 03/11/19 11:47 • (MS) R3390595-3 03/11/19 11:47 • (MSD) R3390595-4 03/11/19 11:47

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	20.0	-0.0757	17.0	16.8	84.8	84.0	1	70.0-130			1.01		20
(T) Barium		*107*			*99.4*	*98.8*							
(T) Yttrium		*102*			*105*	*111*							

Method Blank (MB)

(MB) R3387596-1 02/27/19 13:24

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	-0.0113		0.0587
(T) Barium-133	*105*		

L1071255-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1071255-01 02/27/19 13:24 • (DUP) R3387596-5 02/27/19 13:24

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.706	0.311	1	77.7	0.860		20	3
(T) Barium-133	*84.0*	*70.2*						

Laboratory Control Sample (LCS)

(LCS) R3387596-2 02/27/19 13:24

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.52	90.1	80.0-120	
(T) Barium-133			*101*		

L1071255-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071255-08 02/27/19 13:24 • (MS) R3387596-3 02/27/19 13:24 • (MSD) R3387596-4 02/27/19 13:24

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.470	19.5	20.2	94.6	98.0	1	75.0-125			3.43		20
(T) Barium-133		*96.2*			*83.8*	*81.9*							

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

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

Qualifier	Description

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

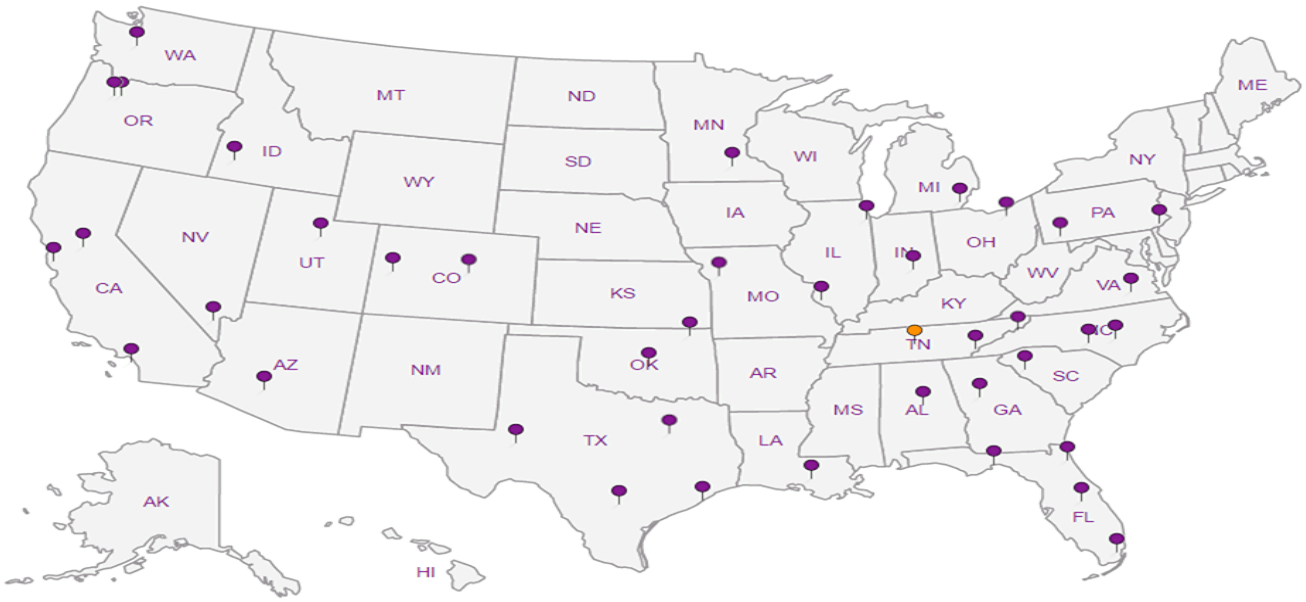
Third Party Federal Accreditations

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

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

Our Locations

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



SCS Engineers - KS
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:

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

Client Project # **27213167.16**

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

Pres Chk: <2

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

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 # L1071253
H228

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P668920**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-101	GRAB	NPW		2/15	1015	2	X		-9
MW-102		NPW		2/14	0935	2	X		02
MW-103		NPW		2/14	0940	2	X		03
MW-104		NPW		2/14	1040	2	X		04
MW-105		NPW		2/14	1040	2	X		05
MW-106		NPW		2/14	1135	2	X		06
MW-107		NPW		2/15	0835	2	X		07
MW-108		NPW		2/15	0905	2	X		08
MW-109		NPW		2/15	0915	2	X		09
MW-110		NPW		2/15	0955	2	X		10

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

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

RAD SCREEN: <0.5 mR/hr

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
__ UPS X FedEx __ Courier __ ___

Tracking # 4510 1655 8640 8629

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)
	2/15/19	1227	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Date: 2/16/19 Time: 0845

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.1±0 °C IR Bottles Received: 28

If preservation required by Login: Date/Time

Hold:

Condition: NCF / ~~OK~~

AV 2/12/19

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:

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

Client Project # 27213167.16

Lab Project # AQUAOPKS-IATAN

Collected by (print): G. Penafiel

Site/Facility ID #

P.O. #

Collected by (signature): [signature]

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

Quote #

Date Results Needed: STD

Immediately Packed on Ice N ___ Y X

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

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

L #

Table #

Acctnum: **AQUAOPKS**
Template: **T132737**
Prelogin: **P668920**
TSR: **206 - Jeff Carr**
PB:
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA226, RA228 1L-HDPE-Add HNO3	Remarks	Sample # (lab only)
MW-111	GRAB	NPW		2/15	1030	2	X		11
DUPLICATE	↓	NPW		↓	0910	2	X		12
MS ~~[illegible]~~	↓	NPW		↓	0915	2	X		~~13~~ 08
MSD ~~[illegible]~~	↓	NPW		↓	0920	2	X		~~14~~ 08

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

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

RAD SCREEN: <0.5 mR/hr

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)	
	2/15/19	1227	[signature]	Trip Blank Received: Yes / (No) HCL / MeOH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.1=0 °C Bottles Received: 28
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 2/16/19 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

Andy Vann

Pace Analytical®
National Center for Testing & Innovation

Login #:L1071255	Client:AQUAOPKS	Date:	Evaluated by:

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	X	Login Clarification Needed		**If Broken Container:**
	Temperature not in range		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	pH not in range.		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
	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: Please clarify MS/MSD. One COC states MW-108 but time matches MW-109.

Client informed by:		Call		Email		Voice Mail		Date: 2/18	Time: 0811
TSR Initials: JC	Client Contact:								

Login Instructions: MW-108.

Jared Morrison
December 16, 2022

ATTACHMENT 1-9

April 2019 Detection Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 09, 2019

SCS Engineers - KS

Sample Delivery Group:	L1094165
Samples Received:	05/01/2019
Project Number:	27213167.15
Description:	KCPL - Iatan Gen. 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-101 L1094165-01 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 10:45 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/06/19 17:36	05/06/19 17:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:34	CCE	Mt. Juliet, TN

MW-102 L1094165-02 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 10:15 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/06/19 18:06	05/06/19 18:06	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:37	CCE	Mt. Juliet, TN

MW-103 L1094165-03 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 13:50 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/06/19 18:36	05/06/19 18:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:39	CCE	Mt. Juliet, TN

MW-104 L1094165-04 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 14:35 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/07/19 14:11	05/07/19 14:11	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/07/19 14:25	05/07/19 14:25	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:47	CCE	Mt. Juliet, TN

MW-105 L1094165-05 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 15:20 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/07/19 10:12	05/07/19 10:12	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:50	CCE	Mt. Juliet, TN

MW-107 L1094165-06 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 14:55 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/07/19 10:27	05/07/19 10:27	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/07/19 10:42	05/07/19 10:42	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:53	CCE	Mt. Juliet, TN

MW-108 L1094165-07 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 13:40 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/06/19 14:22	05/06/19 14:22	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/06/19 15:07	05/06/19 15:07	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:23	CCE	Mt. Juliet, TN

MW-109 L1094165-08 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 12:30 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275190	1	05/04/19 10:03	05/04/19 10:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/07/19 10:57	05/07/19 10:57	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/07/19 11:12	05/07/19 11:12	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:56	CCE	Mt. Juliet, TN

MW-110 L1094165-09 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 11:50 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275186	1	05/03/19 17:48	05/03/19 19:07	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/07/19 11:27	05/07/19 11:27	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/07/19 11:41	05/07/19 11:41	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 22:58	CCE	Mt. Juliet, TN

MW-111 L1094165-10 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 11:15 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275529	1	05/03/19 18:06	05/03/19 19:33	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/07/19 11:56	05/07/19 11:56	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 23:01	CCE	Mt. Juliet, TN

DUPLICATE L1094165-11 GW

Collected by: Whit Martin | Collected date/time: 04/29/19 00:00 | Received date/time: 05/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1275191	1	05/04/19 19:55	05/05/19 00:01	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	1	05/07/19 12:26	05/07/19 12:26	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1275774	5	05/07/19 13:11	05/07/19 13:11	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1275830	1	05/07/19 10:00	05/08/19 23:04	CCE	Mt. Juliet, TN

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

Jeff Carr
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	536000		10000	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	6190		1000	1	05/06/2019 17:36	WG1275774
Fluoride	385		100	1	05/06/2019 17:36	WG1275774
Sulfate	ND		5000	1	05/06/2019 17:36	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/08/2019 22:34	WG1275830
Calcium	124000		1000	1	05/08/2019 22:34	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	477000		10000	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	5290		1000	1	05/06/2019 18:06	WG1275774
Fluoride	280		100	1	05/06/2019 18:06	WG1275774
Sulfate	ND		5000	1	05/06/2019 18:06	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/08/2019 22:37	WG1275830
Calcium	125000		1000	1	05/08/2019 22:37	WG1275830

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	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	4510		1000	1	05/06/2019 18:36	WG1275774
Fluoride	257		100	1	05/06/2019 18:36	WG1275774
Sulfate	ND		5000	1	05/06/2019 18:36	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	ND		200	1	05/08/2019 22:39	WG1275830
Calcium	137000		1000	1	05/08/2019 22:39	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	397000		10000	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	23000		1000	1	05/07/2019 14:11	WG1275774
Fluoride	593		100	1	05/07/2019 14:11	WG1275774
Sulfate	119000		25000	5	05/07/2019 14:25	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	1200		200	1	05/08/2019 22:47	WG1275830
Calcium	52600		1000	1	05/08/2019 22:47	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	647000		13300	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	17800		5000	5	05/07/2019 10:12	WG1275774
Fluoride	791		500	5	05/07/2019 10:12	WG1275774
Sulfate	281000		25000	5	05/07/2019 10:12	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	1410		200	1	05/08/2019 22:50	WG1275830
Calcium	89400		1000	1	05/08/2019 22:50	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	619000		13300	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	33300		1000	1	05/07/2019 10:27	WG1275774
Fluoride	744		100	1	05/07/2019 10:27	WG1275774
Sulfate	249000		25000	5	05/07/2019 10:42	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	2200		200	1	05/08/2019 22:53	WG1275830
Calcium	67400		1000	1	05/08/2019 22:53	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	799000		13300	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18700		1000	1	05/06/2019 14:22	WG1275774
Fluoride	559		100	1	05/06/2019 14:22	WG1275774
Sulfate	336000		25000	5	05/06/2019 15:07	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	1410		200	1	05/08/2019 22:23	WG1275830
Calcium	128000	V	1000	1	05/08/2019 22:23	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	692000		13300	1	05/04/2019 10:18	WG1275190

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	22500		1000	1	05/07/2019 10:57	WG1275774
Fluoride	604		100	1	05/07/2019 10:57	WG1275774
Sulfate	245000		25000	5	05/07/2019 11:12	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	684		200	1	05/08/2019 22:56	WG1275830
Calcium	126000		1000	1	05/08/2019 22:56	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	776000		13300	1	05/03/2019 19:07	WG1275186

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	20500		1000	1	05/07/2019 11:27	WG1275774
Fluoride	551		100	1	05/07/2019 11:27	WG1275774
Sulfate	361000		25000	5	05/07/2019 11:41	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	2450		200	1	05/08/2019 22:58	WG1275830
Calcium	64100		1000	1	05/08/2019 22:58	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	559000		10000	1	05/03/2019 19:33	WG1275529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	8300		1000	1	05/07/2019 11:56	WG1275774
Fluoride	574		100	1	05/07/2019 11:56	WG1275774
Sulfate	26300		5000	1	05/07/2019 11:56	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	843		200	1	05/08/2019 23:01	WG1275830
Calcium	95900		1000	1	05/08/2019 23:01	WG1275830

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	832000		13300	1	05/05/2019 00:01	WG1275191

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	18400		1000	1	05/07/2019 12:26	WG1275774
Fluoride	539		100	1	05/07/2019 12:26	WG1275774
Sulfate	332000		25000	5	05/07/2019 13:11	WG1275774

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Boron	1230		200	1	05/08/2019 23:04	WG1275830
Calcium	123000		1000	1	05/08/2019 23:04	WG1275830

Method Blank (MB)

(MB) R3408537-1 05/03/19 19:07

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

L1094165-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1094165-09 05/03/19 19:07 • (DUP) R3408537-3 05/03/19 19:07

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	776000	771000	1	0.689		5

Laboratory Control Sample (LCS)

(LCS) R3408537-2 05/03/19 19:07

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

Method Blank (MB)

(MB) R3408620-1 05/04/19 10:18

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

L1094165-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1094165-08 05/04/19 10:18 • (DUP) R3408620-3 05/04/19 10:18

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	692000	712000	1	2.85		5

Laboratory Control Sample (LCS)

(LCS) R3408620-2 05/04/19 10:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8380000	95.2	85.0-115	

Method Blank (MB)

(MB) R3408616-1 05/05/19 00:01

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

L1093959-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1093959-01 05/05/19 00:01 • (DUP) R3408616-3 05/05/19 00:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2960000	2940000	1	0.407		5

Laboratory Control Sample (LCS)

(LCS) R3408616-2 05/05/19 00:01

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8710000	99.0	85.0-115	

Method Blank (MB)

(MB) R3408550-1 05/03/19 19:33

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

L1094165-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1094165-10 05/03/19 19:33 • (DUP) R3408550-3 05/03/19 19:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	559000	560000	1	0.179		5

Laboratory Control Sample (LCS)

(LCS) R3408550-2 05/03/19 19:33

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

Method Blank (MB)

(MB) R3408902-1 05/06/19 12:54

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

L1094181-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1094181-06 05/06/19 13:53 • (DUP) R3408902-3 05/06/19 14:08

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	23300	23200	1	0.459		15
Fluoride	143	143	1	0.0701		15
Sulfate	12300	12300	1	0.0252		15

L1094181-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1094181-07 05/07/19 13:26 • (DUP) R3408902-6 05/07/19 13:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	17400	17400	1	0.0919		15
Fluoride	ND	50.3	1	0.000		15
Sulfate	23000	22900	1	0.501		15

Laboratory Control Sample (LCS)

(LCS) R3408902-2 05/06/19 13:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	40800	102	80.0-120	
Fluoride	8000	8270	103	80.0-120	
Sulfate	40000	41800	104	80.0-120	

L1094165-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1094165-07 05/06/19 14:22 • (MS) R3408902-4 05/06/19 14:37 • (MSD) R3408902-5 05/06/19 14:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	18700	69600	69500	102	102	1	80.0-120			0.0561	15
Fluoride	5000	559	5660	5680	102	102	1	80.0-120			0.325	15
Sulfate	50000	323000	356000	356000	65.7	66.9	1	80.0-120	E V	E V	0.167	15

L1094181-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1094181-07 05/07/19 13:26 • (MS) R3408902-7 05/07/19 13:56

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	17400	68300	102	1	80.0-120	
Fluoride	5000	ND	5220	103	1	80.0-120	
Sulfate	50000	23000	73900	102	1	80.0-120	

Method Blank (MB)

(MB) R3409504-1 05/08/19 22:15

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) R3409504-2 05/08/19 22:18 • (LCSD) R3409504-3 05/08/19 22:21

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	1010	929	101	92.9	80.0-120			8.49	20
Calcium	10000	10300	9540	103	95.4	80.0-120			7.67	20

L1094165-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1094165-07 05/08/19 22:23 • (MS) R3409504-5 05/08/19 22:29 • (MSD) R3409504-6 05/08/19 22:31

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	1410	2370	2410	95.5	99.4	1	75.0-125			1.60	20
Calcium	10000	128000	136000	135000	80.7	73.2	1	75.0-125		V	0.550	20

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

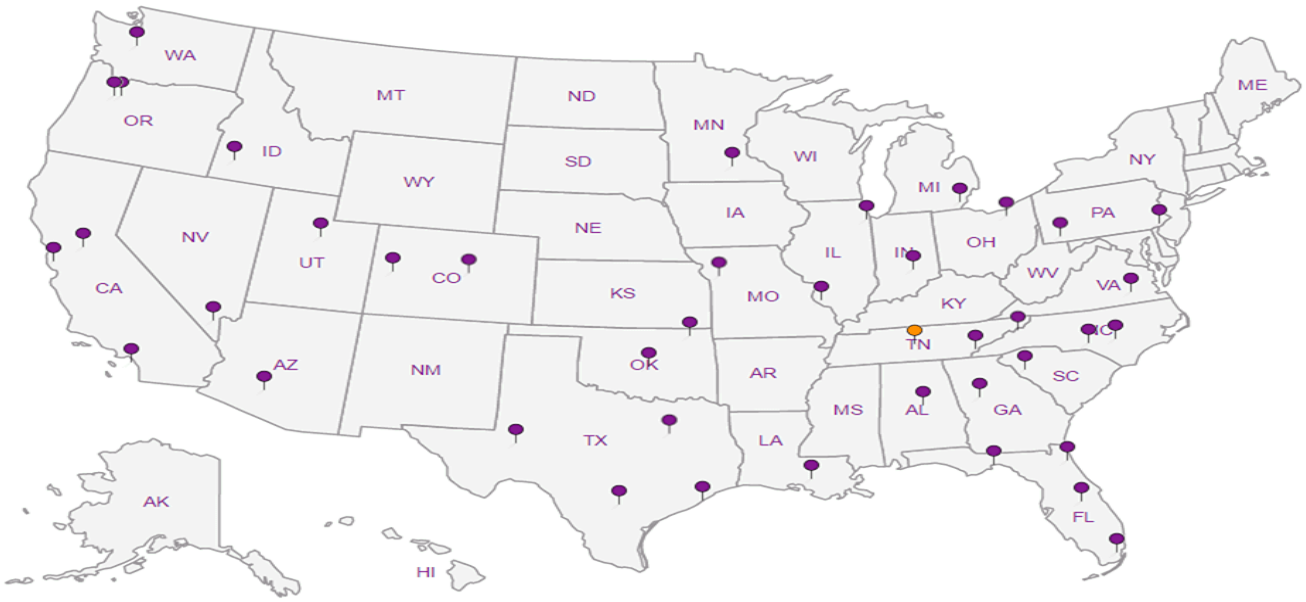
Third Party Federal Accreditations

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

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

Our Locations

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



SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Report to: Jason Franks

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

Project Description: KCP&L Iatan Generating Station

City/State Collected:

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

Client Project # 27213167.15

Lab Project # AQUAOPKS-IATAN

Collected by (print): Whit Martin

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: Std

Pres Chk

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	<2							Remarks	Sample # (lab only)
MW-101	Grab	GW		4/29/19	1045	3	X	X	X									-01
MW-102	Grab	GW		4/29/19	1015	3	X	X	X									02
MW-103	Grab	GW		4/29/19	1350	3	X	X	X									03
MW-104	Grab	GW		4/29/19	1435	3	X	X	X									04
MW-105	Grab	GW		4/29/19	1520	3	X	X	X									05
~~MW-106~~	~~Grab~~	~~GW~~				~~3~~	~~X~~	~~X~~	~~X~~									
MW-107	Grab	GW		4/29/19	1455	3	X	X	X									06
MW-108	Grab	GW		4/29/19	1340	3	X	X	X									07
MW-109	Grab	GW		4/29/19	1230	3	X	X	X									08
MW-110	Grab	GW		4/29/19	1150	3	X	X	X									09

Chain of Custody Page ___ of ___

National Center for Testing & Innovation

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

L# L1094165
H228

Acctnum: AQUAOPKS
Template: T128513
Prelogin: P701206
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 # 4794 8826 9995

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
	4/30/19	1240	4-30-19 1240	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.3BF °C 2.3-.1=2.2 Bottles Received: 36
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/1/19 Time: 0845
				Hold: Condition: NCF / OK

SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Report to: **Jason Franks**

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

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

City/State Collected:

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

Client Project # **27213167.15**

Lab Project # **AQUAOPKS-IATAN**

Collected by (print):

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

Pres Chk

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	<2								Remarks	Sample # (lab only)
MW-111	Grab	GW		4/29/19	1115	3	X	X	X										10
DUPLICATE	Grab	GW		4/29/19		3	X	X	X										11
10B MS / MSD	Grab	GW		4/29/19	1345	2	X	X											07

Chain of Custody Page ___ of ___

National Center for Testing & Innovation

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

L # L1041165

Table #

Acctnum: **AQUAOPKS**
Template: **T128513**
Prelogin: **P701206**
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
	4/30/19	1240	4-30-19 1240	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: A3BF °C 2.3-.1=2.2 Bottles Received: 36
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/1/19 Time: 0845
				Hold: Condition: NCF / (OK)

Jared Morrison
December 16, 2022

ATTACHMENT 1-1
May 2019 Sampling Event Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 29, 2019

SCS Engineers - KS

Sample Delivery Group:	L1100823
Samples Received:	05/21/2019
Project Number:	27213167.18
Description:	KCP&L Iatan Generating Station

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

Entire Report Reviewed By:

Jason Romer
Project Manager

TABLE OF CONTENTS

MW-107 L1100823-01 GW

Collected by: G. Penaflor
Collected date/time: 05/20/19 13:35
Received date/time: 05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 21:03	05/28/19 21:03	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 11:02	TRB	Mt. Juliet, TN

DUPLICATE L1100823-02 GW

Collected by: G. Penaflor
Collected date/time: 05/20/19 13:40
Received date/time: 05/21/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1286594	1	05/28/19 22:31	05/28/19 22:31	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1284393	1	05/24/19 10:25	05/25/19 12:02	TRB	Mt. Juliet, TN

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

Jason Romer
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	34200		1000	1	05/28/2019 21:03	WG1286594

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	66800		1000	1	05/25/2019 11:02	WG1284393

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Chloride	34100		1000	1	05/28/2019 22:31	WG1286594

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Calcium	66700		1000	1	05/25/2019 12:02	WG1284393

Method Blank (MB)

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

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

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

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

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	5660	5660	1	0.00883		15

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

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

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	34100	34100	1	0.201		15

Laboratory Control Sample (LCS)

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

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

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

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

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	7180	59300	59000	104	104	1	80.0-120			0.519	15

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

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

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	34200	83700	83500	98.9	98.5	1	80.0-120			0.276	15

Method Blank (MB)

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

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium	293	J	46.3	1000

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

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

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Calcium	10000	9930	9690	99.3	96.9	80.0-120			2.46	20

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

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

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	10000	167000	175000	174000	81.4	71.7	1	75.0-125		V	0.560	20

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

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

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium	10000	66800	75900	75400	91.9	86.6	1	75.0-125			0.692	20

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

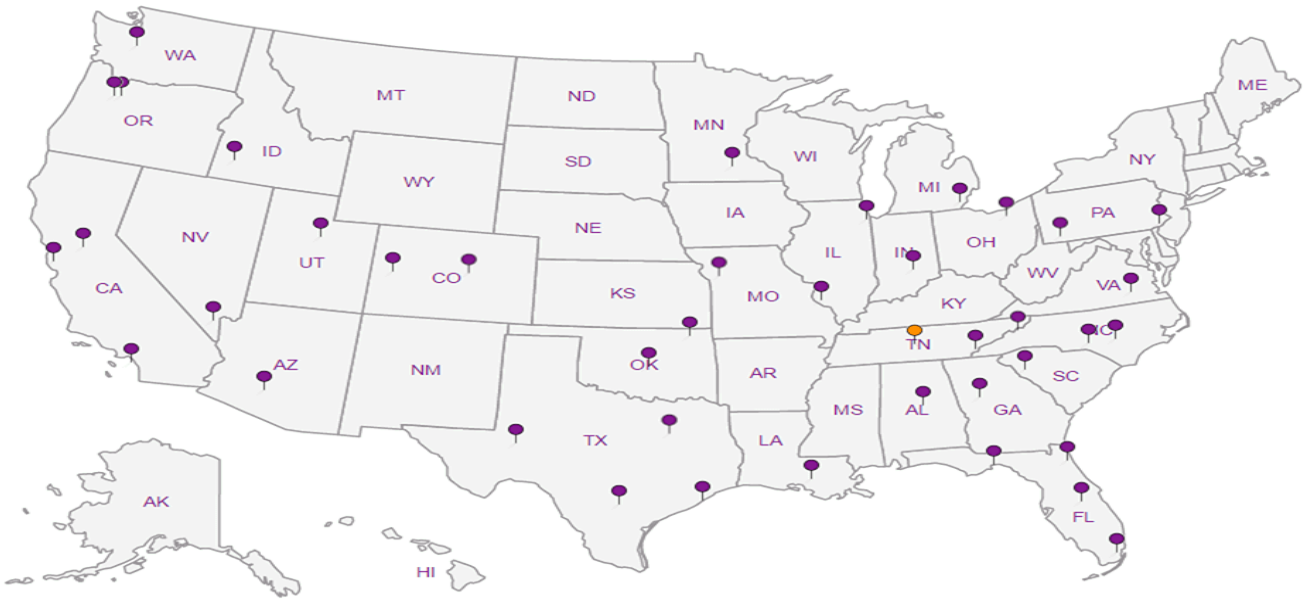
Third Party Federal Accreditations

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

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

Our Locations

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



SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

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

Pres Chk

Report to: **Jason Franks**

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

Project Description: **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): 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	Ca - 6010 250mlHDPE-HNO3 (2)	Chloride - 9056 125mlHDPE-NoPres								Remarks	Sample # (lab only)
MW-107	GRAB	GW		5/20/19	1335	2	X	X									-01
MW-107 MS/MSD	↓	GW		↓	1335	2	X	X									-01
DUPLICATE	↓	GW		↓	1340	2	X	X									-02

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

National Center for Testing & Innovation

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

L # L1100823

B183

Acct: AQUAOPKS

Template: **T129786**

Prelogin: **P709901**

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 # 1111010.4

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	
	5/20/19	1539			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.3°F °C 4.6-.1=4.5	Bottles Received: 6
	5-20-19	1730			
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/21/19	Time: 0800

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Jared Morrison
December 16, 2022

ATTACHMENT 2

Statistical Analyses

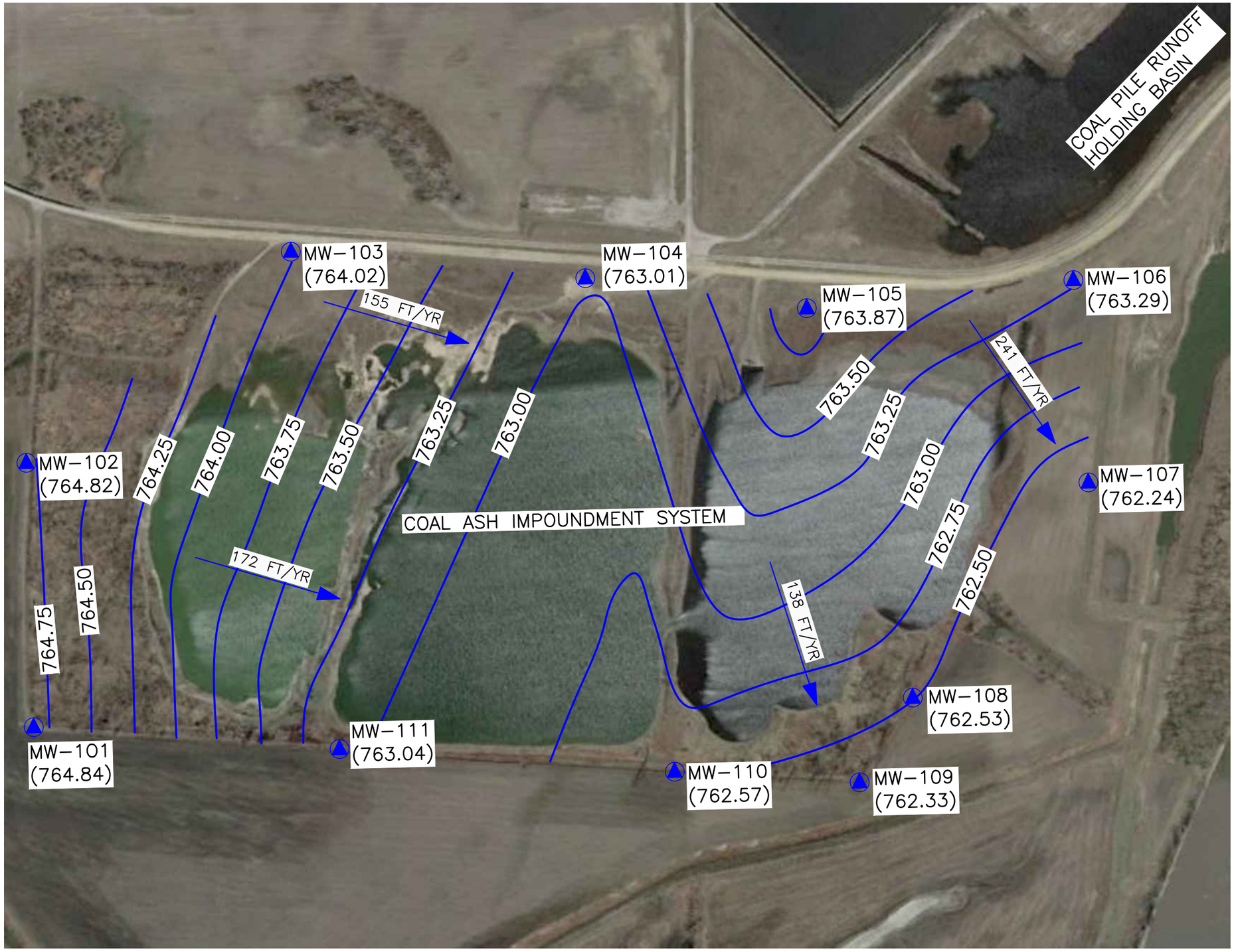
Statistical analyses were not completed between February 2018 and June 2019. Statistical analyses of the background sampling events were completed following data verification of the July 2019 second verification sampling event.

Jared Morrison
December 16, 2022

ATTACHMENT 3

Groundwater Potentiometric Surface Maps

- February 2018 – First background sampling event.
- April 2018 – Second background sampling event.
- May 2018 - Third background sampling event.
- July 2018 - Fourth background sampling event.
- September 2018 - Fifth background sampling event.
- October 2018 - Sixth background sampling event.
- December 2018 - Seventh background sampling event.
- February 2019 - Eighth background sampling event.
- April 2019 – Spring semiannual detection monitoring sampling event.



LEGEND:

- MW–109 (762.33) — MONITORING WELL (GROUNDWATER ELEVATION)
- 763.00 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON FEBURARY 27–28, 2018.

400 0 400 800
SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT(FEBRUARY 2018)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

CLIENT
EVERGY METRO, INC.
IATAN GENERATING STATION
WESTON, 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/A RVW BY:	PROJ. MGR
27217413.00	RCW	JRF	JRR	JRF
DSN. BY: RCW				

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-2-27.DWG

DATE:
12/12/22

FIGURE
1

LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 765.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON APRIL 16, 2018.

400 0 400 800

SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT (APRIL 2018)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

CLIENT
EVERGY METRO, INC.
IATAN GENERATING STATION
WESTON, MISSOURI

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

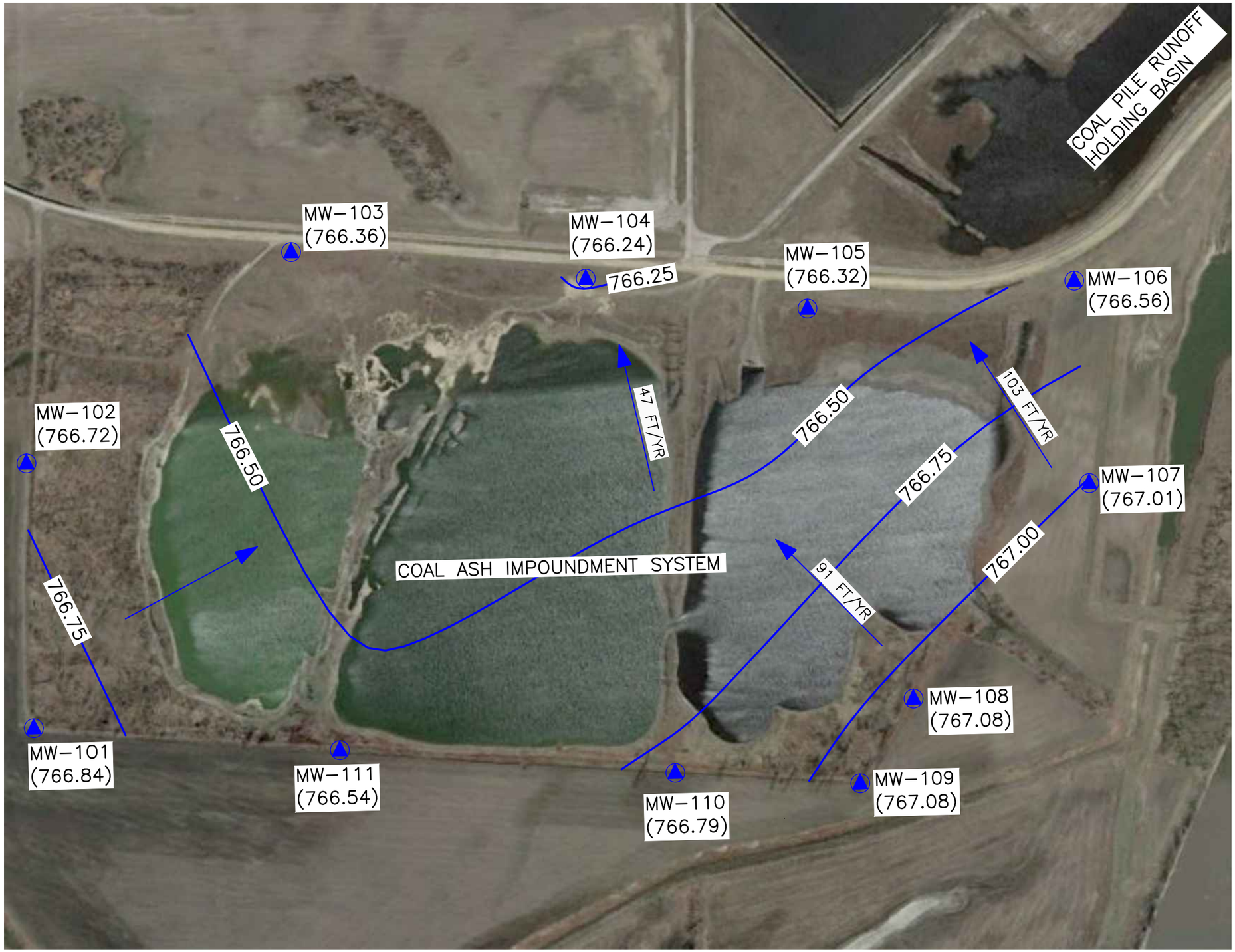
PROJ. NO. 27217413.00
DSN. BY: RCW
CHK. BY: JRF
O/A RVW BY: JRR
PROJ. MGR: JRF
DSN. BY: RCW

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-4-16.DWG

DATE:
12/12/22

FIGURE
2

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\GW Monitoring\Ash Impoundment\27217413.00_FIG 1_Ash Impoundment_18-4-16.dwg Dec 12, 2022 - 2:09pm Layout Name: Fig 1 By: 5412jds



LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON MAY 21, 2018.

400 0 400 800

SCALE FEET

REV.	DATE	CK. BY
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-

SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT (MAY 2018)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

CLIENT
EVERGY METRO, INC.
IATAN GENERATING STATION
WESTON, MISSOURI

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

PROJ. NO. 27217413.00 | DSN. BY: TGW | Q/A REVIEW BY: JRR | DSN. BY: TGW | CHK. BY: JRF | PROJ. MGR: JRF

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-5-21.DWG

DATE: 12/12/22

FIGURE
3

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\GW Monitoring\Ash Impoundment\27217413.00_FIG 1_Ash Impoundment_18-5-21.dwg Dec 12, 2022 - 2:09pm Layout Name: Fig 1 By: 5412jds

LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON JULY 19, 2018.

400 0 400 800

SCALE FEET

REV.	DATE	CK. BY
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SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT (JULY 2018)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

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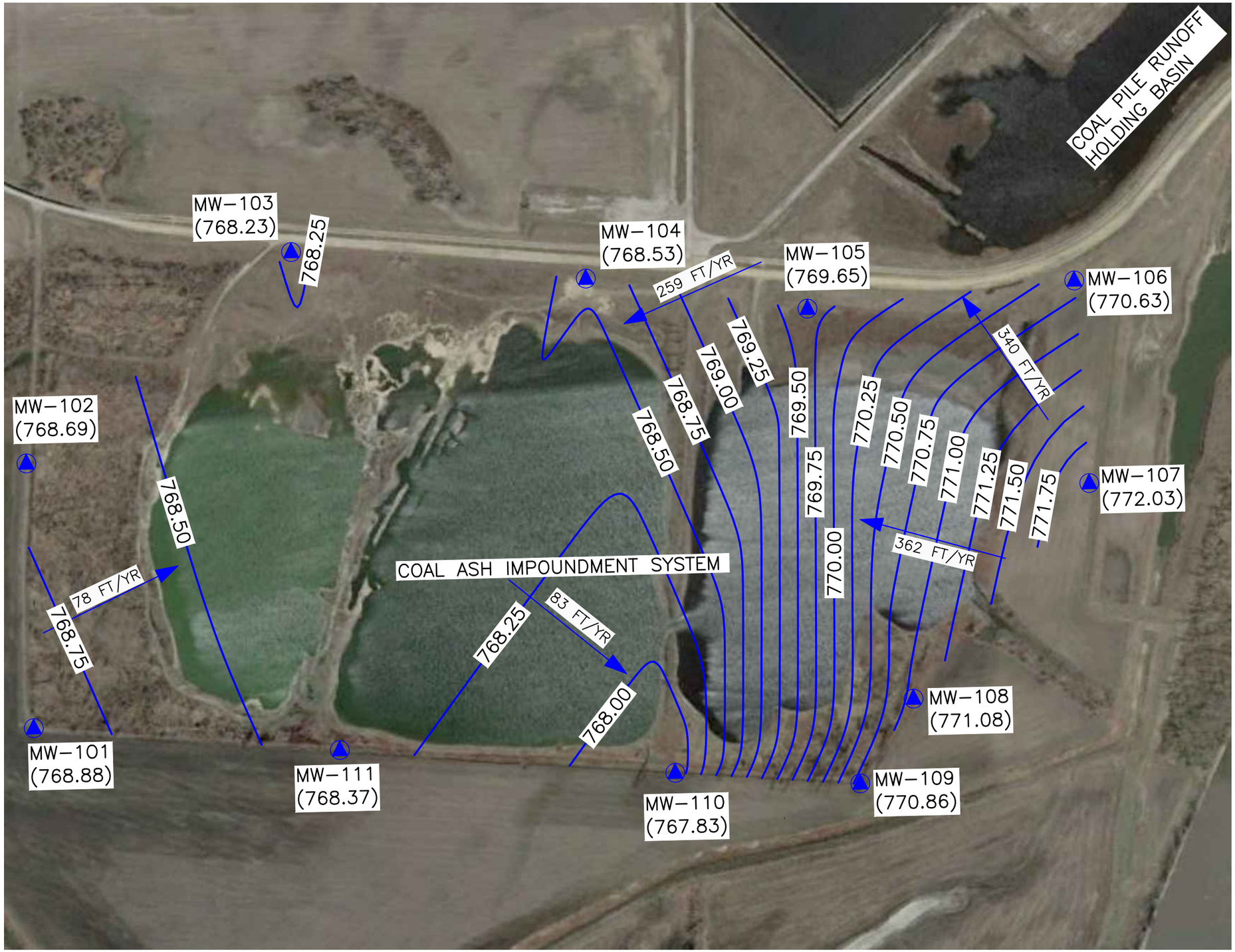
PROJ. NO.	DWN. BY:	C/A REV BY:
27217413.00	TGW	JRR
DSN. BY:	CHK. BY:	PROJ. MGR
TGW	JRF	JRF

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-7-19.DWG

DATE:
12/12/22

FIGURE
4

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\GW Monitoring\Ash Impoundment\27217413.00_FIG 1_Ash Impoundment_18-7-19.dwg Dec 12, 2022 - 2:10pm Layout Name: Fig 1 By: 5412jds



LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON SEPTEMBER 10, 2018.

400 0 400 800

SCALE FEET

REV.	DATE	CK. BY
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SHEET TITLE
POTENTIOMETRIC SURFACE MAP ASH IMPOUNDMENT (SEPTEMBER 2018)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

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DSN. BY:	CHK. BY:	PROJ. MGR
TGW	JRF	JRF

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-9-10.DWG

DATE:
12/12/22

FIGURE
5

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\GW Monitoring\Ash Impoundment\27217413.00_FIG 1_Ash Impoundment_18-9-10.dwg Dec 12, 2022 - 2:10pm Layout Name: Fig 1 By: 5412jds

LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON OCTOBER 30, 2018.

400 0 400 800

SCALE FEET

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SHEET TITLE
POTENTIOMETRIC SURFACE MAP ASH IMPOUNDMENT (OCTOBER 2018)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

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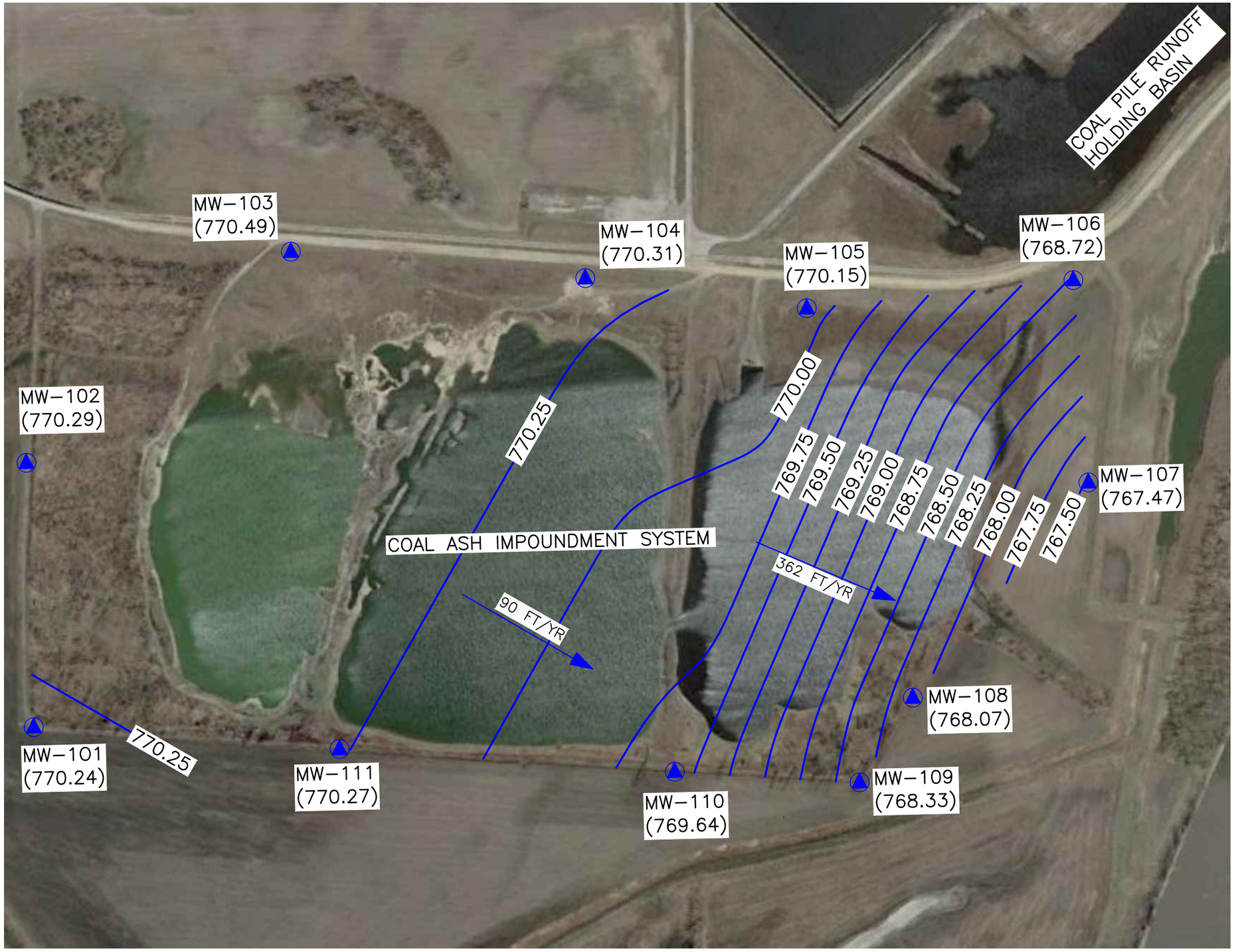
27217413.00	TGW	JRF	JRR
DSN. BY: TGW	DWN. BY: TGW	CHK. BY: JRF	PROJ. MGR JRF

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-10-30.DWG

DATE: 12/12/22

FIGURE
6

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\GW Monitoring\Ash Impoundment\27217413.00_FIG 1_Ash Impoundment_18-10-30.dwg Dec 12, 2022 - 2:10pm Layout Name: Fig 1 By: 5412jds



LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON DECEMBER 19, 2018.

400 0 400 800
SCALE FEET

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SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT (DECEMBER 2018)

PROJECT TITLE
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27217413.00	TGW	JRR
DSN. BY:	CHK. BY:	PROJ. MGR
TGW	JRF	JRF

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_18-12-19.DWG

DATE:
12/12/22

FIGURE
7

N:\KCPL\Projects\Groundwater\DWG\Iatan\2018\GW Monitoring\Ash Impoundment\27217413.00_FIG 1_Ash Impoundment_18-12-19.dwg Dec 12, 2022 - 2:11pm Layout Name: Fig 1 By: 5412jds

LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. CCR LANDFILL UNIT BOUNDARY SHOWN IS APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED ON FEBRUARY 14, 2019.

400 0 400 800

SCALE FEET

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SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT (FEBRUARY 2019)

PROJECT TITLE
2018-2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM

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PROJ. NO.	DWN. BY:	CK'A RVW BY:
27217413.00	TGW	JRR
DSN. BY:	CHK. BY:	PROJ. MGR
TGW	JRF	JRF

CADD FILE:
27217413.00_FIG 1_ASH IMPOUNDMENT_19-2-14.DWG

DATE: 12/12/22

FIGURE
8

LEGEND:

- MW-109 (764.67) — MONITORING WELL (GROUNDWATER ELEVATION)
- 766.50 — GROUNDWATER SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- XX FT/YR — DIRECTION OF GROUNDWATER FLOW AND CALCULATED FLOW RATE (FT/YR)

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED OCTOBER 22, 2016.
4. GROUNDWATER ELEVATIONS MEASURED ON APRIL 29, 2019.

* Destroyed by flood

400 0 400 800

SCALE FEET

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SHEET TITLE
POTENTIOMETRIC SURFACE MAP
ASH IMPOUNDMENT (APRIL 2019)

PROJECT TITLE
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PROJ. NO. 27217413.00 | DSN. BY: DAW | DWN. BY: MBJ | CHK. BY: JRF | QA/A RVW BY: JRR | PROJ. MGR: JRF

CADD FILE: 27217413.00_FIG 6L_ASH IMPOUNDMENT_19-4-29.DWG

DATE: 12/12/22

FIGURE 9