

**2017 ANNUAL GROUNDWATER MONITORING
AND
CORRECTIVE ACTION REPORT**

**BOTTOM ASH IMPOUNDMENT
LA CYGNE GENERATING STATION
LA CYGNE, KANSAS**

Presented To:

Kansas City Power & Light Company

Presented By:

SCS ENGINEERS
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Overland Park, Kansas 66213
(913) 681-0030

January 30, 2018
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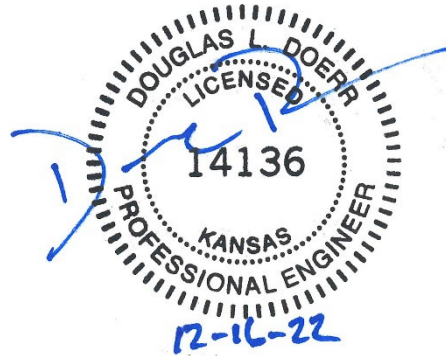
CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Professional Geologist in the State of Kansas, do hereby certify that the 2017 Annual Groundwater Monitoring and Corrective Action Report for the Bottom Ash Impoundment at the La Cygne Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



John R. Rockhold, P.G.
SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Kansas, do hereby certify that the 2017 Annual Groundwater Monitoring and Corrective Action Report for the Bottom Ash Impoundment at the La Cygne 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 Sections	Summary of Revisions
0	January 2018	NA	Original
1	December 16, 2022	Addendum 1	Added Addendum 1

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1 INTRODUCTION

This 2017 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the “Coal Combustion Residuals (CCR) Final Rule” (Rule) published by the United States Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015). Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90 (e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2017 Annual Groundwater Monitoring and Corrective Action Report for the Bottom Ash Impoundment at the La Cygne Generating Station.

2 § 257.90(e) ANNUAL REPORT REQUIREMENTS

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

2.1 § 257.90(e)(1) SITE MAP

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

A site map with an aerial image showing the Bottom Ash Impoundment and all background (or upgradient) and downgradient monitoring wells with identification numbers for the Bottom 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 CCR groundwater monitoring system was initially certified on October 13, 2017. No new monitoring wells were installed and no wells were decommissioned as part of the CCR groundwater monitoring program for the Bottom Ash Impoundment in 2017.

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. Sampling for the detection monitoring program began in June 2016. 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 2017. Only detection monitoring was conducted in 2017. Statistical evaluation of the data was still in process as of the end of 2017.

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 in October 2017. Verification sampling was in process as of the end of 2017.

Description of Any Problems Encountered.

No noteworthy problems were encountered.

Discussion of Actions to Resolve the Problems.

Not applicable because no noteworthy problems were encountered.

Projection of Key Activities for the Upcoming Year (2018).

Completion of statistical evaluation of detection monitoring data. Groundwater sampling and analysis and alternative source demonstration(s) (if required).

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 La Cygne 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 for specific application to the La Cygne Generating Station Bottom Ash Impoundment. No warranties, express or implied, are intended or made.



APPENDIX A

FIGURES

Figure 1: Site Map





LEGEND

 CCR UNIT BOUNDARY (APPROXIMATE LIMITS OF BOTTOM ASH IMPOUNDMENT)
 MW-901 CCR GROUNDWATER MONITORING SYSTEM WELLS

NOTES:

1. KDHE FACILITY PERMIT AREA BOUNDARY NOT SHOWN.
2. GOOGLE EARTH IMAGE DATED OCTOBER 2014. BOUNDARY AND MONITOR WELL LOCATIONS ARE APPROXIMATE.
3. BOUNDARY AND MONITOR WELL LOCATIONS ARE PROVIDED BY AECOM.



SCALE **FEET**

CLIENT	KANSAS CITY POWER & LIGHT COMPANY LA CYGNE GENERATING STATION LA CYGNE, KANSAS	SHEET TITLE	SITE MAP BOTTOM ASH IMPOUNDMENT CCR GROUNDWATER MONITORING SYSTEM	REV.	DATE	CK.	BY
SCS ENGINEERS 7311 W. 130th St. Ste. 100 P.O. Box 681 PH: (813) 681-0030 FAX: (813) 681-0012 PROJ. NO. 27217233.00 DWN. BY: RCW CHK. BY: JRR DATE: 1/16/18				1	1/16/18		
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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
Bottom Ash Impoundment
Appendix III and Appendix IV Detection Monitoring Results
KCP&L LaCygne 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-901	6/8/2016	1.18	57.2	23.3	0.543	7.46	19.5	561	0.00251	<0.002	0.167	<0.002	<0.001	<0.002	<0.002	0.543	<0.002	0.0819	<0.0002	<0.005	<0.002	<0.002	2.14
MW-901	8/11/2016	1.90	53.9	51.5	0.533	7.35	33.8	701	<0.002	0.00237	0.0987	<0.002	<0.001	<0.002	<0.002	0.533	<0.002	0.0636	<0.0002	0.00716	<0.002	<0.002	2.191
MW-901	10/14/2016	1.18	52.1	21.8	0.497	7.43	15.6	516	<0.002	<0.002	0.155	<0.002	<0.001	<0.002	<0.002	0.497	<0.002	0.0865	<0.0002	<0.005	<0.002	<0.002	0.407
MW-901	12/12/2016	1.17	56.9	20.9	0.413	7.57	14.5	524	<0.002	<0.002	0.195	<0.002	<0.001	<0.002	<0.002	0.413	<0.002	0.0443	<0.0002	<0.005	<0.002	<0.002	0.932
MW-901	2/9/2017	1.23	55.7	22.6	0.52	7.62	17.1	552	<0.002	<0.002	0.186	<0.002	<0.001	<0.002	<0.002	0.520	<0.002	0.0548	<0.0002	<0.005	<0.002	<0.002	0.986
MW-901	4/4/2017	1.18	57.6	23.1	0.493	7.39	18.4	546	<0.002	<0.002	0.192	<0.002	<0.001	<0.002	<0.002	0.493	<0.002	0.0521	<0.0002	<0.005	<0.002	<0.002	0.639
MW-901	6/16/2017	1.20	56.7	22.6	0.489	7.26	15.6	536	<0.002	<0.002	0.193	<0.002	<0.001	<0.002	<0.002	0.489	<0.002	0.0586	<0.0002	<0.005	<0.002	<0.002	1.63
MW-901	8/11/2017	1.22	56.0	22.6	0.511	6.87	15.1	510	<0.002	<0.002	0.182	<0.002	<0.001	<0.002	<0.002	0.511	<0.002	0.0567	<0.0002	<0.005	<0.002	<0.002	0.641
MW-901	10/3/2017	1.19	58.2	22.9	0.483	6.77	14.9	544	<0.002	<0.002	0.192	<0.002	<0.001	<0.002	<0.002	0.483	<0.002	0.0519	<0.0002	<0.005	<0.002	<0.002	1.17
MW-901	1/9/2018	---	---	---	---	*6.84	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-902	6/7/2016	1.20	71.3	32.8	0.532	7.24	33.4	526	<0.002	<0.002	0.119	<0.002	<0.001	<0.002	<0.002	0.532	<0.002	0.0412	<0.0002	<0.005	<0.002	<0.002	2.71
MW-902	8/11/2016	1.20	64.9	32.0	0.531	7.11	29.6	565	<0.002	<0.002	0.118	<0.002	<0.001	<0.002	<0.002	0.531	<0.002	0.0353	<0.0002	<0.005	<0.002	<0.002	1.458
MW-902	10/13/2016	1.26	65.7	32.9	0.490	7.16	29.2	537	<0.002	<0.002	0.106	<0.002	<0.001	<0.002	<0.002	0.490	<0.002	0.0386	<0.0002	<0.005	<0.002	<0.002	0.32
MW-902	12/12/2016	1.22	66.3	31.0	0.404	7.10	27.4	517	<0.002	<0.002	0.111	<0.002	<0.001	<0.002	<0.002	0.404	<0.002	0.0326	<0.0002	<0.005	<0.002	<0.002	0.168
MW-902	2/10/2017	1.31	66.2	34.4	0.510	7.48	34.5	552	<0.002	<0.002	0.112	<0.002	<0.001	<0.002	<0.002	0.510	<0.002	0.0436	<0.0002	<0.005	<0.002	<0.002	0.791
MW-902	4/4/2017	1.24	68.8	34.2	0.481	7.27	33.1	533	<0.002	<0.002	0.116	<0.002	<0.001	<0.002	<0.002	0.481	<0.002	0.0396	<0.0002	<0.005	<0.002	<0.002	1.23
MW-902	6/15/2017	1.25	65.4	33.0	0.467	7.07	30.4	533	<0.002	<0.002	0.112	<0.002	<0.001	<0.002	<0.002	0.467	<0.002	0.0397	<0.0002	<0.005	<0.002	<0.002	1.05
MW-902	8/11/2017	1.31	66.4	34.1	0.530	6.52	33.3	522	<0.002	<0.002	0.106	<0.002	<0.001	<0.002	<0.002	0.530	<0.002	0.0369	<0.0002	<0.005	<0.002	<0.002	1.5
MW-902	10/3/2017	1.26	69.2	34.6	0.466	6.53	36.5	541	<0.002	<0.002	0.114	<0.002	<0.001	<0.002	<0.002	0.466	<0.002	0.0389	<0.0002	<0.005	<0.002	<0.002	1.27
MW-902	12/12/2017	---	---	---	---	*7.21	*36.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-902	1/9/2018	---	---	---	---	**6.99	*37.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-903	6/8/2016	0.487	362	25.9	<0.1	6.83	1130	2070	<0.002	<0.002	0.0285	<0.002	<0.001	0.00409	0.00515	<0.1	<0.002	0.0809	<0.0002	<0.005	<0.002	<0.002	0.783
MW-903	8/11/2016	0.427	342	25.8	<0.1	6.70	1030	2040	<0.002	<0.002	0.0170	<0.002	<0.001	<0.002	0.00306	<0.1	<0.002	0.0539	<0.0002	<0.005	<0.002	<0.002	0.857
MW-903	10/13/2016	0.401	333	24.8	<0.1	6.72	1030	2120	<0.002	<0.002	0.0232	<0.002	<0.001	0.00315	0.00424	<0.1	<0.002	0.0546	<0.0002	<0.005	<0.002	<0.002	0.911
MW-903	12/9/2016	0.386	331	24.3	0.104	7.46	899	2110	<0.002	<0.002	0.0160	<0.002	<0.001	<0.002	0.00294	0.104	<0.002	0.0462	<0.0002	<0.005	<0.002	<0.002	1.24
MW-903	2/10/2017	0.432	321	26.0	<0.1	6.97	1000	1880	<0.002	<0.002	0.0146	<0.002	<0.001	<0.002	0.00272	<0.1	<0.002	0.0505	<0.0002	<0.005	<0.002	<0.002	0.85
MW-903	4/4/2017	0.423	339	26.7	<0.1	6.42	1090	1990	<0.002	<0.002	0.0151	<0.002	<0.001	<0.002	0.00204	<0.1	<0.002	0.0502	<0.0002	<0.005	<0.002	<0.002	1.45
MW-903	6/16/2017	0.404	331	25.7	0.132	6.48	913	2020	<0.002	<0.002	0.0148	<0.002	<0.001	<0.002	0.00207	0.132	<0.002	0.0539	<0.0002	<0.005	<0.002	<0.002	2.02
MW-903	8/10/2017	0.521	330	26.1	0.114	6.62	954	1900	<0.002	<0.002	0.0140	<0.002	<0.001	<0.002	0.00214	0.114	<0.002	0.0517	<0.0002	<0.005	<0.002	<0.002	1.01
MW-903	10/3/2017	0.416	344	26.3	<0.1	6.00	1010	2070	<0.002	<0.002	0.0146	<0.002	<0.001	<0.002	0.00241	<0.1	<0.002	0.0506	<0.0002	<0.005	<0.002	<0.002	1.24
MW-903	1/9/2018	---	---	---	---	*6.87	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-904	5/3/2017	1.40	82.4	39.6	0.375	7.09	134	704	<0.002	<0.002	0.124	<0.002	<0.001	<0.002	<0.002	0.375	<0.002	0.0503	<0.0002	0.0116	<0.002	<0.002	0.562
MW-904	5/18/2017	---	---	---	---	7.42	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.332
MW-904	5/24/2017	1.34	79.8	39.1	0.411	7.08	132	771	<0.002	<0.002	0.147	<0.002	<0.001	0.00206	<0.002	0.411	<0.002	0.0463	<0.0002	0.0113	<0.002	<0.002	---
MW-904	6/12/2017	1.37	86.2	39.5	0.366	7.37	113	571	<0.002	0.00508	0.191	<0.002	<0.001	0.0159	0.0096	0.366	0.00451	0.0744	<0.0002	0.0119	<0.002	<0.002	1.52
MW-904	6/30/2017	1.28	82.3	38.0	0.385	7.07	119	732	<0.002	<0.002	0.130	<0.002	<0.001	<0.002	<0.002	0.385	<0.002	0.0525	<0.0002	0.0102	<0.002	<0.002	0.762
MW-904	7/21/2017	1.26	76.5	36.7	0.430	7.06	121	697	<0.002	<0.002	0.108	<0.002	<0.001	<0.002	<0.002	0.430	<0.002	0.0446	<0.0002	0.00948	<0.002	<0.002	3.78
MW-904	8/7/2017	1.21	74.1	36.0	0.432	7.13	115	728	<0.002	<0.002	0.0951	<0.002	<0.001	<0.002	<0.002	0.432	<0.002	0.0521	<0.0002	0.00962	<0.002	<0.002	0.155
MW-904	9/1/2017	1.18	76.3	35.7	0.346	7.08	101	723	<0.002	<0.002	0.0944	<0.002	<0.001	<0.002	<0.002	0.346	<0.002	0.0432	<0.0002	0.00956	<0.002	<0.002	0.56
MW-904	9/22/2017	1.19	77.1	36.4	0.412	7.11	105	652	<0.002	<0.002	0.0974	<0.002	<0.001	<0.002	<0.002	0.412	<0.002	0.0458	<0.0002	0.00857	<0.002	<0.002	0.664
MW-904	10/5/2017	1.13	71.8	34.1	0.290	6.85	100	727	<0.002	0.00212	0.101	<0.002	<0.001	<0.002	0.00508	0.290	<0.002	0.0463	<0.0002	0.00947	<0.002	<0.002	0.807
MW-904	12/12/2017	---	---	---	---	*7.18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-905	6/9/2016	1.79	59.9	51.5	0.542	7.11	68.5	696	0.00326	0.00387	0.104	<0.002	<0.001	0.00310	0.00283	0.542	<0.002	0.0607	<0.0002	0.0165	<0.002	<0.002	0.695
MW-905	8/12/2016	1.24	54.6	22.4	0.506	7.26	16.6	557	<0.002	<0.002	0.171	<0.002	<0.001	<0.002	<0.002	0.506	<0.002	0.0751	<0.0002	<0.005	<0.002	<0.002	1.208
MW-905	10/14/2016	1.87	52.7	50.7	0.535	6.68	29.5	603	<0.002	<0.002	0.0985	<0.002	<0.001	<0.018	<0.002	0.535	<0.002	0.0639	<0.0002	<0.005	<0.002	<0.002	1.37
MW-905	12/9/2016	1.84	49.7	48.6	0.444	7.75	28.5	584	<0.002	<0.002	0.105	<0.002	<0.001	<0.002	<0.002	0.444	<0.002	0.0591	<0.0002	<0.005	<0.002	<0.002	0.529
MW-905	2/8/2017	1.92	49.8	52.5	0.562	8.26	31.2	580	<0.002	<0.002	0.104	<0.002	<0.001	<0.002	<0.002	0.562	<0.002	0.0705	<0.0002	<0.005	<0.002	<0.002	0.396
MW-905	4/4/2017	1.84	51.8	52.5	0.522	7.54	28.6	618	<0.002	<0.002	0.119	<0.002	<0.001	0.00327	0.00214	0.522							

Table 2
Bottom Ash Impoundment
Detection Monitoring Field Measurements
KCP&L LaCygne Generating Station

Well Number	Sample Date	pH (S.U.)	Specific Conductivity (µS)	Temperature (°C)	Turbidity (NTU)	***Water Level (ft btoc)	Groundwater Elevation (ft NGVD)
MW-901	6/8/2016	7.46	991	22.00	2.40	9.93	844.36
MW-901	8/11/2016	7.35	1175	22.00	9.01	9.91	844.38
MW-901	10/14/2016	7.43	1037	17.03	3.27	9.81	844.48
MW-901	12/12/2016	7.57	864	17.88	1.51	9.69	844.60
MW-901	2/9/2017	7.62	914	16.44	0.68	9.63	844.66
MW-901	4/4/2017	7.39	936	10.83	2.21	9.99	844.30
MW-901	6/16/2017	7.26	1006	20.01	2.83	10.20	844.09
MW-901	8/11/2017	6.87	872	22.61	2.46	10.41	843.88
MW-901	10/3/2017	6.77	926	23.34	0.60	10.45	843.84
MW-901	1/9/2018	*6.84	811	19.23	0.77	10.30	843.99
MW-902	6/7/2016	7.24	864	22.93	0.00	12.50	842.57
MW-902	8/11/2016	7.11	916	27.66	1.29	12.46	842.61
MW-902	10/13/2016	7.16	1041	18.70	3.01	11.75	843.32
MW-902	12/12/2016	7.10	850	14.60	1.65	12.98	842.09
MW-902	2/10/2017	7.48	882	15.53	1.56	13.33	841.74
MW-902	4/4/2017	7.27	982	13.97	3.34	13.23	841.84
MW-902	6/15/2017	7.07	921	25.43	2.54	12.43	842.64
MW-902	8/11/2017	6.52	833	21.50	2.19	12.23	842.84
MW-902	10/3/2017	6.53	904	27.08	1.61	12.64	842.43
MW-902	12/12/2017	*7.21	768	14.18	3.90	12.93	842.14
MW-902	1/9/2018	**6.99	814	16.07	1.27	13.15	841.92
MW-903	6/8/2016	6.83	2409	23.19	6.37	11.62	842.78
MW-903	8/11/2016	6.70	2516	23.39	4.24	11.81	842.59
MW-903	10/13/2016	6.72	2501	17.93	34.30	11.78	842.62
MW-903	12/9/2016	7.46	2192	15.24	12.12	12.45	841.95
MW-903	2/10/2017	6.97	2346	15.79	3.96	12.63	841.77
MW-903	4/4/2017	6.42	2372	13.16	2.53	12.32	842.08
MW-903	6/16/2017	6.48	2427	19.84	2.75	11.53	842.87
MW-903	8/10/2017	6.62	2208	20.58	2.09	11.46	842.94
MW-903	10/3/2017	6.00	2420	23.16	0.38	12.83	841.57
MW-903	1/9/2018	*6.87	1889	16.21	1.07	12.32	842.08
MW-904	5/3/2017	7.09	931	12.80	10.41	16.07	838.98
MW-904	5/18/2017	7.42	946	14.17	3.83	17.18	837.87
MW-904	5/24/2017	7.08	1126	18.17	10.94	23.65	831.40
MW-904	6/12/2017	7.37	1275	32.92	35.90	23.57	831.48
MW-904	6/30/2017	7.07	1080	19.77	6.55	24.00	831.05
MW-904	7/21/2017	7.06	1157	23.39	5.25	25.27	829.78
MW-904	8/7/2017	7.13	1200	23.43	41.00	26.92	828.13
MW-904	9/1/2017	7.08	1112	21.28	5.67	26.64	828.41
MW-904	9/22/2017	7.11	1148	22.40	5.03	27.65	827.40
MW-904	10/5/2017	6.85	1286	19.90	31.20	31.81	823.24
MW-904	12/12/2017	*7.18	1243	17.19	25.00	22.48	832.57
MW-905	6/9/2016	7.11	1048	23.19	21.80	10.17	844.05
MW-905	8/12/2016	7.26	989	21.24	1.08	10.37	843.85
MW-905	10/14/2016	6.68	1129	16.79	6.91	11.05	843.17
MW-905	12/9/2016	7.75	1004	14.17	4.49	10.78	843.44
MW-905	2/8/2017	8.26	1062	7.57	5.53	9.63	844.59
MW-905	4/4/2017	7.54	1092	13.27	19.00	8.88	845.34
MW-905	6/14/2017	7.87	1078	18.90	4.02	9.37	844.85
MW-905	8/9/2017	7.44	1019	25.19	4.36	10.45	843.77
MW-905	10/3/2017	6.98	1107	23.91	3.73	10.72	843.50
MW-905	12/12/2017	**7.46	768	14.18	5.02	10.38	843.84

* Verification Sample

** Extra Sample Collected per Standard Sampling Procedure

***Depth to water measured in all monitoring wells within 24 hour period prior to the sampling event

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

2017 Annual Groundwater Monitoring and Corrective Action Report Addendum 1

December 16, 2022
File No. 27217233.00

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: 2017 Annual Groundwater Monitoring and Corrective Action Report Addendum 1
Evergy Metro, Inc.
Bottom Ash Impoundment
La Cygne Generating Station - La Cygne, Kansas



The Bottom Ash Impoundment at the La Cygne Generating Station are subject to the groundwater monitoring and corrective action requirements of the “Coal Combustion Residuals (CCR) Final Rule” (Rule); as described in CFR 40 257.90 through CFR 40 257.98. An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting activities completed in 2017 for the Bottom Ash Impoundment was completed and placed in the facility’s operating record on January 30, 2018, as required by the Rule. The Annual GWMCA report was to fulfill the requirements specified in 40 CFR 257.90(e).

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

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

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



The attachments to this addendum are as follows:

- Attachment 1 – Laboratory Analytical Reports:

Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. Because a GWMCA Report was not required for 2016, the Appendix III and Appendix IV background data collected in 2016 is included herewith. The laboratory data packages for the following sampling events are provided:

- June 2016 – Background sampling event for Appendix III and Appendix IV.
- August 2016 – Background sampling event for Appendix III and Appendix IV.
- October 2016 - Background sampling event for Appendix III and Appendix IV.
- December 2016 - Background sampling event for Appendix III and Appendix IV.
- February 2017 - Background sampling event for Appendix III and Appendix IV.
- April 2017 - Background sampling event for Appendix III and Appendix IV.
- May 2017 - Background sampling events for Appendix III and Appendix IV.
- June 2017 - Background sampling event for Appendix III and Appendix IV.
- July 2017 - Background sampling event for Appendix III and Appendix IV.
- August 2017 - Background sampling event for Appendix III and Appendix IV.
- September 2017 - Background sampling event for Appendix III and Appendix IV.
- October 2017 – Fall semiannual detection monitoring sampling event.
- December 2017 – First verification sampling for the Fall 2017 detection monitoring sampling event.

- Attachment 2 - Statistical Analyses:

Statistical analyses were not completed in 2017. Statistical analyses of background sampling events were completed following data verification in 2018.

- Attachment 3 - Revised Groundwater Potentiometric Surface Maps:

Includes revised 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:

- June 2016 – Background sampling event.
- August 2016 – Background sampling event.
- October 2016 - Background sampling event.
- December 2016 - Background sampling event.
- February 2017 - Background sampling event.
- April 2017 - Background sampling event.
- June 2017 - Background sampling event.
- August 2017 - Background sampling event.
- October 2017 – Fall semiannual detection monitoring sampling event.

Jared Morrison
December 16, 2022

ATTACHMENT 1
Laboratory Analytical Reports

Jared Morrison
December 16, 2022

ATTACHMENT 1-1
June 2016 Sampling Event Laboratory Report

Case Narrative

Lab No: 20160561

This report contains the analytical results for the 22 sample(s) received under chain of custody by ESC Lab Sciences on 6/10/2016 12:29:39 PM. These samples are associated with your La Cygne Gen Stn project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

Observations / Nonconformances



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160561
 Date Reported : 07/20/16
 Date Received : 06/10/16
 Page Number : 2 of 7

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20160561-01
Client ID : MW-10
Date Sampled : 6/6/2016 1:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		3.50 +/- 0.942	1.09	pCi/l				
Radium-226	SM 7500 Ra B M*	0.394 +/- 0.218	0.231	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	3.11 +/- 0.724	0.854	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-02
Client ID : MW-11
Date Sampled : 6/6/2016 2:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.472 +/- 0.708	0.955	pCi/l				
Radium-226	SM 7500 Ra B M*	0.061 +/- 0.133	0.226	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.411 +/- 0.575	0.729	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-03
Client ID : MW-11 MS
Date Sampled : 6/6/2016 2:45:00 PM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	102		% Rec				
Radium-228	EPA 904*/9320*	94.6		% Rec				

Lab ID : 20160561-04
Client ID : MW-11 MSD
Date Sampled : 6/6/2016 2:45:00 PM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	9.0		RPD				
Radium-228	EPA 904*/9320*	17.1		RPD				

Lab ID : 20160561-05
Client ID : MW-708
Date Sampled : 6/7/2016 9:35:00 AM
Matrix : NPW

*NELAC Certified Parameter BDL = Below Detection Limit



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160561
 Date Reported : 07/20/16
 Date Received : 06/10/16
 Page Number : 3 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Radiochemical Analyses

Combined Radium	1.83 +/- 0.682	0.837	pCi/l				
Radium-226	SM 7500 Ra B M*	0.221 +/- 0.145	0.166	pCi/l	06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	1.61 +/- 0.537	0.671	pCi/l	07/11/16	07/13/16	JR

Lab ID : 20160561-06
Client ID : MW-703
Date Sampled : 6/7/2016 2:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.36 +/- 1.04	1.11	pCi/l				
Radium-226	SM 7500 Ra B M*	1.36 +/- 0.321	0.221	pCi/l	06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	-0.212 +/- 0.723	0.884	pCi/l	07/11/16	07/13/16	JR

Lab ID : 20160561-07
Client ID : MW-704
Date Sampled : 6/7/2016 3:10:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.986 +/- 0.854	0.985	pCi/l				
Radium-226	SM 7500 Ra B M*	0.443 +/- 0.211	0.228	pCi/l	06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.543 +/- 0.643	0.757	pCi/l	07/11/16	07/13/16	JR

Lab ID : 20160561-08
Client ID : MW-701
Date Sampled : 6/7/2016 3:50:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.245 +/- 0.721	0.954	pCi/l				
Radium-226	SM 7500 Ra B M*	0.227 +/- 0.185	0.255	pCi/l	06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.018 +/- 0.536	0.699	pCi/l	07/11/16	07/13/16	JR

Lab ID : 20160561-09
Client ID : MW-705
Date Sampled : 6/7/2016 5:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.601 +/- 0.955	1.19	pCi/l				
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*NELAC Certified Parameter

BDL = Below Detection Limit



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160561
 Date Reported : 07/20/16
 Date Received : 06/10/16
 Page Number : 4 of 7

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Radium-226	SM 7500 Ra B M*	0.184 +/- 0.148	0.205	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.417 +/- 0.807	0.981	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-10
Client ID : MW-950
Date Sampled : 6/8/2016 8:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.800 +/- 0.815	0.880	pCi/l				
Radium-226	SM 7500 Ra B M*	0.525 +/- 0.217	0.131	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.275 +/- 0.598	0.749	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-11
Client ID : MW-706
Date Sampled : 6/8/2016 11:50:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.26 +/- 0.964	1.42	pCi/l				
Radium-226	SM 7500 Ra B M*	0.578 +/- 0.223	0.161	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.681 +/- 0.741	1.26	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-12
Client ID : MW-702
Date Sampled : 6/8/2016 12:50:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.924 +/- 0.857	1.02	pCi/l				
Radium-226	SM 7500 Ra B M*	0.414 +/- 0.157	0.155	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.510 +/- 0.700	0.861	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-13
Client ID : MW-7
Date Sampled : 6/8/2016 2:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.66 +/- 1.14	1.35	pCi/l				
Radium-226	SM 7500 Ra B M*	1.06 +/- 0.278	0.236	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.601 +/- 0.860	1.11	pCi/l		07/11/16	07/13/16	JR

*NELAC Certified Parameter BDL = Below Detection Limit



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160561
 Date Reported : 07/20/16
 Date Received : 06/10/16
 Page Number : 5 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20160561-14
Client ID : MW-6
Date Sampled : 6/8/2016 3:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.385 +/- 0.925	1.20	pCi/l				
Radium-226 SM 7500 Ra B M*	0.385 +/- 0.199	0.231	pCi/l		06/16/16	06/20/16	AK
Radium-228 EPA 904*/9320*	-0.041 +/- 0.726	0.970	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-15
Client ID : MW-801
Date Sampled : 6/7/2016 9:00:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.15 +/- 0.952	1.49	pCi/l				
Radium-226 SM 7500 Ra B M*	0.506 +/- 0.176	0.116	pCi/l		06/16/16	06/20/16	AK
Radium-228 EPA 904*/9320*	0.647 +/- 0.776	1.37	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-16
Client ID : MW-951
Date Sampled : 6/7/2016 9:10:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.57 +/- 0.872	1.21	pCi/l				
Radium-226 SM 7500 Ra B M*	0.361 +/- 0.150	0.162	pCi/l		06/16/16	06/20/16	AK
Radium-228 EPA 904*/9320*	1.21 +/- 0.722	1.05	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-17
Client ID : MW-802
Date Sampled : 6/7/2016 9:40:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	2.19 +/- 0.754	0.818	pCi/l				
Radium-226 SM 7500 Ra B M*	0.519 +/- 0.172	0.099	pCi/l		06/16/16	06/20/16	AK
Radium-228 EPA 904*/9320*	1.67 +/- 0.582	0.719	pCi/l		07/11/16	07/13/16	JR



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160561
 Date Reported : 07/20/16
 Date Received : 06/10/16
 Page Number : 6 of 7

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20160561-18
Client ID : MW-805
Date Sampled : 6/7/2016 12:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.158 +/- 0.691	0.899	pCi/l				
Radium-226	SM 7500 Ra B M*	0.158 +/- 0.109	0.125	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	-0.253 +/- 0.582	0.774	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-19
Client ID : MW-902
Date Sampled : 6/7/2016 4:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		2.71 +/- 0.891	1.09	pCi/l				
Radium-226	SM 7500 Ra B M*	0.116 +/- 0.129	0.189	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	2.59 +/- 0.762	0.900	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-20
Client ID : MW-804
Date Sampled : 6/8/2016 8:45:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.853 +/- 0.746	0.907	pCi/l				
Radium-226	SM 7500 Ra B M*	0.207 +/- 0.130	0.147	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.646 +/- 0.616	0.760	pCi/l		07/11/16	07/13/16	JR

Lab ID : 20160561-21
Client ID : MW-903
Date Sampled : 6/8/2016 10:25:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.783 +/- 1.02	1.27	pCi/l				
Radium-226	SM 7500 Ra B M*	0.282 +/- 0.142	0.145	pCi/l		06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	0.501 +/- 0.880	1.12	pCi/l		07/11/16	07/13/16	JR



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160561
 Date Reported : 07/20/16
 Date Received : 06/10/16
 Page Number : 7 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20160561-22							
Client ID : MW-901							
Date Sampled : 6/8/2016 11:00:00 AM							
Matrix : NPW							

Radiochemical Analyses

Combined Radium	2.14 +/- 1.08	1.43	pCi/l				
Radium-226	SM 7500 Ra B M*	0.333 +/- 0.162	0.158	pCi/l	06/16/16	06/20/16	AK
Radium-228	EPA 904*/9320*	1.81 +/- 0.916	1.27	pCi/l	07/11/16	07/13/16	JR

QC Report

Parameter	Blank	LCS %REC	LCS %REC	LCS RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	MSD RPD	Batch ID
Radium-226	-0.012	93.6			NC	0.029	102.0	92.8	9.0	R1098
Radium-228	0.257	105.0			NC	0.494	94.6	113.0	17.1	R3829

Lab Approval: _____

L# 840923

Table #

Account: **URSKC**
Template: **T112863**
Prelogin: **P556947**
TSR: 206 - Jeff Gairr
PB:

Shipped Via:

Rem./Contaminant: Sample # (lab only)

Analysis / Container / Preservative

Billing Information:
Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

City/State Collected:


Lab Project #
URSKC-LACYGNE

P.O. #
URSKC1028155

Date Results Needed

Email? No Yes
FAX? No Yes

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Collected by (signature): 
 Immediately Packed on Ice Y N

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Drtrs	Date Results Needed	
							Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	FAX? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes
MW-10	G	GW		6/6/16	1325	2	X	X
MW-11		GW		1445	1445	2	X	X
MW-11-MS		GW		1445	1445	2	X	X
MW-11-MSD		GW		1445	1445	2	X	X
MW-708		GW		6/7	935	2	X	X
MW-703		GW		1415	1415	2	X	X
MW-704		GW		1510	1510	2	X	X
MW-701		GW		1550	1550	2	X	X
MW-705	△	GW		1725	1725	2	X	X
MW-950	△	GW		6/8	0830	2	X	X

OR - RA-226, RA-228 1L-HDPE-Add HNO3

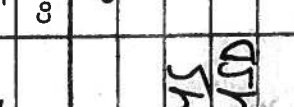
PH Temp

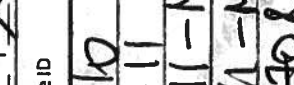
Flow Other

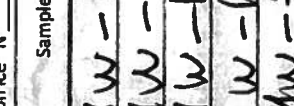
Samples returned via: UPS FedEx Courier

Temp: °C Bottles Received:

Date: Time:


Received by: (Signature)  Time: 1735


Received by: (Signature)  Time: 1700

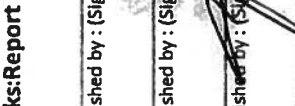
Received for lab by: (Signature)  Time:

Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Report Radium 226 and 228 Combined.

Relinquished by: (Signature)  Date: 6/8

Relinquished by: (Signature)  Date: 6/9/16

Relinquished by: (Signature)  Date:



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

Chain of Custody
 Analysis / Container / Preservative

Billing Information:
 Dana Monroe - 1334927
 8300 College Blvd., Suite 200
 Overland Park, KS 66210

AECOM - Overland Park, KS
 8300 College Blvd., Suite 200
 Overland Park, KS 66210

Report to:
Brian Linnan
 Project Description: **La Cygne Generating Station**
 Phone: **913-344-1000**
 Fax: **913-344-1011**
 Email To: **brian.linnan@aecom.com;**
robert.exceen@aecom.com;

City/State Collected:
 Lab Project #
URSKC-LACYGNE
 P.O. #
URSKC1028155

Collected by (signature):
 Immediately Packed on Ice N Y X

L.# **840923**
 Table #
 Acquisition: **URSKC**
 Template: **T112863**
 Prelogin: **P556947**
 TSR: **206 - Jeff Carr**
 PB:
 Shipped Via:
 Rem./Contaminant
 Sample # (lab only)

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Sample ID
MW-706
MW-707
MW-77
MW-6

Sample ID	Comp/Girab	Matrix *	Depth	Date	Time	Enters
MW-706	G	GW		6/18/16	1150	2 X
MW-707	↓	GW		1250		2 X
MW-77	↓	GW		1425		2 X
MW-6	↓	GW		1545		2 X
		GW				2 X
		GW				2 X
		GW				2 X
		GW				2 X
		GW				2 X
		GW				2 X
		GW				2 X

COPY

ORL-RA-226, RA-228 1L-HDPE-ADD HNO3

* Matrix: **SS - Soil GW - Groundwater** **WW - WasteWater** **DW - Drinking Water** **OT - Other**
 Remarks: **Report Radium 226 and 228 Combined.**

Received by: (Signature) Time: **1735**
 Received by: (Signature) Time: **1700**
 Received for lab by: (Signature) Time: **1700**

Temp: **NA** °C Bottles Received: **NA**
 Date: **6/18/16**

Hold #
 Condition: (lab use only)
 COC Seal Intact: Y N NA
 PH Checked: NCF:

SAMPLE LOGIN

Date Received: 06/10/16 12:29:39

Lab Number: 20160561

Due: 07/08/16

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20160561-01 B	MW-10	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-01 A	MW-10	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160561-02 A	MW-11	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-02 B	MW-11	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160561-03 A	MW-11 MS	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-03 B	MW-11 MS	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160561-04 A	MW-11 MSD	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-04 B	MW-11 MSD	NPW	06/06/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160561-05 A	MW-708	NPW	06/07/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-05 B	MW-708	NPW	06/07/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160561-06 A	MW-703	NPW	06/07/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-06 B	MW-703	NPW	06/07/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160561-07 B	MW-704	NPW	06/07/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-07 A	MW-704	NPW	06/07/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

20160561-08 A	MW-701	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-08 B	MW-701	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-09 A	MW-705	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-09 B	MW-705	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-10 A	MW-950	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-10 B	MW-950	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-11 A	MW-706	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-11 B	MW-706	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-12 B	MW-702	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-12 A	MW-702	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-13 A	MW-7	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-13 B	MW-7	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-14 A	MW-6	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-14 B	MW-6	NPW	06/08/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-15 A	MW-801	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-15 B	MW-801	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*							
Radium-228			EPA 904*/9320*							
20160561-16 A	MW-951	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160561-16 B	MW-951	NPW	06/07/16	Plastic	500 ml	<input type="checkbox"/>	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes

CONTAINER INSPECTION

Coolers Custody Seals Broken Temperature: C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete *JS*

Anomalies

Inspected By: *JS* DATE 6/6/18
QA or Designee Review: *Ronald Moore* DATE _____
Sample Custodian Review: _____ DATE _____

Project Notes:

Case Narrative

Lab No: 20160567

This report contains the analytical results for the 10 sample(s) received under chain of custody by ESC Lab Sciences on 6/13/2016 1:01:42 PM. These samples are associated with your La Cygne Gen Stn project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

Observations / Nonconformances



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160567
 Date Reported : 07/22/16
 Date Received : 06/13/16
 Page Number : 2 of 4

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20160567-01
Client ID : MW-905
Date Sampled : 6/9/2016 9:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.695 +/- 0.566	0.722	pCi/l			
Radium-226	SM 7500 Ra B M*	0.361 +/- 0.172	0.191	pCi/l	06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	0.334 +/- 0.394	0.531	pCi/l	06/30/16	07/08/16	JR

Lab ID : 20160567-02
Client ID : MW-803
Date Sampled : 6/9/2016 10:35:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.992 +/- 0.733	0.798	pCi/l			
Radium-226	SM 7500 Ra B M*	0.512 +/- 0.162	0.076	pCi/l	06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	0.480 +/- 0.571	0.722	pCi/l	06/30/16	07/08/16	JR

Lab ID : 20160567-03
Client ID : MW-601
Date Sampled : 6/9/2016 11:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.567 +/- 0.524	0.653	pCi/l			
Radium-226	SM 7500 Ra B M*	0.199 +/- 0.119	0.129	pCi/l	06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	0.368 +/- 0.405	0.524	pCi/l	06/30/16	07/08/16	JR

Lab ID : 20160567-04
Client ID : MW-601MS
Date Sampled : 6/9/2016 11:30:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	122		% Rec	06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	104		% Rec	06/30/16	07/08/16	JR



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160567
 Date Reported : 07/22/16
 Date Received : 06/13/16
 Page Number : 3 of 4

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20160567-05
Client ID : MW-601MSD
Date Sampled : 6/9/2016 11:30:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	0.0		RPD		06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	12.1		RPD		06/30/16	07/08/16	JR

Lab ID : 20160567-06
Client ID : MW-14R
Date Sampled : 6/9/2016 2:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.51 +/- 0.629	0.875	pCi/l				
Radium-226	SM 7500 Ra B M*	0.109 +/- 0.213	0.342	pCi/l		06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	1.40 +/- 0.416	0.533	pCi/l		06/30/16	07/08/16	JR

Lab ID : 20160567-07
Client ID : MW-15
Date Sampled : 6/9/2016 4:30:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.80 +/- 0.573	0.696	pCi/l				
Radium-226	SM 7500 Ra B M*	0.185 +/- 0.153	0.167	pCi/l		06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	1.61 +/- 0.420	0.529	pCi/l		06/30/16	07/08/16	JR

Lab ID : 20160567-08
Client ID : MW-602
Date Sampled : 6/10/2016 9:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.014 +/- 0.677	0.922	pCi/l				
Radium-226	SM 7500 Ra B M*	-0.020 +/- 0.098	0.191	pCi/l		06/20/16	06/22/16	AK
Radium-228	EPA 904*/9320*	0.014 +/- 0.579	0.731	pCi/l		06/30/16	07/09/16	JR



Client : AECOM
 Client Project : La Cygne Gen Stn
 Lab Number : 20160567
 Date Reported : 07/22/16
 Date Received : 06/13/16
 Page Number : 4 of 4

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20160567-09							
Client ID : TW-1							
Date Sampled : 6/9/2016 9:10:00 AM							
Matrix : NPW							

Radiochemical Analyses

Combined Radium	1.88 +/- 0.751	0.945	pCi/l				
Radium-226 SM 7500 Ra B M*	0.210 +/- 0.239	0.354	pCi/l		06/20/16	06/22/16	AK
Radium-228 EPA 904*/9320*	1.67 +/- 0.512	0.591	pCi/l		06/30/16	07/09/16	JR

Lab ID : 20160567-10
Client ID : MW-13
Date Sampled : 6/9/2016 12:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.636 +/- 0.536	0.739	pCi/l				
Radium-226 SM 7500 Ra B M*	0.246 +/- 0.140	0.169	pCi/l		06/20/16	06/22/16	AK
Radium-228 EPA 904*/9320*	0.390 +/- 0.396	0.570	pCi/l		06/30/16	07/09/16	JR

QC Report

Parameter	Blank	LCS %REC	LCS %REC	LCS RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	MSD RPD	Batch ID
Radium-226	0.004	111.0			NC	0.398	122.0	122.0	0.0	R1099
Radium-228	-0.202	105.0			NC	0.378	104.0	91.2	12.1	R3826

Lab Approval: _____

SAMPLE LOGIN

Date Received: 06/13/16 13:01:42

Lab Number: 20160567

Due: 07/05/16

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20160567-01 B	MW-905	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-01 A	MW-905	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160567-02 A	MW-803	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-02 B	MW-803	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160567-03 A	MW-601	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-03 B	MW-601	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160567-04 A	MW-601MS	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-04 B	MW-601MS	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160567-05 B	MW-601MSD	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-05 A	MW-601MSD	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160567-06 B	MW-14R	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-06 A	MW-14R	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20160567-07 A	MW-15	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-07 B	MW-15	NPW	06/09/16	Plastic	500 ml	HNO3, pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

10 06/13/16 P1

20160567-08 A	MW-602	NPW	06/09/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-08 B	MW-602	NPW	06/09/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226				SM 7500 Ra B M*					
Radium-228				EPA 904*/9320*					

20160567-09 A	TW-1	NPW	06/09/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-09 B	TW-1	NPW	06/09/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226				SM 7500 Ra B M*					
Radium-228				EPA 904*/9320*					

20160567-10 B	MW-13	NPW	06/09/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
20160567-10 A	MW-13	NPW	06/09/16	Plastic	500 ml	HNO ₃ , pH < 2	<input type="checkbox"/>	Yes	Yes
Radium-226				SM 7500 Ra B M*					
Radium-228				EPA 904*/9320*					

CONTAINER INSPECTION

Coolers Custody Seals Broken Temperature: C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete

Anomalies

Inspected By: PKK DATE 06/13/16
 QA or Designee Review: Ronald Moore DATE 06/13/16
 Sample Custodian Review: Ben Mahony DATE 06-13-16

Project Notes:

5000 4500 4000 3500 3000 2500 2000 1500 1000 500 0

15:00 17:00 19:00 21:00 23:00

Eureka (REV)

LOT 40851 1

501 LAB: 5

AECOM - Overland Park, KS

Sample Delivery Group: L840582
Samples Received: 06/09/2016
Project Number:
Description: La Cygne Generating Station

Report To: Brian Linnan
8300 College Blvd., Suite 200
Overland Park, KS 66210

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

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



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

SAMPLE SUMMARY



MW-10 L840582-01 GW

Collected by
Collected date/time
Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879564	1	06/11/16 15:37	06/11/16 16:15	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:04	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:19	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 15:41	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 18:21	06/11/16 18:21	CM

1
Cp

2
Tc

3
Ss

4
Cn

MW-11 L840582-02 GW

Collected by
Collected date/time
Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879564	1	06/11/16 15:37	06/11/16 16:15	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 08:56	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:09	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 15:22	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 18:36	06/11/16 18:36	CM
Wet Chemistry by Method 9056A	WG879485	5	06/11/16 18:51	06/11/16 18:51	CM

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-708 L840582-03 GW

Collected by
Collected date/time
Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879995	1	06/14/16 19:22	06/14/16 19:54	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:06	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:22	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 15:46	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 20:05	06/11/16 20:05	CM

MW-703 L840582-04 GW

Collected by
Collected date/time
Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879995	1	06/14/16 19:22	06/14/16 19:54	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:09	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:25	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 15:51	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 21:05	06/11/16 21:05	CM
Wet Chemistry by Method 9056A	WG879485	5	06/11/16 21:20	06/11/16 21:20	CM

MW-704 L840582-05 GW

Collected by
Collected date/time
Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879995	1	06/14/16 19:22	06/14/16 19:54	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:16	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:33	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:05	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK

SAMPLE SUMMARY



MW-704 L840582-05 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 21:35	06/11/16 21:35	CM
Wet Chemistry by Method 9056A	WG880742	10	06/16/16 00:03	06/16/16 00:03	SAM

Collected by _____ Collected date/time 06/07/16 15:10 Received date/time 06/09/16 09:00

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

MW-701 L840582-06 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879995	1	06/14/16 19:22	06/14/16 19:54	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:19	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:36	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:10	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 21:50	06/11/16 21:50	CM

Collected by _____ Collected date/time 06/07/16 15:50 Received date/time 06/09/16 09:00

MW-705 L840582-07 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879996	1	06/14/16 13:45	06/14/16 14:34	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:22	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:39	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:15	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 22:04	06/11/16 22:04	CM
Wet Chemistry by Method 9056A	WG879485	10	06/11/16 22:19	06/11/16 22:19	CM

Collected by _____ Collected date/time 06/07/16 17:25 Received date/time 06/09/16 09:00

MW-950 L840582-08 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:24	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:42	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:19	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 22:34	06/11/16 22:34	CM
Wet Chemistry by Method 9056A	WG879485	10	06/11/16 22:49	06/11/16 22:49	CM

Collected by _____ Collected date/time 06/08/16 08:30 Received date/time 06/09/16 09:00

MW-801 L840582-09 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879996	1	06/14/16 13:45	06/14/16 14:34	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:27	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:45	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:24	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/11/16 23:34	06/11/16 23:34	CM
Wet Chemistry by Method 9056A	WG879485	5	06/11/16 23:49	06/11/16 23:49	CM

Collected by _____ Collected date/time 06/07/16 09:00 Received date/time 06/09/16 09:00

SAMPLE SUMMARY



MW-951 L840582-10 GW

Collected by
Collected date/time
Received date/time

06/07/16 09:10
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879996	1	06/14/16 13:45	06/14/16 14:34	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:29	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:47	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:29	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/12/16 00:04	06/12/16 00:04	CM
Wet Chemistry by Method 9056A	WG880742	10	06/16/16 00:18	06/16/16 00:18	SAM

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-802 L840582-11 GW

Collected by
Collected date/time
Received date/time

06/07/16 09:40
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879996	1	06/14/16 13:45	06/14/16 14:34	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:32	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:50	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:34	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/12/16 00:19	06/12/16 00:19	CM

6
Qc

7
Gl

8
Al

9
Sc

MW-805 L840582-12 GW

Collected by
Collected date/time
Received date/time

06/07/16 12:42
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879996	1	06/14/16 13:45	06/14/16 14:34	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:34	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:53	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:38	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879485	1	06/12/16 00:48	06/12/16 00:48	CM
Wet Chemistry by Method 9056A	WG879485	10	06/12/16 01:03	06/12/16 01:03	CM

MW-902 L840582-13 GW

Collected by
Collected date/time
Received date/time

06/07/16 16:40
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG879996	1	06/14/16 13:45	06/14/16 14:34	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:37	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:56	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:43	ST
Wet Chemistry by Method 9040C	WG879108	1	06/10/16 08:28	06/10/16 08:28	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 18:03	06/15/16 18:03	CM

MW-804 L840582-14 GW

Collected by
Collected date/time
Received date/time

06/08/16 08:45
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:40	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 18:58	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 16:48	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 19:07	06/15/16 19:07	CM

SAMPLE SUMMARY



MW-903 L840582-15 GW

Collected by
Collected date/time
Received date/time

06/08/16 10:25
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:47	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 19:07	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 17:07	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 19:23	06/15/16 19:23	CM
Wet Chemistry by Method 9056A	WG880844	20	06/16/16 14:44	06/16/16 14:44	SAM

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-901 L840582-16 GW

Collected by
Collected date/time
Received date/time

06/08/16 11:00
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:50	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 19:09	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 17:12	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 19:39	06/15/16 19:39	CM

6
Qc

7
Gl

8
Al

9
Sc

MW-706 L840582-17 GW

Collected by
Collected date/time
Received date/time

06/08/16 11:50
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:52	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 19:12	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 17:16	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 19:55	06/15/16 19:55	CM
Wet Chemistry by Method 9056A	WG879486	10	06/15/16 20:11	06/15/16 20:11	CM

MW-702 L840582-18 GW

Collected by
Collected date/time
Received date/time

06/08/16 12:50
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:55	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 19:15	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 17:21	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 20:27	06/15/16 20:27	CM

MW-7 L840582-19 GW

Collected by
Collected date/time
Received date/time

06/08/16 14:25
06/09/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880279	1	06/15/16 14:24	06/15/16 15:17	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 09:58	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 19:18	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 17:26	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK

SAMPLE SUMMARY



MW-7 L840582-19 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
			Collected by	Collected date/time	Received date/time
				06/08/16 14:25	06/09/16 09:00
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 20:43	06/15/16 20:43	CM
Wet Chemistry by Method 9056A	WG879486	5	06/15/16 20:58	06/15/16 20:58	CM

1
Cp

2
Tc

3
Ss

MW-6 L840582-20 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
			Collected by	Collected date/time	Received date/time
				06/08/16 15:45	06/09/16 09:00
Gravimetric Analysis by Method 2540 C-2011	WG880281	1	06/15/16 15:32	06/15/16 16:14	MMF
Mercury by Method 7470A	WG879251	1	06/10/16 07:44	06/11/16 10:00	TRB
Metals (ICP) by Method 6010B	WG879242	1	06/10/16 13:20	06/10/16 19:21	BRJ
Metals (ICPMS) by Method 6020	WG879916	1	06/14/16 09:08	06/17/16 17:31	ST
Wet Chemistry by Method 9040C	WG879240	1	06/10/16 09:51	06/10/16 09:51	KK
Wet Chemistry by Method 9056A	WG879486	1	06/15/16 21:14	06/15/16 21:14	CM
Wet Chemistry by Method 9056A	WG879486	10	06/15/16 22:02	06/15/16 22:02	CM

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc



All MDL (LOD) and RDL (LOG) 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.

Brian Ford
 Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L840582-01	MW-10	9040C
L840582-02	MW-11	9040C
L840582-03	MW-708	9040C
L840582-04	MW-703	9040C
L840582-05	MW-704	9040C
L840582-06	MW-701	9040C
L840582-07	MW-705	9040C
L840582-08	MW-950	9040C
L840582-09	MW-801	9040C
L840582-10	MW-951	9040C
L840582-11	MW-802	9040C
L840582-12	MW-805	9040C
L840582-13	MW-902	9040C
L840582-14	MW-804	9040C
L840582-15	MW-903	9040C
L840582-16	MW-901	9040C
L840582-17	MW-706	9040C
L840582-18	MW-702	9040C
L840582-19	MW-7	9040C
L840582-20	MW-6	9040C

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	601		10.0	1	06/11/2016 16:15	WG879564

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.20		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-01 WG879108: 7.20 at 19.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	56.7		1.00	1	06/11/2016 18:21	WG879485
Fluoride	0.365		0.100	1	06/11/2016 18:21	WG879485
Sulfate	15.9		5.00	1	06/11/2016 18:21	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:04	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.923		0.200	1	06/10/2016 18:19	WG879242
Lithium	0.0487		0.0150	1	06/10/2016 18:19	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:19	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 15:41	WG879916
Arsenic	0.00771		0.00200	1	06/17/2016 15:41	WG879916
Barium	0.337		0.00500	1	06/17/2016 15:41	WG879916
Beryllium	ND		0.00200	1	06/17/2016 15:41	WG879916
Cadmium	ND		0.00100	1	06/17/2016 15:41	WG879916
Calcium	60.1		1.00	1	06/17/2016 15:41	WG879916
Chromium	ND		0.00200	1	06/17/2016 15:41	WG879916
Cobalt	ND		0.00200	1	06/17/2016 15:41	WG879916
Lead	ND		0.00200	1	06/17/2016 15:41	WG879916
Selenium	ND		0.00200	1	06/17/2016 15:41	WG879916
Thallium	ND		0.00200	1	06/17/2016 15:41	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1000		10.0	1	06/11/2016 16:15	WG879564

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.34		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-02 WG879108: 7.34 at 20.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	125		5.00	5	06/11/2016 18:51	WG879485
Fluoride	0.493		0.100	1	06/11/2016 18:36	WG879485
Sulfate	156		25.0	5	06/11/2016 18:51	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 08:56	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.729	<u>O1</u>	0.200	1	06/10/2016 18:09	WG879242
Lithium	0.0659		0.0150	1	06/10/2016 18:09	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:09	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 15:22	WG879916
Arsenic	ND		0.00200	1	06/17/2016 15:22	WG879916
Barium	0.0366		0.00500	1	06/17/2016 15:22	WG879916
Beryllium	ND		0.00200	1	06/17/2016 15:22	WG879916
Cadmium	ND		0.00100	1	06/17/2016 15:22	WG879916
Calcium	71.0	<u>V</u>	1.00	1	06/17/2016 15:22	WG879916
Chromium	ND		0.00200	1	06/17/2016 15:22	WG879916
Cobalt	ND		0.00200	1	06/17/2016 15:22	WG879916
Lead	ND		0.00200	1	06/17/2016 15:22	WG879916
Selenium	ND		0.00200	1	06/17/2016 15:22	WG879916
Thallium	ND		0.00200	1	06/17/2016 15:22	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	651		10.0	1	06/14/2016 19:54	WG879995

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.30		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-03 WG879108: 7.30 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	46.2		1.00	1	06/11/2016 20:05	WG879485
Fluoride	0.569		0.100	1	06/11/2016 20:05	WG879485
Sulfate	8.99		5.00	1	06/11/2016 20:05	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:06	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.37		0.200	1	06/10/2016 18:22	WG879242
Lithium	0.0780		0.0150	1	06/10/2016 18:22	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:22	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 15:46	WG879916
Arsenic	ND		0.00200	1	06/17/2016 15:46	WG879916
Barium	0.212		0.00500	1	06/17/2016 15:46	WG879916
Beryllium	ND		0.00200	1	06/17/2016 15:46	WG879916
Cadmium	ND		0.00100	1	06/17/2016 15:46	WG879916
Calcium	35.2		1.00	1	06/17/2016 15:46	WG879916
Chromium	ND		0.00200	1	06/17/2016 15:46	WG879916
Cobalt	ND		0.00200	1	06/17/2016 15:46	WG879916
Lead	ND		0.00200	1	06/17/2016 15:46	WG879916
Selenium	ND		0.00200	1	06/17/2016 15:46	WG879916
Thallium	ND		0.00200	1	06/17/2016 15:46	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	952		10.0	1	06/14/2016 19:54	WG879995

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.67		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-04 WG879108: 7.67 at 20.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	103		5.00	5	06/11/2016 21:20	WG879485
Fluoride	1.37		0.100	1	06/11/2016 21:05	WG879485
Sulfate	ND		5.00	1	06/11/2016 21:05	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:09	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.86		0.200	1	06/10/2016 18:25	WG879242
Lithium	0.0718		0.0150	1	06/10/2016 18:25	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:25	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 15:51	WG879916
Arsenic	0.00301		0.00200	1	06/17/2016 15:51	WG879916
Barium	0.292		0.00500	1	06/17/2016 15:51	WG879916
Beryllium	ND		0.00200	1	06/17/2016 15:51	WG879916
Cadmium	ND		0.00100	1	06/17/2016 15:51	WG879916
Calcium	22.0		1.00	1	06/17/2016 15:51	WG879916
Chromium	ND		0.00200	1	06/17/2016 15:51	WG879916
Cobalt	ND		0.00200	1	06/17/2016 15:51	WG879916
Lead	ND		0.00200	1	06/17/2016 15:51	WG879916
Selenium	ND		0.00200	1	06/17/2016 15:51	WG879916
Thallium	ND		0.00200	1	06/17/2016 15:51	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Dissolved Solids	1250		10.0	1	06/14/2016 19:54	WG879995

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
pH	7.46		1	06/10/2016 08:28	WG879108

Sample Narrative:

9040C L840582-05 WG879108: 7.46 at 19.9c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Chloride	82.5		1.00	1	06/11/2016 21:35	WG879485
Fluoride	0.852		0.100	1	06/11/2016 21:35	WG879485
Sulfate	203		50.0	10	06/16/2016 00:03	WG880742

Mercury by Method 7470A

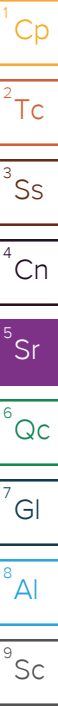
Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Mercury	ND		0.000200	1	06/11/2016 09:16	WG879251

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Boron	2.03		0.200	1	06/10/2016 18:33	WG879242
Lithium	0.0938		0.0150	1	06/10/2016 18:33	WG879242
Molybdenum	0.0191		0.00500	1	06/10/2016 18:33	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Antimony	0.0120		0.00200	1	06/17/2016 16:05	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:05	WG879916
Barium	0.113		0.00500	1	06/17/2016 16:05	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:05	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:05	WG879916
Calcium	35.1		1.00	1	06/17/2016 16:05	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:05	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:05	WG879916
Lead	ND		0.00200	1	06/17/2016 16:05	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:05	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:05	WG879916





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	595		10.0	1	06/14/2016 19:54	WG879995

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.49		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-06 WG879108: 7.49 at 19.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	56.5		1.00	1	06/11/2016 21:50	WG879485
Fluoride	0.717		0.100	1	06/11/2016 21:50	WG879485
Sulfate	76.9		5.00	1	06/11/2016 21:50	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:19	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.07		0.200	1	06/10/2016 18:36	WG879242
Lithium	0.0375		0.0150	1	06/10/2016 18:36	WG879242
Molybdenum	0.00519		0.00500	1	06/10/2016 18:36	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:10	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:10	WG879916
Barium	0.149		0.00500	1	06/17/2016 16:10	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:10	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:10	WG879916
Calcium	39.6		1.00	1	06/17/2016 16:10	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:10	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:10	WG879916
Lead	ND		0.00200	1	06/17/2016 16:10	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:10	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:10	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	960		10.0	1	06/14/2016 14:34	WG879996

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.31		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-07 WG879108: 7.31 at 19.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	142		10.0	10	06/11/2016 22:19	WG879485
Fluoride	0.944		0.100	1	06/11/2016 22:04	WG879485
Sulfate	39.6		5.00	1	06/11/2016 22:04	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:22	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.19		0.200	1	06/10/2016 18:39	WG879242
Lithium	0.133		0.0150	1	06/10/2016 18:39	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:39	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:15	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:15	WG879916
Barium	0.0918		0.00500	1	06/17/2016 16:15	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:15	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:15	WG879916
Calcium	41.0		1.00	1	06/17/2016 16:15	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:15	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:15	WG879916
Lead	ND		0.00200	1	06/17/2016 16:15	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:15	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:15	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1260		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.50		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-08 WG879108: 7.50 at 20.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	259		10.0	10	06/11/2016 22:49	WG879485
Fluoride	1.10		0.100	1	06/11/2016 22:34	WG879485
Sulfate	ND		5.00	1	06/11/2016 22:34	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:24	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.13		0.200	1	06/10/2016 18:42	WG879242
Lithium	0.147		0.0150	1	06/10/2016 18:42	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:42	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:19	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:19	WG879916
Barium	0.268		0.00500	1	06/17/2016 16:19	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:19	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:19	WG879916
Calcium	37.4		1.00	1	06/17/2016 16:19	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:19	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:19	WG879916
Lead	ND		0.00200	1	06/17/2016 16:19	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:19	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:19	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	930		10.0	1	06/14/2016 14:34	WG879996

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.37		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-09 WG879108: 7.37 at 19.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	118		5.00	5	06/11/2016 23:49	WG879485
Fluoride	1.08		0.100	1	06/11/2016 23:34	WG879485
Sulfate	ND		5.00	1	06/11/2016 23:34	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:27	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.34		0.200	1	06/10/2016 18:45	WG879242
Lithium	0.119		0.0150	1	06/10/2016 18:45	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:45	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:24	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:24	WG879916
Barium	0.638		0.00500	1	06/17/2016 16:24	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:24	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:24	WG879916
Calcium	37.6		1.00	1	06/17/2016 16:24	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:24	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:24	WG879916
Lead	ND		0.00200	1	06/17/2016 16:24	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:24	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:24	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	900		10.0	1	06/14/2016 14:34	WG879996

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.39		1	06/10/2016 08:28	WG879108

Sample Narrative:

9040C L840582-10 WG879108: 7.39 at 19.7c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	112		10.0	10	06/16/2016 00:18	WG880742
Fluoride	1.08		0.100	1	06/12/2016 00:04	WG879485
Sulfate	ND		5.00	1	06/12/2016 00:04	WG879485

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:29	WG879251

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.34		0.200	1	06/10/2016 18:47	WG879242
Lithium	0.119		0.0150	1	06/10/2016 18:47	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:47	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:29	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:29	WG879916
Barium	0.633		0.00500	1	06/17/2016 16:29	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:29	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:29	WG879916
Calcium	37.1		1.00	1	06/17/2016 16:29	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:29	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:29	WG879916
Lead	ND		0.00200	1	06/17/2016 16:29	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:29	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:29	WG879916

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	695		10.0	1	06/14/2016 14:34	WG879996

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.30		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-11 WG879108: 7.30 at 19.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	37.9		1.00	1	06/12/2016 00:19	WG879485
Fluoride	0.920		0.100	1	06/12/2016 00:19	WG879485
Sulfate	ND		5.00	1	06/12/2016 00:19	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:32	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.51		0.200	1	06/10/2016 18:50	WG879242
Lithium	0.105		0.0150	1	06/10/2016 18:50	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:50	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:34	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:34	WG879916
Barium	0.967		0.00500	1	06/17/2016 16:34	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:34	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:34	WG879916
Calcium	42.6		1.00	1	06/17/2016 16:34	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:34	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:34	WG879916
Lead	ND		0.00200	1	06/17/2016 16:34	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:34	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:34	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2070		10.0	1	06/14/2016 14:34	WG879996

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.41		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-12 WG879108: 6.41 at 19.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	520		10.0	10	06/12/2016 01:03	WG879485
Fluoride	0.122		0.100	1	06/12/2016 00:48	WG879485
Sulfate	829		50.0	10	06/12/2016 01:03	WG879485

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:34	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.510		0.200	1	06/10/2016 18:53	WG879242
Lithium	0.0530		0.0150	1	06/10/2016 18:53	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:53	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:38	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:38	WG879916
Barium	0.0387		0.00500	1	06/17/2016 16:38	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:38	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:38	WG879916
Calcium	422		1.00	1	06/17/2016 16:38	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:38	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:38	WG879916
Lead	ND		0.00200	1	06/17/2016 16:38	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:38	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:38	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	526		10.0	1	06/14/2016 14:34	WG879996

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.14		1	06/10/2016 08:28	WG879108

3 Ss

4 Cn

Sample Narrative:

9040C L840582-13 WG879108: 7.14 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	32.8		1.00	1	06/15/2016 18:03	WG879486
Fluoride	0.532		0.100	1	06/15/2016 18:03	WG879486
Sulfate	33.4		5.00	1	06/15/2016 18:03	WG879486

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:37	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.20		0.200	1	06/10/2016 18:56	WG879242
Lithium	0.0412		0.0150	1	06/10/2016 18:56	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:56	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:43	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:43	WG879916
Barium	0.119		0.00500	1	06/17/2016 16:43	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:43	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:43	WG879916
Calcium	71.3		1.00	1	06/17/2016 16:43	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:43	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:43	WG879916
Lead	ND		0.00200	1	06/17/2016 16:43	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:43	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:43	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	562		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.09		1	06/10/2016 09:51	WG879240

3 Ss

4 Cn

Sample Narrative:

9040C L840582-14 WG879240: 7.09 at 19.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	32.8		1.00	1	06/15/2016 19:07	WG879486
Fluoride	0.491		0.100	1	06/15/2016 19:07	WG879486
Sulfate	27.2		5.00	1	06/15/2016 19:07	WG879486

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:40	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.65		0.200	1	06/10/2016 18:58	WG879242
Lithium	0.0453		0.0150	1	06/10/2016 18:58	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 18:58	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 16:48	WG879916
Arsenic	ND		0.00200	1	06/17/2016 16:48	WG879916
Barium	0.178		0.00500	1	06/17/2016 16:48	WG879916
Beryllium	ND		0.00200	1	06/17/2016 16:48	WG879916
Cadmium	ND		0.00100	1	06/17/2016 16:48	WG879916
Calcium	68.5		1.00	1	06/17/2016 16:48	WG879916
Chromium	ND		0.00200	1	06/17/2016 16:48	WG879916
Cobalt	ND		0.00200	1	06/17/2016 16:48	WG879916
Lead	ND		0.00200	1	06/17/2016 16:48	WG879916
Selenium	ND		0.00200	1	06/17/2016 16:48	WG879916
Thallium	ND		0.00200	1	06/17/2016 16:48	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2070		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.68		1	06/10/2016 09:51	WG879240

3 Ss

4 Cn

Sample Narrative:

9040C L840582-15 WG879240: 6.68 at 20.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	25.9		1.00	1	06/15/2016 19:23	WG879486
Fluoride	ND		0.100	1	06/15/2016 19:23	WG879486
Sulfate	1130		100	20	06/16/2016 14:44	WG880844

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:47	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.487		0.200	1	06/10/2016 19:07	WG879242
Lithium	0.0809		0.0150	1	06/10/2016 19:07	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 19:07	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 17:07	WG879916
Arsenic	ND		0.00200	1	06/17/2016 17:07	WG879916
Barium	0.0285		0.00500	1	06/17/2016 17:07	WG879916
Beryllium	ND		0.00200	1	06/17/2016 17:07	WG879916
Cadmium	ND		0.00100	1	06/17/2016 17:07	WG879916
Calcium	362		1.00	1	06/17/2016 17:07	WG879916
Chromium	0.00409		0.00200	1	06/17/2016 17:07	WG879916
Cobalt	0.00515		0.00200	1	06/17/2016 17:07	WG879916
Lead	ND		0.00200	1	06/17/2016 17:07	WG879916
Selenium	ND		0.00200	1	06/17/2016 17:07	WG879916
Thallium	ND		0.00200	1	06/17/2016 17:07	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	561		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.35		1	06/10/2016 09:51	WG879240

3 Ss

4 Cn

Sample Narrative:

9040C L840582-16 WG879240: 7.35 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	23.3		1.00	1	06/15/2016 19:39	WG879486
Fluoride	0.543		0.100	1	06/15/2016 19:39	WG879486
Sulfate	19.5		5.00	1	06/15/2016 19:39	WG879486

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:50	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.18		0.200	1	06/10/2016 19:09	WG879242
Lithium	0.0819		0.0150	1	06/10/2016 19:09	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 19:09	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	0.00251	B	0.00200	1	06/17/2016 17:12	WG879916
Arsenic	ND		0.00200	1	06/17/2016 17:12	WG879916
Barium	0.167		0.00500	1	06/17/2016 17:12	WG879916
Beryllium	ND		0.00200	1	06/17/2016 17:12	WG879916
Cadmium	ND		0.00100	1	06/17/2016 17:12	WG879916
Calcium	57.2		1.00	1	06/17/2016 17:12	WG879916
Chromium	ND		0.00200	1	06/17/2016 17:12	WG879916
Cobalt	ND		0.00200	1	06/17/2016 17:12	WG879916
Lead	ND		0.00200	1	06/17/2016 17:12	WG879916
Selenium	ND		0.00200	1	06/17/2016 17:12	WG879916
Thallium	ND		0.00200	1	06/17/2016 17:12	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1270		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.49		1	06/10/2016 09:51	WG879240

3 Ss

4 Cn

Sample Narrative:

9040C L840582-17 WG879240: 7.49 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	270		10.0	10	06/15/2016 20:11	WG879486
Fluoride	1.22		0.100	1	06/15/2016 19:55	WG879486
Sulfate	ND		5.00	1	06/15/2016 19:55	WG879486

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:52	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.14		0.200	1	06/10/2016 19:12	WG879242
Lithium	0.146		0.0150	1	06/10/2016 19:12	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 19:12	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 17:16	WG879916
Arsenic	ND		0.00200	1	06/17/2016 17:16	WG879916
Barium	0.273		0.00500	1	06/17/2016 17:16	WG879916
Beryllium	ND		0.00200	1	06/17/2016 17:16	WG879916
Cadmium	ND		0.00100	1	06/17/2016 17:16	WG879916
Calcium	35.8		1.00	1	06/17/2016 17:16	WG879916
Chromium	ND		0.00200	1	06/17/2016 17:16	WG879916
Cobalt	ND		0.00200	1	06/17/2016 17:16	WG879916
Lead	ND		0.00200	1	06/17/2016 17:16	WG879916
Selenium	ND		0.00200	1	06/17/2016 17:16	WG879916
Thallium	ND		0.00200	1	06/17/2016 17:16	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	629		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.75		1	06/10/2016 09:51	WG879240

3 Ss

4 Cn

Sample Narrative:

9040C L840582-18 WG879240: 8.75 at 19.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	44.9		1.00	1	06/15/2016 20:27	WG879486
Fluoride	1.60		0.100	1	06/15/2016 20:27	WG879486
Sulfate	5.73		5.00	1	06/15/2016 20:27	WG879486

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:55	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.67		0.200	1	06/10/2016 19:15	WG879242
Lithium	0.213		0.0150	1	06/10/2016 19:15	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 19:15	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 17:21	WG879916
Arsenic	ND		0.00200	1	06/17/2016 17:21	WG879916
Barium	0.242		0.00500	1	06/17/2016 17:21	WG879916
Beryllium	ND		0.00200	1	06/17/2016 17:21	WG879916
Cadmium	ND		0.00100	1	06/17/2016 17:21	WG879916
Calcium	17.3		1.00	1	06/17/2016 17:21	WG879916
Chromium	ND		0.00200	1	06/17/2016 17:21	WG879916
Cobalt	ND		0.00200	1	06/17/2016 17:21	WG879916
Lead	ND		0.00200	1	06/17/2016 17:21	WG879916
Selenium	ND		0.00200	1	06/17/2016 17:21	WG879916
Thallium	ND		0.00200	1	06/17/2016 17:21	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	910		10.0	1	06/15/2016 15:17	WG880279

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.78		1	06/10/2016 09:51	WG879240

3 Ss

4 Cn

Sample Narrative:

9040C L840582-19 WG879240: 7.78 at 20.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	106		5.00	5	06/15/2016 20:58	WG879486
Fluoride	1.36		0.100	1	06/15/2016 20:43	WG879486
Sulfate	ND		5.00	1	06/15/2016 20:43	WG879486

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 09:58	WG879251

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.61		0.200	1	06/10/2016 19:18	WG879242
Lithium	0.0867		0.0150	1	06/10/2016 19:18	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 19:18	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 17:26	WG879916
Arsenic	0.00393		0.00200	1	06/17/2016 17:26	WG879916
Barium	0.611		0.00500	1	06/17/2016 17:26	WG879916
Beryllium	ND		0.00200	1	06/17/2016 17:26	WG879916
Cadmium	ND		0.00100	1	06/17/2016 17:26	WG879916
Calcium	26.5		1.00	1	06/17/2016 17:26	WG879916
Chromium	ND		0.00200	1	06/17/2016 17:26	WG879916
Cobalt	ND		0.00200	1	06/17/2016 17:26	WG879916
Lead	ND		0.00200	1	06/17/2016 17:26	WG879916
Selenium	ND		0.00200	1	06/17/2016 17:26	WG879916
Thallium	ND		0.00200	1	06/17/2016 17:26	WG879916



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1180		10.0	1	06/15/2016 16:14	WG880281

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.13		1	06/10/2016 09:51	WG879240

Sample Narrative:

9040C L840582-20 WG879240: 7.13 at 20.1c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	216		10.0	10	06/15/2016 22:02	WG879486
Fluoride	0.545		0.100	1	06/15/2016 21:14	WG879486
Sulfate	181		50.0	10	06/15/2016 22:02	WG879486

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/11/2016 10:00	WG879251

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.18		0.200	1	06/10/2016 19:21	WG879242
Lithium	0.0634		0.0150	1	06/10/2016 19:21	WG879242
Molybdenum	ND		0.00500	1	06/10/2016 19:21	WG879242

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/17/2016 17:31	WG879916
Arsenic	0.00721		0.00200	1	06/17/2016 17:31	WG879916
Barium	0.204		0.00500	1	06/17/2016 17:31	WG879916
Beryllium	ND		0.00200	1	06/17/2016 17:31	WG879916
Cadmium	ND		0.00100	1	06/17/2016 17:31	WG879916
Calcium	112		1.00	1	06/17/2016 17:31	WG879916
Chromium	ND		0.00200	1	06/17/2016 17:31	WG879916
Cobalt	ND		0.00200	1	06/17/2016 17:31	WG879916
Lead	ND		0.00200	1	06/17/2016 17:31	WG879916
Selenium	ND		0.00200	1	06/17/2016 17:31	WG879916
Thallium	ND		0.00200	1	06/17/2016 17:31	WG879916

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



Method Blank (MB)

(MB) R3143190-1 06/11/16 16:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L839719-01 Original Sample (OS) • Duplicate (DUP)

(OS) L839719-01 06/11/16 16:15 • (DUP) R3143190-4 06/11/16 16:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	48.0	47.0	1	2.11		5

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

(LCS) R3143190-2 06/11/16 16:15 • (LCSD) R3143190-3 06/11/16 16:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8510	8600	96.7	97.7	85.0-115			1.05	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3143762-1 06/14/16 19:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L840582-06 Original Sample (OS) • Duplicate (DUP)

(OS) L840582-06 06/14/16 19:54 • (DUP) R3143762-4 06/14/16 19:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	595	603	1	1.34		5

⁷ Gl

⁸ Al

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

(LCS) R3143762-2 06/14/16 19:54 • (LCSD) R3143762-3 06/14/16 19:54

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8490	8560	96.5	97.3	85.0-115			0.821	5

⁹ Sc



Method Blank (MB)

(MB) R3143761-1 06/14/16 14:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L840334-01 Original Sample (OS) • Duplicate (DUP)

(OS) L840334-01 06/14/16 14:34 • (DUP) R3143761-4 06/14/16 14:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	177	182	1	2.79		5

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

(LCS) R3143761-2 06/14/16 14:34 • (LCSD) R3143761-3 06/14/16 14:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8840	8810	100	100	85.0-115			0.340	5



Method Blank (MB)

(MB) R3144044-1 06/15/16 15:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L840419-11 Original Sample (OS) • Duplicate (DUP)

(OS) L840419-11 06/15/16 15:17 • (DUP) R3144044-4 06/15/16 15:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	295	294	1	0.340		5

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

(LCS) R3144044-2 06/15/16 15:17 • (LCSD) R3144044-3 06/15/16 15:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8640	8900	98.2	101	85.0-115			2.96	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3143998-1 06/15/16 16:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

L840582-20 Original Sample (OS) • Duplicate (DUP)

(OS) L840582-20 06/15/16 16:14 • (DUP) R3143998-4 06/15/16 16:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1180	1200	1	1.52		5

⁴ Cn

⁵ Sr

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

(LCS) R3143998-2 06/15/16 16:14 • (LCSD) R3143998-3 06/15/16 16:14

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8680	8660	98.6	98.4	85.0-115			0.231	5

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



L840410-01 Original Sample (OS) • Duplicate (DUP)

(OS) L840410-01 06/10/16 08:28 • (DUP) WG879108-3 06/10/16 08:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.48	8.51	1	0.353		1

L840582-13 Original Sample (OS) • Duplicate (DUP)

(OS) L840582-13 06/10/16 08:28 • (DUP) WG879108-4 06/10/16 08:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.14	7.18	1	0.559		1

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

(LCS) WG879108-1 06/10/16 08:28 • (LCSD) WG879108-2 06/10/16 08:28

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.43	6.40	6.40	99.5	99.5	98.4-102			0.000	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



L840582-14 Original Sample (OS) • Duplicate (DUP)

(OS) L840582-14 06/10/16 09:51 • (DUP) WG879240-3 06/10/16 09:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.09	7.11	1	0.282		1

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

(LCS) WG879240-1 06/10/16 09:51 • (LCSD) WG879240-2 06/10/16 09:51

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.43	6.40	6.41	99.5	99.7	98.4-102			0.156	1

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3143088-1 06/11/16 06:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L840580-12 Original Sample (OS) • Duplicate (DUP)

(OS) L840580-12 06/11/16 16:21 • (DUP) R3143088-4 06/11/16 16:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	12.0	12.0	1	1		15
Fluoride	ND	0.000	1	0		15
Sulfate	20.2	20.4	1	1		15

L840582-03 Original Sample (OS) • Duplicate (DUP)

(OS) L840582-03 06/11/16 20:05 • (DUP) R3143088-9 06/11/16 20:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	46.2	46.2	1	0		15
Fluoride	0.569	0.568	1	0		15
Sulfate	8.99	8.95	1	0		15

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

(LCS) R3143088-2 06/11/16 07:14 • (LCSD) R3143088-3 06/11/16 07:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.4	39.4	98	99	80-120			0	15
Fluoride	8.00	7.90	7.90	99	99	80-120			0	15
Sulfate	40.0	39.6	39.7	99	99	80-120			0	15

L840582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840582-02 06/11/16 18:36 • (MS) R3143088-5 06/11/16 19:05 • (MSD) R3143088-7 06/11/16 19:35

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Fluoride	5.00	0.493	5.37	5.79	98	106	1	80-120			8	15



L840582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840582-02 06/11/16 18:51 • (MS) R3143088-6 06/11/16 19:20 • (MSD) R3143088-8 06/11/16 19:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits
Chloride	50.0	125	353	357	91	93	5	80-120			1	15
Sulfate	50.0	156	383	387	91	92	5	80-120			1	15

L840582-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L840582-11 06/12/16 00:19 • (MS) R3143088-10 06/12/16 00:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	37.9	85.7	96	1	80-120	
Fluoride	5.00	0.920	5.54	92	1	80-120	
Sulfate	50.0	ND	47.2	94	1	80-120	

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



Method Blank (MB)

(MB) R3143802-1 06/15/16 15:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L840631-03 Original Sample (OS) • Duplicate (DUP)

(OS) L840631-03 06/16/16 00:09 • (DUP) R3143802-5 06/16/16 00:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	91.9	91.9	1	0		15
Fluoride	ND	0.0855	1	0		15
Sulfate	43.3	43.2	1	0		15

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

(LCS) R3143802-2 06/15/16 16:04 • (LCSD) R3143802-3 06/15/16 16:20

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.4	39.4	99	99	80-120			0	15
Fluoride	8.00	7.94	7.89	99	99	80-120			1	15
Sulfate	40.0	39.7	39.6	99	99	80-120			0	15

L840582-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L840582-13 06/15/16 18:03 • (MS) R3143802-4 06/15/16 18:19

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	32.8	83.7	102	1	80-120	
Fluoride	5.00	0.532	5.72	104	1	80-120	
Sulfate	50.0	33.4	84.1	101	1	80-120	

L840633-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840633-01 06/16/16 02:17 • (MS) R3143802-6 06/16/16 02:33 • (MSD) R3143802-7 06/16/16 02:49

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Fluoride	5.00	0.303	5.28	5.11	100	96	1	80-120			3	15



Method Blank (MB)

(MB) R3143995-1 06/15/16 22:04

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.0519	1.00
Sulfate	0.288	J	0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

L840859-03 Original Sample (OS) • Duplicate (DUP)

(OS) L840859-03 06/16/16 01:18 • (DUP) R3143995-4 06/16/16 01:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	8.94	8.93	1	0		15
Sulfate	13.7	13.6	1	1		15

5 Sr

6 Qc

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

(LCS) R3143995-2 06/15/16 22:19 • (LCSD) R3143995-3 06/15/16 22:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.3	39.3	98	98	80-120			0	15
Sulfate	40.0	39.9	39.9	100	100	80-120			0	15

7 Gl

8 Al

L840859-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L840859-04 06/16/16 01:48 • (MS) R3143995-5 06/16/16 02:03

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	1.57	50.8	98	1	80-120	
Sulfate	50.0	33.2	80.6	95	1	80-120	

9 Sc



Method Blank (MB)

(MB) R3144188-1 06/16/16 05:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	0.109	<u>BJ</u>	0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L841517-06 Original Sample (OS) • Duplicate (DUP)

(OS) L841517-06 06/16/16 10:11 • (DUP) R3144188-5 06/16/16 10:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	39.2	39.0	1	1		15

L841719-15 Original Sample (OS) • Duplicate (DUP)

(OS) L841719-15 06/16/16 13:50 • (DUP) R3144188-8 06/16/16 14:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	20.8	20.9	1	0		15

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

(LCS) R3144188-2 06/16/16 05:59 • (LCSD) R3144188-3 06/16/16 06:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	40.2	40.4	100	101	80-120			0	15

L841435-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L841435-05 06/16/16 08:05 • (MS) R3144188-4 06/16/16 08:23

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	40.7	90.9	100	1	80-120	



Method Blank (MB)

(MB) R3142958-4 06/11/16 08:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3142958-5 06/11/16 08:51 • (LCSD) R3142958-6 06/11/16 08:53

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00304	0.00331	101	110	80-120			8	20

L840582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840582-02 06/11/16 08:56 • (MS) R3142958-7 06/11/16 08:58 • (MSD) R3142958-8 06/11/16 09:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00334	0.00322	111	107	1	75-125			4	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3142928-1 06/10/16 18:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) R3142928-2 06/10/16 18:03 • (LCSD) R3142928-3 06/10/16 18:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.999	0.970	100	97	80-120			3	20
Lithium	1.00	1.04	1.02	104	102	80-120			2	20
Molybdenum	1.00	0.994	0.991	99	99	80-120			0	20

L840582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840582-02 06/10/16 18:09 • (MS) R3142928-5 06/10/16 18:14 • (MSD) R3142928-6 06/10/16 18:17

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.729	1.71	1.70	98	98	1	75-125			0	20
Lithium	1.00	0.0659	1.09	1.10	102	103	1	75-125			1	20
Molybdenum	1.00	ND	0.983	0.999	98	100	1	75-125			2	20



Method Blank (MB)

(MB) R3144319-1 06/17/16 15:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	0.000281	J	0.00021	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3144319-2 06/17/16 15:12 • (LCSD) R3144319-3 06/17/16 15:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0485	0.0491	97	98	80-120			1	20
Arsenic	0.0500	0.0510	0.0521	102	104	80-120			2	20
Barium	0.0500	0.0486	0.0483	97	97	80-120			1	20
Beryllium	0.0500	0.0452	0.0465	90	93	80-120			3	20
Cadmium	0.0500	0.0489	0.0497	98	99	80-120			2	20
Calcium	5.00	5.08	5.15	102	103	80-120			1	20
Chromium	0.0500	0.0504	0.0512	101	102	80-120			2	20
Cobalt	0.0500	0.0516	0.0527	103	105	80-120			2	20
Lead	0.0500	0.0537	0.0544	107	109	80-120			1	20
Selenium	0.0500	0.0526	0.0543	105	109	80-120			3	20
Thallium	0.0500	0.0514	0.0522	103	104	80-120			2	20

L840582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840582-02 06/17/16 15:22 • (MS) R3144319-5 06/17/16 15:31 • (MSD) R3144319-6 06/17/16 15:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0516	0.0512	103	102	1	75-125			1	20
Arsenic	0.0500	ND	0.0538	0.0536	107	106	1	75-125			0	20
Barium	0.0500	0.0366	0.0865	0.0858	100	98	1	75-125			1	20
Beryllium	0.0500	ND	0.0450	0.0455	90	91	1	75-125			1	20
Cadmium	0.0500	ND	0.0499	0.0499	100	100	1	75-125			0	20



L840582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L840582-02 06/17/16 15:22 • (MS) R3144319-5 06/17/16 15:31 • (MSD) R3144319-6 06/17/16 15:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	71.0	74.4	75.0	70	81	1	75-125	V		1	20
Chromium	0.0500	ND	0.0500	0.0508	100	102	1	75-125			2	20
Cobalt	0.0500	ND	0.0500	0.0498	100	100	1	75-125			0	20
Lead	0.0500	ND	0.0531	0.0529	106	106	1	75-125			0	20
Selenium	0.0500	ND	0.0554	0.0561	108	110	1	75-125			1	20
Thallium	0.0500	ND	0.0521	0.0522	103	104	1	75-125			0	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

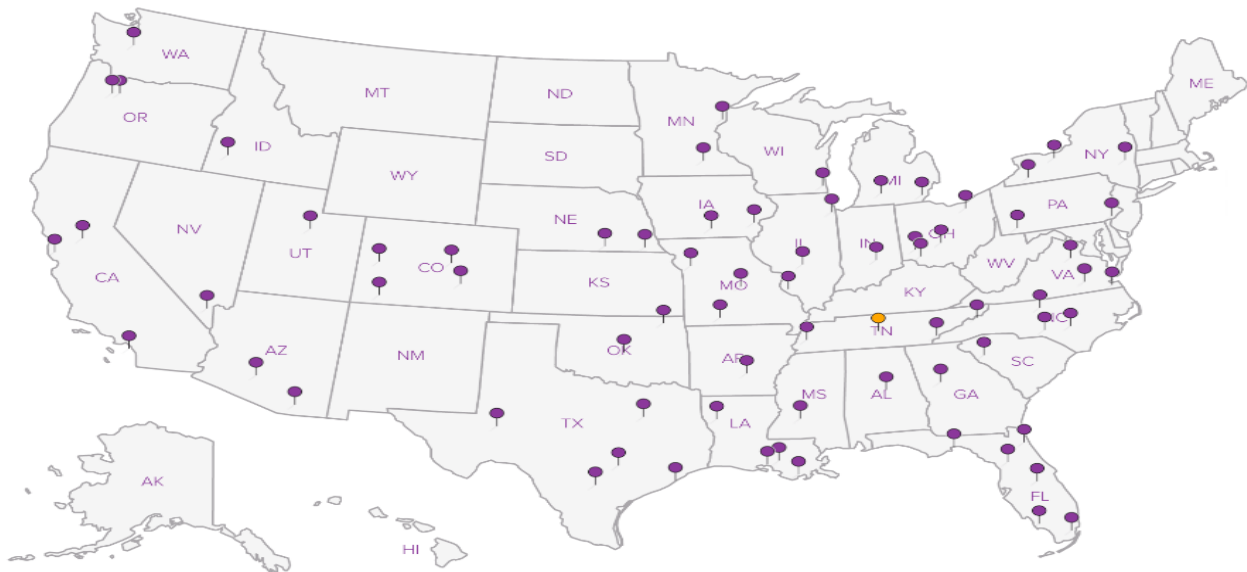
Third Party & Federal Accreditations



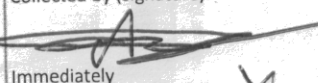
A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**


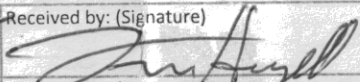
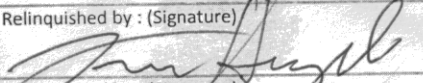
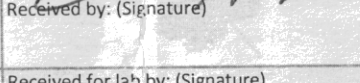
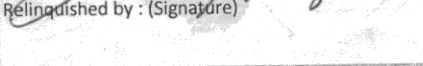
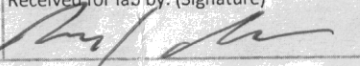


AECOM - Overland Park, KS 8300 College Blvd., Suite 200 Overland Park, KS 66210		Billing Information: Dana Monroe - 1334927 8300 College Blvd., Suite 200 Overland Park, KS 66210		Analysis / Container / Preservative										Chain of Custody Page <u> </u> of <u> </u>	
Report to: Brian Linnan		Email To: brian.linnan@aecom.com; robert.exceed@aecom.com;		CLD, F, SO4 125mlHDPE-NoPres Metals 250mlHDPE-HNO3 TDS, pH 500mlHDPE-NoPres										 L.A.B S.C.I.E.N.C.E.S YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859 	
Project Description: La Cygne Generating Station		City/State Collected:												L# L840982 J205	
Phone: 913-344-1000 Fax: 913-344-1011		Client Project #												Lab Project # URSKC-LACYGNE	
Collected by (print):		Site/Facility ID #												P.O. # URSKC1028155	
Collected by (signature): 		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day200% <input type="checkbox"/> Next Day100% <input type="checkbox"/> Two Day50% <input type="checkbox"/> Three Day25%		Date Results Needed		Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes		No. of Cntrs		Acctnum: URSKC Template: T112860 Prelogin: P556948 TSR: 206 - Jeff Carr PB:					
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>												Shipped Via:			
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs		CLD, F, SO4	Metals	TDS, pH	Rem./Contaminant		Sample # (lab only)		
MW-10	G	GW		6/6/16	1325	3	X	X	X				-01		
MW-11		GW			1445	3	X	X	X				02		
MW-11-MS		GW			1445	3	X	X	X				03		
MW-11-MSD		GW			1445	3	X	X	X				04		
MW-702		GW		6/7	0935	3	X	X	X				05		
MW-703		GW			1415	3	X	X	X				06		
MW-704		GW			1510	3	X	X	X				07		
MW-701		GW			1550	3	X	X	X				08		
MW-705		GW			1725	3	X	X	X				09		
MW-950		GW		6/8	0830	3	X	X	X				10		

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

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

pH _____ Temp _____ 6711 0138 1732
 Flow _____ Other _____
 Hold # _____

Relinquished by: (Signature) 	Date: 6/8	Time: 1735	Received by: (Signature) 	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) SW7 60
Relinquished by: (Signature) 	Date: 6/8/16	Time: 1810	Received by: (Signature) 	Temp: °C 3.1 Bottles Received: 66	COC Seal Intact: ___ Y ___ N ___ NA
Relinquished by: (Signature) 	Date:	Time:	Received for lab by: (Signature) 	Date: 6-9-16 Time: 0900	pH Checked: <u> </u> NCF: <u> </u>

AECOM - Overland Park, KS 8300 College Blvd., Suite 200 Overland Park, KS 66210		Billing Information: Dana Monroe - 1334927 8300 College Blvd., Suite 200 Overland Park, KS 66210		Analysis / Container / Preservative					Chain of Custody Page ___ of ___	
--	--	---	--	-------------------------------------	--	--	--	--	----------------------------------	--



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



Report to: Brian Linnan	Email To: brian.linnan@aecom.com; robert.exceed@aecom.com;
-----------------------------------	---

Project Description: La Cygne Generating Station	City/State Collected:
---	-----------------------

Phone: 913-344-1000 Fax: 913-344-1011	Client Project #	Lab Project # URSKC-LACYGNE
--	------------------	---------------------------------------

Collected by (print):	Site/Facility ID #	P.O. # URSKC1028155
-----------------------	--------------------	-------------------------------

Collected by (signature): 	Rush? (Lab MUST Be Notified) Same Day200% Next Day100% Two Day50% Three Day25%	Date Results Needed	Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes	No. of Cntrs
Immediately Packed on Ice N ___ Y <input checked="" type="checkbox"/>				

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CLD, F, SO4 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres										
MW-801	GRAB	GW		6/7/16	900	3	X	X	X										11
MW-951	GRAB	GW		6/7/16	910	3	X	X	X										12
MW-802	GRAB	GW		6/7/16	940	3	X	X	X										13
MW-805	GRAB	GW		6/7/16	1242	3	X	X	X										14
MW-902	GRAB	GW		6/7/16	1640	3	X	X	X										15
MW-804	GRAB	GW		6/8/16	845	3	X	X	X										16
MW-903	GRAB	GW		6/8/16	1025	3	X	X	X										17
MW-901	GRAB	GW		6/8/16	1100	3	X	X	X										18
		GW				3	X	X	X										
		GW				3	X	X	X										

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Metals: (6020) AS,BA,BE,BP,CA,CD,CO,CR,PB,SB,SE,TL (6010B) B,MO,LI (7470) HG. pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature) 	Date: 6/8	Time: 1735	Received by: (Signature) 	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) JW GW
Relinquished by: (Signature) 	Date: 6/8/16	Time: 1810	Received by: (Signature) 	Temp: 3.1 °C Bottles Received:	COC Seal Intact: ___ Y ___ N ___ NA
Relinquished by: (Signature) 	Date:	Time:	Received by: (Signature) 	Date: 6-9-16 Time: 0900	pH Checked: _____ NCF: _____

AE COM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information:
Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):

Rush? (Lab MUST Be Notified)

Date Results Needed

___ Same Day200%
___ Next Day100%
___ Two Day50%
___ Three Day25%

Email? ___ No **X** Yes


FAX? ___ No ___ Yes

No.
of
Cnts

Immediately
Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	CLD, F, SO4 125mIHDPE-NoPres	Metals 250mIHDPE-HNO3	TDS, pH 500mIHDPE-NoPres									
MW-706	G	GW		6/18/16	1150	3	X	X	X									19
MW-702		GW			1250	3	X	X	X									26
MW-7		GW			1425	3	X	X	X									21
MW-6	P	GW			15453	X	X	X										22


Chain of Custody Page ___ of ___



L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

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



L# **L846582**

Table #

Acctnum: **URSKC**
Template: **T112860**
Prelogin: **P556948**
TSR: **206 - Jeff Carr**
PB:
Shipped Via:

Rem./Contaminant	Sample # (lab only)
	19
	26
	21
	22


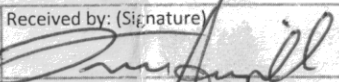
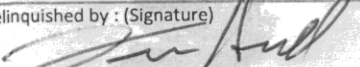
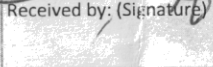
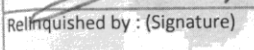
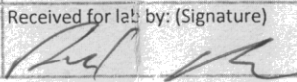
* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

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

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by: (Signature) 	Date: 6/18	Time: 1735	Received by: (Signature) 	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) 5W7 OK
Relinquished by: (Signature) 	Date: 6/18/16	Time: 1810	Received by: (Signature) 	Temp: 7.15W °C 3.1	Bottles Received:
Relinquished by: (Signature) 	Date:	Time:	Received for lab by: (Signature) 	Date: 6-9-16	Time: 0900
				pH Checked:	NCF:

AECOM - Overland Park, KS

Sample Delivery Group: L841085
Samples Received: 06/11/2016
Project Number:
Description: La Cygne Generating Station

Report To: Brian Linnan
8300 College Blvd., Suite 200
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



¹Cp: Cover Page	1
²Tc: Table of Contents	2
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⁴Cn: Case Narrative	5
⁵Sr: Sample Results	6
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MW-601 L841085-03	8
MW-14R L841085-04	9
MW-15 L841085-05	10
MW-602 L841085-06	11
TW-1 L841085-07	12
MW-13 L841085-08	13
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⁸Al: Accreditations & Locations	28
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¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY



MW-905 L841085-01 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 09:30	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:17	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 16:40	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:01	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:11	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 17:39	06/16/16 17:39	CM



MW-803 L841085-02 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 10:35	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:19	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 16:43	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:04	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 01:57	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 18:24	06/16/16 18:24	CM



MW-601 L841085-03 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 11:30	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 17:43	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 15:52	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:07	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:13	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 18:39	06/16/16 18:39	CM
Wet Chemistry by Method 9056A	WG880292	10	06/16/16 20:23	06/16/16 20:23	CM

MW-14R L841085-04 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 14:40	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:22	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 16:51	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:09	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:16	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 18:54	06/16/16 18:54	CM

MW-15 L841085-05 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 16:30	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:25	TRB

SAMPLE SUMMARY



MW-15 L841085-05 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 16:30	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 16:54	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:12	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:18	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 19:09	06/16/16 19:09	CM
Wet Chemistry by Method 9056A	WG881690	20	06/20/16 18:29	06/20/16 18:29	CM

1
Cp

2
Tc

3
Ss

4
Cn

MW-602 L841085-06 GW

			Collected by	Collected date/time	Received date/time
				06/10/16 09:30	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880838	1	06/17/16 15:26	06/17/16 17:09	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:27	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 16:57	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:20	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:21	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 19:23	06/16/16 19:23	CM

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

TW-1 L841085-07 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 09:10	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:30	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 17:00	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:23	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:23	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 19:38	06/16/16 19:38	CM

MW-13 L841085-08 GW

			Collected by	Collected date/time	Received date/time
				06/09/16 12:40	06/11/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG880690	1	06/16/16 12:57	06/16/16 13:30	MMF
Mercury by Method 7470A	WG880127	1	06/14/16 12:42	06/14/16 18:32	TRB
Metals (ICP) by Method 6010B	WG880059	1	06/15/16 12:18	06/15/16 17:03	ST
Metals (ICP) by Method 6010B	WG880626	1	06/15/16 22:25	06/16/16 01:26	CCE
Metals (ICPMS) by Method 6020	WG880090	1	06/15/16 17:52	06/21/16 02:25	JDG
Wet Chemistry by Method 9040C	WG879792	1	06/15/16 09:05	06/15/16 09:05	MHM
Wet Chemistry by Method 9056A	WG880292	1	06/16/16 19:53	06/16/16 19:53	CM
Wet Chemistry by Method 9056A	WG880995	1	06/17/16 21:18	06/17/16 21:18	SAM
Wet Chemistry by Method 9056A	WG880995	50	06/17/16 21:33	06/17/16 21:33	SAM



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
Technical Service Representative

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

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L841085-01	MW-905	9040C
L841085-02	MW-803	9040C
L841085-03	MW-601	9040C
L841085-04	MW-14R	9040C
L841085-05	MW-15	9040C
L841085-06	MW-602	9040C
L841085-07	TW-1	9040C
L841085-08	MW-13	9040C



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	696		10.0	1	06/16/2016 13:30	WG880690

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.21		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-01 WG879792: 7.21 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	51.5		1.00	1	06/16/2016 17:39	WG880292
Fluoride	0.542		0.100	1	06/16/2016 17:39	WG880292
Sulfate	68.5		5.00	1	06/16/2016 17:39	WG880292

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:17	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.79		0.200	1	06/15/2016 16:40	WG880059
Lithium	0.0607		0.0150	1	06/16/2016 01:01	WG880626
Molybdenum	0.0165		0.00500	1	06/15/2016 16:40	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	0.00326	B	0.00200	1	06/21/2016 02:11	WG880090
Arsenic	0.00387		0.00200	1	06/21/2016 02:11	WG880090
Barium	0.104		0.00500	1	06/21/2016 02:11	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:11	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:11	WG880090
Calcium	59.9		1.00	1	06/21/2016 02:11	WG880090
Chromium	0.00310	B	0.00200	1	06/21/2016 02:11	WG880090
Cobalt	0.00283		0.00200	1	06/21/2016 02:11	WG880090
Lead	ND		0.00200	1	06/21/2016 02:11	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:11	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:11	WG880090



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	594		10.0	1	06/16/2016 13:30	WG880690

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.30		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-02 WG879792: 7.30 at 20.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	48.1		1.00	1	06/16/2016 18:24	WG880292
Fluoride	0.636		0.100	1	06/16/2016 18:24	WG880292
Sulfate	15.0		5.00	1	06/16/2016 18:24	WG880292

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:19	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.04		0.200	1	06/15/2016 16:43	WG880059
Lithium	0.0649		0.0150	1	06/16/2016 01:04	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 16:43	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	0.00256	B	0.00200	1	06/21/2016 01:57	WG880090
Arsenic	ND		0.00200	1	06/21/2016 01:57	WG880090
Barium	0.244		0.00500	1	06/21/2016 01:57	WG880090
Beryllium	ND		0.00200	1	06/21/2016 01:57	WG880090
Cadmium	ND		0.00100	1	06/21/2016 01:57	WG880090
Calcium	47.6		1.00	1	06/21/2016 01:57	WG880090
Chromium	ND	B	0.00200	1	06/21/2016 01:57	WG880090
Cobalt	ND		0.00200	1	06/21/2016 01:57	WG880090
Lead	ND		0.00200	1	06/21/2016 01:57	WG880090
Selenium	ND		0.00200	1	06/21/2016 01:57	WG880090
Thallium	ND		0.00200	1	06/21/2016 01:57	WG880090



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	956		10.0	1	06/16/2016 13:30	WG880690

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.52		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-03 WG879792: 7.52 at 20.3c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	161		10.0	10	06/16/2016 20:23	WG880292
Fluoride	1.63		0.100	1	06/16/2016 18:39	WG880292
Sulfate	ND		5.00	1	06/16/2016 18:39	WG880292

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 17:43	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.79		0.200	1	06/15/2016 15:52	WG880059
Lithium	0.0712		0.0150	1	06/16/2016 01:07	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 15:52	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND	B	0.00200	1	06/21/2016 02:13	WG880090
Arsenic	ND		0.00200	1	06/21/2016 02:13	WG880090
Barium	0.134		0.00500	1	06/21/2016 02:13	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:13	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:13	WG880090
Calcium	21.7		1.00	1	06/21/2016 02:13	WG880090
Chromium	ND	B	0.00200	1	06/21/2016 02:13	WG880090
Cobalt	ND		0.00200	1	06/21/2016 02:13	WG880090
Lead	ND		0.00200	1	06/21/2016 02:13	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:13	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:13	WG880090



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	559		10.0	1	06/16/2016 13:30	WG880690

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.24		1	06/15/2016 09:05	WG879792

Sample Narrative:

9040C L841085-04 WG879792: 7.24 at 20.2c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4.95		1.00	1	06/16/2016 18:54	WG880292
Fluoride	0.265		0.100	1	06/16/2016 18:54	WG880292
Sulfate	75.8		5.00	1	06/16/2016 18:54	WG880292

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:22	WG880127

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.629		0.200	1	06/15/2016 16:51	WG880059
Lithium	0.0429		0.0150	1	06/16/2016 01:09	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 16:51	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND	<u>B</u>	0.00200	1	06/21/2016 02:16	WG880090
Arsenic	ND		0.00200	1	06/21/2016 02:16	WG880090
Barium	0.0448		0.00500	1	06/21/2016 02:16	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:16	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:16	WG880090
Calcium	63.4		1.00	1	06/21/2016 02:16	WG880090
Chromium	ND	<u>B</u>	0.00200	1	06/21/2016 02:16	WG880090
Cobalt	ND		0.00200	1	06/21/2016 02:16	WG880090
Lead	ND		0.00200	1	06/21/2016 02:16	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:16	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:16	WG880090

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	751		10.0	1	06/16/2016 13:30	WG880690

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.12		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-05 WG879792: 7.12 at 20.3c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	14.4		1.00	1	06/16/2016 19:09	WG880292
Fluoride	0.257		0.100	1	06/16/2016 19:09	WG880292
Sulfate	200		100	20	06/20/2016 18:29	WG881690

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:25	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.282		0.200	1	06/15/2016 16:54	WG880059
Lithium	0.0271		0.0150	1	06/16/2016 01:12	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 16:54	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND	B	0.00200	1	06/21/2016 02:18	WG880090
Arsenic	ND		0.00200	1	06/21/2016 02:18	WG880090
Barium	0.0472		0.00500	1	06/21/2016 02:18	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:18	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:18	WG880090
Calcium	106		1.00	1	06/21/2016 02:18	WG880090
Chromium	ND	B	0.00200	1	06/21/2016 02:18	WG880090
Cobalt	ND		0.00200	1	06/21/2016 02:18	WG880090
Lead	ND		0.00200	1	06/21/2016 02:18	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:18	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:18	WG880090



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	618		10.0	1	06/17/2016 17:09	WG880838

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.49		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-06 WG879792: 7.49 at 20.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	16.9		1.00	1	06/16/2016 19:23	WG880292
Fluoride	1.21		0.100	1	06/16/2016 19:23	WG880292
Sulfate	25.1		5.00	1	06/16/2016 19:23	WG880292

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:27	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.28		0.200	1	06/15/2016 16:57	WG880059
Lithium	0.0628		0.0150	1	06/16/2016 01:20	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 16:57	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND	B	0.00200	1	06/21/2016 02:21	WG880090
Arsenic	ND		0.00200	1	06/21/2016 02:21	WG880090
Barium	0.101		0.00500	1	06/21/2016 02:21	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:21	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:21	WG880090
Calcium	24.7		1.00	1	06/21/2016 02:21	WG880090
Chromium	ND	B	0.00200	1	06/21/2016 02:21	WG880090
Cobalt	ND		0.00200	1	06/21/2016 02:21	WG880090
Lead	ND		0.00200	1	06/21/2016 02:21	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:21	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:21	WG880090



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1010		10.0	1	06/16/2016 13:30	WG880690

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.48		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-07 WG879792: 7.48 at 20.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	41.5		1.00	1	06/16/2016 19:38	WG880292
Fluoride	0.404		0.100	1	06/16/2016 19:38	WG880292
Sulfate	63.4		5.00	1	06/16/2016 19:38	WG880292

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:30	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.47		0.200	1	06/15/2016 17:00	WG880059
Lithium	0.136		0.0150	1	06/16/2016 01:23	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 17:00	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND	B	0.00200	1	06/21/2016 02:23	WG880090
Arsenic	ND		0.00200	1	06/21/2016 02:23	WG880090
Barium	0.0671		0.00500	1	06/21/2016 02:23	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:23	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:23	WG880090
Calcium	31.0		1.00	1	06/21/2016 02:23	WG880090
Chromium	ND	B	0.00200	1	06/21/2016 02:23	WG880090
Cobalt	ND		0.00200	1	06/21/2016 02:23	WG880090
Lead	ND		0.00200	1	06/21/2016 02:23	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:23	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:23	WG880090



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2490		10.0	1	06/16/2016 13:30	WG880690

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.88		1	06/15/2016 09:05	WG879792

3 Ss

4 Cn

Sample Narrative:

9040C L841085-08 WG879792: 6.88 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	18.0		1.00	1	06/16/2016 19:53	WG880292
Fluoride	0.170		0.100	1	06/17/2016 21:18	WG880995
Sulfate	1830		250	50	06/17/2016 21:33	WG880995

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/14/2016 18:32	WG880127

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.375		0.200	1	06/15/2016 17:03	WG880059
Lithium	0.0608		0.0150	1	06/16/2016 01:26	WG880626
Molybdenum	ND		0.00500	1	06/15/2016 17:03	WG880059

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND	B	0.00200	1	06/21/2016 02:25	WG880090
Arsenic	ND		0.00200	1	06/21/2016 02:25	WG880090
Barium	0.0360		0.00500	1	06/21/2016 02:25	WG880090
Beryllium	ND		0.00200	1	06/21/2016 02:25	WG880090
Cadmium	ND		0.00100	1	06/21/2016 02:25	WG880090
Calcium	363		1.00	1	06/21/2016 02:25	WG880090
Chromium	0.00327	B	0.00200	1	06/21/2016 02:25	WG880090
Cobalt	ND		0.00200	1	06/21/2016 02:25	WG880090
Lead	ND		0.00200	1	06/21/2016 02:25	WG880090
Selenium	ND		0.00200	1	06/21/2016 02:25	WG880090
Thallium	ND		0.00200	1	06/21/2016 02:25	WG880090



Method Blank (MB)

(MB) R3144294-1 06/16/16 13:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L840863-01 Original Sample (OS) • Duplicate (DUP)

(OS) L840863-01 06/16/16 13:30 • (DUP) R3144294-4 06/16/16 13:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	226	232	1	2.62		5

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

(LCS) R3144294-2 06/16/16 13:30 • (LCSD) R3144294-3 06/16/16 13:30

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8510	8560	96.7	97.3	85.0-115			0.586	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3144646-1 06/17/16 17:09

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L841269-06 Original Sample (OS) • Duplicate (DUP)

(OS) L841269-06 06/17/16 17:09 • (DUP) R3144646-4 06/17/16 17:09

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Dissolved Solids	410	416	1	1.45		5

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

(LCS) R3144646-2 06/17/16 17:09 • (LCSD) R3144646-3 06/17/16 17:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Dissolved Solids	8800	8610	8660	97.8	98.4	85.0-115			0.579	5

⁷ Gl

⁸ Al

⁹ Sc



L841053-02 Original Sample (OS) • Duplicate (DUP)

(OS) L841053-02 06/15/16 09:05 • (DUP) WG879792-3 06/15/16 09:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.59	6.53	1	0.915		1

L841242-03 Original Sample (OS) • Duplicate (DUP)

(OS) L841242-03 06/15/16 09:05 • (DUP) WG879792-4 06/15/16 09:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	4.01	4.00	1	0.250		1

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

(LCS) WG879792-1 06/15/16 09:23 • (LCSD) WG879792-2 06/15/16 09:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.12	6.02	6.02	98.4	98.4	98.4-102			0.000	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3144210-1 06/16/16 09:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	0.155	J	0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L840633-01 Original Sample (OS) • Duplicate (DUP)

(OS) L840633-01 06/16/16 15:55 • (DUP) R3144210-4 06/16/16 16:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	187	179	20	4		15
Fluoride	ND	0.000	20	0		15
Sulfate	1090	1080	20	1		15

L841085-08 Original Sample (OS) • Duplicate (DUP)

(OS) L841085-08 06/16/16 19:53 • (DUP) R3144210-6 06/16/16 20:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	18.0	18.1	1	0		15
Fluoride	0.118	0.182	1	42	P1	15

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

(LCS) R3144210-2 06/16/16 09:45 • (LCSD) R3144210-3 06/16/16 10:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.3	39.2	98	98	80-120			0	15
Fluoride	8.00	7.92	7.94	99	99	80-120			0	15
Sulfate	40.0	39.9	40.1	100	100	80-120			1	15

L840777-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L840777-09 06/16/16 16:39 • (MS) R3144210-5 06/16/16 16:54

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	19.9	68.7	98	1	80-120	
Fluoride	5.00	0.461	5.17	94	1	80-120	
Sulfate	50.0	27.8	75.9	96	1	80-120	



L841269-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841269-01 06/16/16 21:53 • (MS) R3144210-7 06/16/16 22:08 • (MSD) R3144210-8 06/16/16 22:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	9.55	59.7	59.8	100	100	1	80-120			0	15
Fluoride	5.00	ND	5.28	4.91	104	96	1	80-120			7	15
Sulfate	50.0	69.9	115	115	91	90	1	80-120	E	E	0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3144360-1 06/17/16 19:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Fluoride	U		0.0099	0.100
Sulfate	0.175	J	0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L841481-03 Original Sample (OS) • Duplicate (DUP)

(OS) L841481-03 06/17/16 22:03 • (DUP) R3144360-4 06/17/16 22:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Fluoride	0.159	0.153	1	4		15

L841481-05 Original Sample (OS) • Duplicate (DUP)

(OS) L841481-05 06/18/16 03:01 • (DUP) R3144360-7 06/18/16 03:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Fluoride	0.268	0.273	1	2		15

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

(LCS) R3144360-2 06/17/16 20:04 • (LCSD) R3144360-3 06/17/16 20:19

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Fluoride	8.00	7.84	7.89	98	99	80-120			1	15
Sulfate	40.0	39.5	39.6	99	99	80-120			0	15

L841481-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841481-04 06/17/16 23:03 • (MS) R3144360-5 06/17/16 23:18 • (MSD) R3144360-6 06/17/16 23:33

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Fluoride	5.00	0.276	4.99	4.42	94	83	1	80-120			12	15



L841481-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L841481-06 06/18/16 03:31 • (MS) R3144360-8 06/18/16 07:01

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Fluoride	5.00	0.151	4.45	86	1	80-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3144599-1 06/20/16 09:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L842160-01 Original Sample (OS) • Duplicate (DUP)

(OS) L842160-01 06/20/16 11:44 • (DUP) R3144599-4 06/20/16 11:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	7.79	7.73	1	1		15

L840715-03 Original Sample (OS) • Duplicate (DUP)

(OS) L840715-03 06/20/16 14:36 • (DUP) R3144599-6 06/20/16 14:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	20.4	20.4	1	0		15

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

(LCS) R3144599-2 06/20/16 10:04 • (LCSD) R3144599-3 06/20/16 10:18

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	39.2	39.3	98	98	80-120			0	15

L840661-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L840661-01 06/20/16 12:56 • (MS) R3144599-5 06/20/16 13:09

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	66.0	113	94	1	80-120	E

L842405-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L842405-03 06/20/16 17:29 • (MS) R3144599-7 06/20/16 17:43 • (MSD) R3144599-8 06/20/16 17:58

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	46.5	94.3	94.4	96	96	1	80-120			0	15



Method Blank (MB)

(MB) R3143519-1 06/14/16 17:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

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

(LCS) R3143519-2 06/14/16 17:33 • (LCSD) R3143519-3 06/14/16 17:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00301	0.00292	100	97	80-120			3	20

⁶ Qc

L841085-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841085-03 06/14/16 17:43 • (MS) R3143519-4 06/14/16 17:46 • (MSD) R3143519-5 06/14/16 17:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00308	0.00301	101	98	1	75-125			2	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3143783-1 06/15/16 15:44

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Molybdenum	U		0.0016	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3143783-2 06/15/16 15:47 • (LCSD) R3143783-3 06/15/16 15:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.963	0.971	96	97	80-120			1	20
Molybdenum	1.00	0.909	0.909	91	91	80-120			0	20

5 Sr

6 Qc

L841085-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841085-03 06/15/16 15:52 • (MS) R3143783-5 06/15/16 15:58 • (MSD) R3143783-6 06/15/16 16:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	1.79	2.74	2.71	95	92	1	75-125			1	20
Molybdenum	1.00	ND	0.908	0.888	91	89	1	75-125			2	20

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3143824-1 06/16/16 00:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lithium	U		0.0053	0.0150

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3143824-2 06/16/16 00:15 • (LCSD) R3143824-3 06/16/16 00:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lithium	1.00	1.00	0.996	100	100	80-120			1	20

L841088-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841088-02 06/16/16 00:23 • (MS) R3143824-5 06/16/16 00:28 • (MSD) R3143824-6 06/16/16 00:30

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lithium	1.00	0.532	1.47	1.48	93	95	1	75-125			1	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3144689-1 06/21/16 01:50

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	0.000795	J	0.00021	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	0.000591	J	0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3144689-2 06/21/16 01:53 • (LCSD) R3144689-3 06/21/16 01:55

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0570	0.0558	114	112	80-120			2	20
Arsenic	0.0500	0.0552	0.0525	110	105	80-120			5	20
Barium	0.0500	0.0548	0.0539	110	108	80-120			2	20
Beryllium	0.0500	0.0510	0.0502	102	100	80-120			1	20
Cadmium	0.0500	0.0573	0.0545	115	109	80-120			5	20
Calcium	5.00	5.50	5.32	110	106	80-120			3	20
Chromium	0.0500	0.0567	0.0540	113	108	80-120			5	20
Cobalt	0.0500	0.0569	0.0551	114	110	80-120			3	20
Lead	0.0500	0.0534	0.0530	107	106	80-120			1	20
Selenium	0.0500	0.0535	0.0534	107	107	80-120			0	20
Thallium	0.0500	0.0524	0.0510	105	102	80-120			3	20

L841085-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841085-02 06/21/16 01:57 • (MS) R3144689-5 06/21/16 02:02 • (MSD) R3144689-6 06/21/16 02:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.00256	0.0589	0.0583	113	112	1	75-125			1	20
Arsenic	0.0500	ND	0.0549	0.0538	109	106	1	75-125			2	20
Barium	0.0500	0.244	0.301	0.296	114	105	1	75-125			2	20
Beryllium	0.0500	ND	0.0495	0.0503	99	101	1	75-125			2	20
Cadmium	0.0500	ND	0.0559	0.0538	112	108	1	75-125			4	20



[L841085-01,02,03,04,05,06,07,08](#)

L841085-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L841085-02 06/21/16 01:57 • (MS) R3144689-5 06/21/16 02:02 • (MSD) R3144689-6 06/21/16 02:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	47.6	52.9	53.8	107	124	1	75-125			2	20
Chromium	0.0500	ND	0.0530	0.0522	104	102	1	75-125			1	20
Cobalt	0.0500	ND	0.0516	0.0522	103	104	1	75-125			1	20
Lead	0.0500	ND	0.0521	0.0520	103	103	1	75-125			0	20
Selenium	0.0500	ND	0.0526	0.0534	104	106	1	75-125			2	20
Thallium	0.0500	ND	0.0504	0.0504	101	101	1	75-125			0	20

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



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

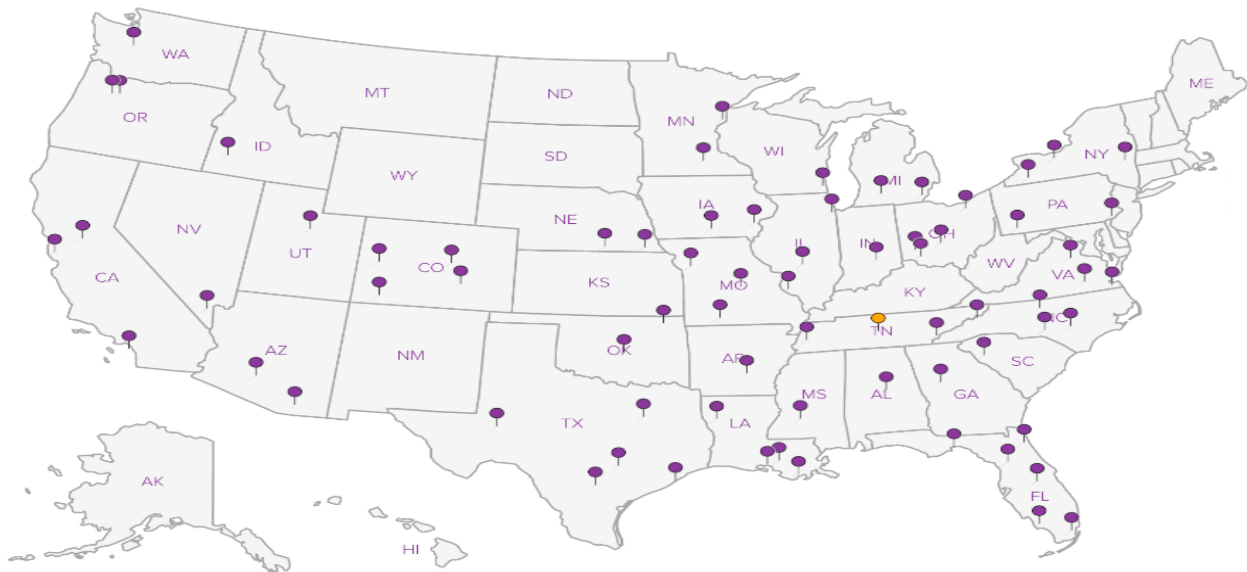
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information:
Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project Description: **La Cygne Generating Station**

City/State Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):

Rush? (Lab MUST Be Notified)
 ___ Same Day200%
 ___ Next Day100%
 ___ Two Day50%
 ___ Three Day25%

Date Results Needed

Email? ___ No **X** Yes
FAX? ___ No ___ Yes

No. of Cntrs

Immediately Packed on Ice N ___ Y ___

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CLD, F, S04 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres									
MW-905	GRAB	GW		6/9/16	09:30	3	X	X	X									-01
MW-803	GRAB	GW		6/9/16	10:35	3	X	X	X									-02
MW-601	GRAB	GW		6/9/16	11:30	3	X	X	X									-03
MW-601MS	GRAB	GW		6/9/16	11:30	3	X	X	X									-03
MW-601MSD	GRAB	GW		6/9/16	11:30	3	X	X	X									-03
MW-14R	GRAB	GW		6/9/16	14:40	3	X	X	X									-04
MW-15	GRAB	GW		6/9/16	16:30	3	X	X	X									-05
MW-602	GRAB	GW		6/10/16	09:30	3	X	X	X									-06
TW-1	GRAB	GW		6/9/16	09:10	3	X	X	X									-07
MW-13	GRAB	GW		6/9/16	12:40	3	X	X	X									-08

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other
 Remarks: **Metals: (6020) AS,BA,BE,BP,CA,CD,CO,CR,PB,SB,SE,TL (6010B) B,MO,LI (7470) HG.**

pH _____ Temp _____ **66173610 6731**
 Flow _____ Other _____ Hold # _____

Radium samples sent to outreach

Relinquished by: (Signature) <i>[Signature]</i>	Date: <i>6/10/16</i>	Time: <i>1710</i>	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>089 OK</i>
Relinquished by: (Signature) <i>[Signature]</i>	Date: <i>6/10/16</i>	Time: <i>1700</i>	Received by: (Signature) <i>[Signature]</i>	Temp: °C <i>2.4</i> Bottles Received: <i>30</i>	COC Seal Intact: ___ Y ___ N ___ NA
Relinquished by: (Signature) <i>[Signature]</i>	Date: _____	Time: _____	Received for lab by: (Signature) <i>[Signature]</i>	Date: <i>6-11-16</i> Time: <i>0900</i>	pH Checked: <i>[Signature]</i> NCF: _____

Chain of Custody Page ___ of ___



L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

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



L # *841085*
1092

Acctnum: **URSKC**
 Template: **T112860**
 Prelogin: **P556948**
 TSR: **206 - Jeff Carr**
 PB: _____

Shipped Via:
 Rem./Contaminant Sample # (lab only)

Jared Morrison
December 16, 2022

ATTACHMENT 1-2
August 2016 Sampling Event Laboratory Report

AECOM - Overland Park, KS

Sample Delivery Group: L853420
Samples Received: 08/13/2016
Project Number:
Description: La Cygne Generating Station

Report To: Brian Linnan
8300 College Blvd., Suite 200
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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

SAMPLE SUMMARY



MW-10 L853420-01 GW

				Collected by	Collected date/time	Received date/time
					08/11/16 12:10	08/13/16 13:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF	
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 09:52	NJB	
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 16:58	ST	
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:02	LAT	
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JLJ	
Wet Chemistry by Method 9056A	WG899130	1	08/16/16 14:59	08/16/16 14:59	SAM	

1
Cp

2
Tc

3
Ss

4
Cn

MW-11 L853420-02 GW

				Collected by	Collected date/time	Received date/time
					08/11/16 14:30	08/13/16 13:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF	
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:30	NJB	
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:13	ST	
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:23	LAT	
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JLJ	
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 09:59	08/17/16 09:59	SAM	
Wet Chemistry by Method 9056A	WG899130	5	08/17/16 13:06	08/17/16 13:06	SAM	

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-13 L853420-03 GW

				Collected by	Collected date/time	Received date/time
					08/11/16 17:15	08/13/16 13:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF	
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:33	NJB	
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:22	ST	
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:32	LAT	
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JLJ	
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 13:21	08/17/16 13:21	SAM	
Wet Chemistry by Method 9056A	WG900360	20	08/18/16 23:49	08/18/16 23:49	SAM	

MW-803 L853420-04 GW

				Collected by	Collected date/time	Received date/time
					08/12/16 10:35	08/13/16 13:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG899814	1	08/18/16 04:34	08/18/16 05:11	JM	
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:36	NJB	
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:24	ST	
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:35	LAT	
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JLJ	
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 13:36	08/17/16 13:36	SAM	

MW-905 L853420-05 GW

				Collected by	Collected date/time	Received date/time
					08/12/16 11:50	08/13/16 13:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG899814	1	08/18/16 04:34	08/18/16 05:11	JM	
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:39	NJB	
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:27	ST	
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:38	LAT	
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JLJ	
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 13:50	08/17/16 13:50	SAM	

SAMPLE SUMMARY



MW-902 L853420-06 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:42	NJB
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:30	ST
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:41	LAT
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JJL
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 15:05	08/17/16 15:05	SAM

Collected by
Collected date/time
Received date/time

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

MW-14R L853420-07 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:45	NJB
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:32	ST
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:45	LAT
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JJL
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 14:05	08/17/16 14:05	SAM

Collected by
Collected date/time
Received date/time

MW-903 L853420-08 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:53	NJB
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:35	ST
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:48	LAT
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JJL
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 14:20	08/17/16 14:20	SAM
Wet Chemistry by Method 9056A	WG900360	20	08/19/16 00:19	08/19/16 00:19	SAM

Collected by
Collected date/time
Received date/time

MW-901 L853420-09 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG899559	1	08/17/16 14:04	08/17/16 14:38	MMF
Mercury by Method 7470A	WG898825	1	08/15/16 10:55	08/16/16 10:56	NJB
Metals (ICP) by Method 6010B	WG899555	1	08/18/16 09:00	08/18/16 17:38	ST
Metals (ICPMS) by Method 6020	WG899572	1	08/18/16 09:44	08/22/16 09:51	LAT
Wet Chemistry by Method 9040C	WG898664	1	08/17/16 13:57	08/17/16 13:57	JJL
Wet Chemistry by Method 9056A	WG899130	1	08/17/16 15:35	08/17/16 15:35	SAM

Collected by
Collected date/time
Received date/time



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
Technical Service Representative

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

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L853420-01	MW-10	9040C
L853420-02	MW-11	9040C
L853420-03	MW-13	9040C
L853420-04	MW-803	9040C
L853420-05	MW-905	9040C
L853420-06	MW-902	9040C
L853420-07	MW-14R	9040C
L853420-08	MW-903	9040C
L853420-09	MW-901	9040C



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	649		10.0	1	08/17/2016 14:38	WG899559

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.35		1	08/17/2016 13:57	WG898664

3 Ss

4 Cn

Sample Narrative:

9040C L853420-01 WG898664: 7.35 at 21.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	60.2		1.00	1	08/16/2016 14:59	WG899130
Fluoride	0.380		0.100	1	08/16/2016 14:59	WG899130
Sulfate	19.9		5.00	1	08/16/2016 14:59	WG899130

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND	J3	0.000200	1	08/16/2016 09:52	WG898825

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.966		0.200	1	08/18/2016 16:58	WG899555
Lithium	0.0415		0.0150	1	08/18/2016 16:58	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 16:58	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/22/2016 09:02	WG899572
Arsenic	0.00682		0.00200	1	08/22/2016 09:02	WG899572
Barium	0.322		0.00500	1	08/22/2016 09:02	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:02	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:02	WG899572
Calcium	58.7		1.00	1	08/22/2016 09:02	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:02	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:02	WG899572
Lead	ND		0.00200	1	08/22/2016 09:02	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:02	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:02	WG899572



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Dissolved Solids	1100		10.0	1	08/17/2016 14:38	WG899559

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
pH	7.45		1	08/17/2016 13:57	WG898664

Sample Narrative:

9040C L853420-02 WG898664: 7.45 at 19.8c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Chloride	125		5.00	5	08/17/2016 13:06	WG899130
Fluoride	0.512		0.100	1	08/17/2016 09:59	WG899130
Sulfate	187		25.0	5	08/17/2016 13:06	WG899130

Mercury by Method 7470A

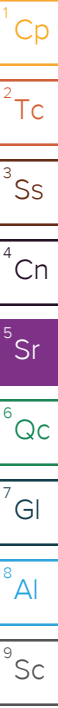
Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Mercury	ND		0.000200	1	08/16/2016 10:30	WG898825

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Boron	0.739		0.200	1	08/18/2016 17:13	WG899555
Lithium	0.0594		0.0150	1	08/18/2016 17:13	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:13	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Antimony	ND		0.00200	1	08/22/2016 09:23	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:23	WG899572
Barium	0.0342		0.00500	1	08/22/2016 09:23	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:23	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:23	WG899572
Calcium	66.9		1.00	1	08/22/2016 09:23	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:23	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:23	WG899572
Lead	ND		0.00200	1	08/22/2016 09:23	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:23	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:23	WG899572





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2910		10.0	1	08/17/2016 14:38	WG899559

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.86		1	08/17/2016 13:57	WG898664

Sample Narrative:

9040C L853420-03 WG898664: 6.86 at 19.5c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	18.5		1.00	1	08/17/2016 13:21	WG899130
Fluoride	0.128		0.100	1	08/17/2016 13:21	WG899130
Sulfate	1730		100	20	08/18/2016 23:49	WG900360

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/16/2016 10:33	WG898825

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.397		0.200	1	08/18/2016 17:22	WG899555
Lithium	0.0567		0.0150	1	08/18/2016 17:22	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:22	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/22/2016 09:32	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:32	WG899572
Barium	0.0235		0.00500	1	08/22/2016 09:32	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:32	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:32	WG899572
Calcium	371		1.00	1	08/22/2016 09:32	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:32	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:32	WG899572
Lead	ND		0.00200	1	08/22/2016 09:32	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:32	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:32	WG899572

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	591		10.0	1	08/18/2016 05:11	WG899814

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.41		1	08/17/2016 13:57	WG898664

3 Ss

4 Cn

Sample Narrative:

9040C L853420-04 WG898664: 7.41 at 20.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	48.8		1.00	1	08/17/2016 13:36	WG899130
Fluoride	0.653		0.100	1	08/17/2016 13:36	WG899130
Sulfate	16.2		5.00	1	08/17/2016 13:36	WG899130

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/16/2016 10:36	WG898825

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.15		0.200	1	08/18/2016 17:24	WG899555
Lithium	0.0650		0.0150	1	08/18/2016 17:24	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:24	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	0.00250		0.00200	1	08/22/2016 09:35	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:35	WG899572
Barium	0.224		0.00500	1	08/22/2016 09:35	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:35	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:35	WG899572
Calcium	46.2		1.00	1	08/22/2016 09:35	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:35	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:35	WG899572
Lead	ND		0.00200	1	08/22/2016 09:35	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:35	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:35	WG899572



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	557		10.0	1	08/18/2016 05:11	WG899814

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.18		1	08/17/2016 13:57	WG898664

3 Ss

4 Cn

Sample Narrative:

9040C L853420-05 WG898664: 7.18 at 20.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	22.4		1.00	1	08/17/2016 13:50	WG899130
Fluoride	0.506		0.100	1	08/17/2016 13:50	WG899130
Sulfate	16.6		5.00	1	08/17/2016 13:50	WG899130

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/16/2016 10:39	WG898825

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.24		0.200	1	08/18/2016 17:27	WG899555
Lithium	0.0751		0.0150	1	08/18/2016 17:27	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:27	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/22/2016 09:38	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:38	WG899572
Barium	0.171		0.00500	1	08/22/2016 09:38	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:38	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:38	WG899572
Calcium	54.6		1.00	1	08/22/2016 09:38	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:38	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:38	WG899572
Lead	ND		0.00200	1	08/22/2016 09:38	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:38	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:38	WG899572



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	565		10.0	1	08/17/2016 14:38	WG899559

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.29		1	08/17/2016 13:57	WG898664

3 Ss

4 Cn

Sample Narrative:

9040C L853420-06 WG898664: 7.29 at 19.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	32.0		1.00	1	08/17/2016 15:05	WG899130
Fluoride	0.531		0.100	1	08/17/2016 15:05	WG899130
Sulfate	29.6		5.00	1	08/17/2016 15:05	WG899130

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/16/2016 10:42	WG898825

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.20		0.200	1	08/18/2016 17:30	WG899555
Lithium	0.0353		0.0150	1	08/18/2016 17:30	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:30	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/22/2016 09:41	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:41	WG899572
Barium	0.118		0.00500	1	08/22/2016 09:41	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:41	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:41	WG899572
Calcium	64.9		1.00	1	08/22/2016 09:41	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:41	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:41	WG899572
Lead	ND		0.00200	1	08/22/2016 09:41	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:41	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:41	WG899572



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Dissolved Solids	607		10.0	1	08/17/2016 14:38	WG899559

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
pH	7.38		1	08/17/2016 13:57	WG898664

Sample Narrative:

9040C L853420-07 WG898664: 7.38 at 19.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Chloride	5.05		1.00	1	08/17/2016 14:05	WG899130
Fluoride	0.299		0.100	1	08/17/2016 14:05	WG899130
Sulfate	74.2		5.00	1	08/17/2016 14:05	WG899130

Mercury by Method 7470A

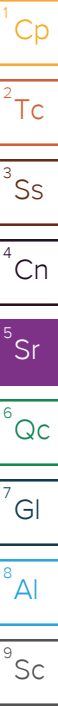
Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Mercury	ND		0.000200	1	08/16/2016 10:45	WG898825

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Boron	0.630		0.200	1	08/18/2016 17:32	WG899555
Lithium	0.0449		0.0150	1	08/18/2016 17:32	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:32	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Antimony	ND		0.00200	1	08/22/2016 09:45	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:45	WG899572
Barium	0.0411		0.00500	1	08/22/2016 09:45	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:45	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:45	WG899572
Calcium	60.0		1.00	1	08/22/2016 09:45	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:45	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:45	WG899572
Lead	ND		0.00200	1	08/22/2016 09:45	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:45	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:45	WG899572





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2040		10.0	1	08/17/2016 14:38	WG899559

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.82		1	08/17/2016 13:57	WG898664

3 Ss

4 Cn

Sample Narrative:

9040C L853420-08 WG898664: 6.82 at 19.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	25.8		1.00	1	08/17/2016 14:20	WG899130
Fluoride	ND		0.100	1	08/17/2016 14:20	WG899130
Sulfate	1030		100	20	08/19/2016 00:19	WG900360

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/16/2016 10:53	WG898825

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.427		0.200	1	08/18/2016 17:35	WG899555
Lithium	0.0539		0.0150	1	08/18/2016 17:35	WG899555
Molybdenum	ND		0.00500	1	08/18/2016 17:35	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/22/2016 09:48	WG899572
Arsenic	ND		0.00200	1	08/22/2016 09:48	WG899572
Barium	0.0170		0.00500	1	08/22/2016 09:48	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:48	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:48	WG899572
Calcium	342		1.00	1	08/22/2016 09:48	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:48	WG899572
Cobalt	0.00306		0.00200	1	08/22/2016 09:48	WG899572
Lead	ND		0.00200	1	08/22/2016 09:48	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:48	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:48	WG899572



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Dissolved Solids	701		10.0	1	08/17/2016 14:38	WG899559

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
pH	7.45		1	08/17/2016 13:57	WG898664

Sample Narrative:

9040C L853420-09 WG898664: 7.45 at 19.2c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Chloride	51.5		1.00	1	08/17/2016 15:35	WG899130
Fluoride	0.533		0.100	1	08/17/2016 15:35	WG899130
Sulfate	33.8		5.00	1	08/17/2016 15:35	WG899130

Mercury by Method 7470A

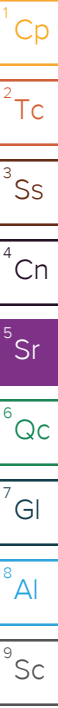
Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Mercury	ND		0.000200	1	08/16/2016 10:56	WG898825

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Boron	1.90		0.200	1	08/18/2016 17:38	WG899555
Lithium	0.0636		0.0150	1	08/18/2016 17:38	WG899555
Molybdenum	0.00716		0.00500	1	08/18/2016 17:38	WG899555

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Antimony	ND		0.00200	1	08/22/2016 09:51	WG899572
Arsenic	0.00237		0.00200	1	08/22/2016 09:51	WG899572
Barium	0.0987		0.00500	1	08/22/2016 09:51	WG899572
Beryllium	ND		0.00200	1	08/22/2016 09:51	WG899572
Cadmium	ND		0.00100	1	08/22/2016 09:51	WG899572
Calcium	53.9		1.00	1	08/22/2016 09:51	WG899572
Chromium	ND		0.00200	1	08/22/2016 09:51	WG899572
Cobalt	ND		0.00200	1	08/22/2016 09:51	WG899572
Lead	ND		0.00200	1	08/22/2016 09:51	WG899572
Selenium	ND		0.00200	1	08/22/2016 09:51	WG899572
Thallium	ND		0.00200	1	08/22/2016 09:51	WG899572





Method Blank (MB)

(MB) R3157832-1 08/17/16 14:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

L852838-01 Original Sample (OS) • Duplicate (DUP)

(OS) L852838-01 08/17/16 14:38 • (DUP) R3157832-4 08/17/16 14:38

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	383	391	1	2.07		5

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

(LCS) R3157832-2 08/17/16 14:38 • (LCSD) R3157832-3 08/17/16 14:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8850	8980	101	102	85.0-115			1.46	5

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3157846-1 08/18/16 05:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L852286-03 Original Sample (OS) • Duplicate (DUP)

(OS) L852286-03 08/18/16 05:11 • (DUP) R3157846-4 08/18/16 05:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3100	3040	1	1.96		5

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

(LCS) R3157846-2 08/18/16 05:11 • (LCSD) R3157846-3 08/18/16 05:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8230	8600	93.5	97.7	85.0-115			4.40	5



L853272-01 Original Sample (OS) • Duplicate (DUP)

(OS) L853272-01 08/17/16 13:57 • (DUP) WG898664-3 08/17/16 13:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.38	7.34	1	0.543		1

L853543-01 Original Sample (OS) • Duplicate (DUP)

(OS) L853543-01 08/17/16 13:57 • (DUP) WG898664-4 08/17/16 13:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.95	7.01	1	0.860		1

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

(LCS) WG898664-1 08/17/16 13:57 • (LCSD) WG898664-2 08/17/16 13:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.11	6.11	6.10	100	99.8	98.4-102			0.164	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3157542-4 08/16/16 11:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.0545	J	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	0.154	J	0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L853405-17 Original Sample (OS) • Duplicate (DUP)

(OS) L853405-17 08/16/16 14:29 • (DUP) R3157542-7 08/16/16 14:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	2.51	2.47	1	1		15
Fluoride	U	0.0193	1	8	J	15
Sulfate	1.66	1.60	1	4	J	15

L853420-06 Original Sample (OS) • Duplicate (DUP)

(OS) L853420-06 08/17/16 15:05 • (DUP) R3157542-10 08/17/16 15:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	32.0	31.9	1	0		15
Fluoride	0.531	0.523	1	1		15
Sulfate	29.6	29.5	1	0		15

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

(LCS) R3157542-5 08/16/16 11:53 • (LCSD) R3157542-6 08/16/16 12:08

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.7	99	99	80-120			0	15
Fluoride	8.00	8.02	8.00	100	100	80-120			0	15
Sulfate	40.0	40.3	40.2	101	101	80-120			0	15

L853420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853420-01 08/16/16 14:59 • (MS) R3157542-8 08/17/16 09:29 • (MSD) R3157542-9 08/17/16 09:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	60.2	109	109	98	99	1	80-120	E	E	0	15
Fluoride	5.00	0.380	5.29	5.57	98	104	1	80-120			5	15



L853420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853420-01 08/16/16 14:59 • (MS) R3157542-8 08/17/16 09:29 • (MSD) R3157542-9 08/17/16 09:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Sulfate	50.0	19.9	70.4	70.3	101	101	1	80-120			0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3158021-1 08/18/16 17:06

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfate	0.225	J	0.0774	5.00

1 Cp

2 Tc

3 Ss

L854267-04 Original Sample (OS) • Duplicate (DUP)

(OS) L854267-04 08/18/16 22:05 • (DUP) R3158021-5 08/18/16 23:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	160	162	10	1		15

4 Cn

5 Sr

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

(LCS) R3158021-2 08/18/16 17:21 • (LCSD) R3158021-3 08/18/16 17:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Sulfate	40.0	40.2	40.0	100	100	80-120			0	15

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3157074-1 08/16/16 09:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3157074-2 08/16/16 09:46 • (LCSD) R3157074-3 08/16/16 09:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00289	0.00291	96	97	80-120			1	20

L853420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853420-01 08/16/16 09:52 • (MS) R3157074-4 08/16/16 09:55 • (MSD) R3157074-5 08/16/16 09:58

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00283	0.00228	94	76	1	75-125		J3	21	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3157811-1 08/18/16 16:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

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

(LCS) R3157811-2 08/18/16 16:52 • (LCSD) R3157811-3 08/18/16 16:55

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	1.02	1.03	102	103	80-120			1	20
Lithium	1.00	1.01	1.02	101	102	80-120			1	20
Molybdenum	1.00	1.01	1.03	101	103	80-120			1	20

L853420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853420-01 08/18/16 16:58 • (MS) R3157811-5 08/18/16 17:03 • (MSD) R3157811-6 08/18/16 17:05

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.966	1.96	1.98	99	101	1	75-125			1	20
Lithium	1.00	0.0415	1.04	1.05	100	101	1	75-125			1	20
Molybdenum	1.00	ND	1.01	1.02	101	102	1	75-125			0	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3158232-1 08/22/16 08:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	0.000684	J	0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3158232-2 08/22/16 08:56 • (LCSD) R3158232-3 08/22/16 08:59

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0579	0.0531	0.0548	92	95	80-120			3	20
Arsenic	0.0500	0.0514	0.0531	103	106	80-120			3	20
Barium	0.0500	0.0485	0.0507	97	101	80-120			4	20
Beryllium	0.0500	0.0486	0.0494	97	99	80-120			2	20
Cadmium	0.0500	0.0540	0.0559	108	112	80-120			3	20
Calcium	5.00	4.93	5.17	99	103	80-120			5	20
Chromium	0.0500	0.0522	0.0547	104	109	80-120			5	20
Cobalt	0.0500	0.0525	0.0545	105	109	80-120			4	20
Lead	0.0500	0.0493	0.0505	99	101	80-120			3	20
Selenium	0.0500	0.0509	0.0531	102	106	80-120			4	20
Thallium	0.0500	0.0500	0.0511	100	102	80-120			2	20

L853420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853420-01 08/22/16 09:02 • (MS) R3158232-5 08/22/16 09:08 • (MSD) R3158232-6 08/22/16 09:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0579	ND	0.0557	0.0554	96	96	1	75-125			1	20
Arsenic	0.0500	0.00682	0.0591	0.0601	105	107	1	75-125			2	20
Barium	0.0500	0.322	0.374	0.374	103	104	1	75-125			0	20
Beryllium	0.0500	ND	0.0480	0.0481	96	96	1	75-125			0	20
Cadmium	0.0500	ND	0.0533	0.0543	107	109	1	75-125			2	20



[L853420-01,02,03,04,05,06,07,08,09](#)

L853420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L853420-01 08/22/16 09:02 • (MS) R3158232-5 08/22/16 09:08 • (MSD) R3158232-6 08/22/16 09:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	58.7	63.0	63.1	86	88	1	75-125			0	20
Chromium	0.0500	ND	0.0524	0.0519	103	102	1	75-125			1	20
Cobalt	0.0500	ND	0.0511	0.0513	102	103	1	75-125			0	20
Lead	0.0500	ND	0.0495	0.0500	99	99	1	75-125			1	20
Selenium	0.0500	ND	0.0534	0.0538	107	108	1	75-125			1	20
Thallium	0.0500	ND	0.0500	0.0502	100	100	1	75-125			1	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

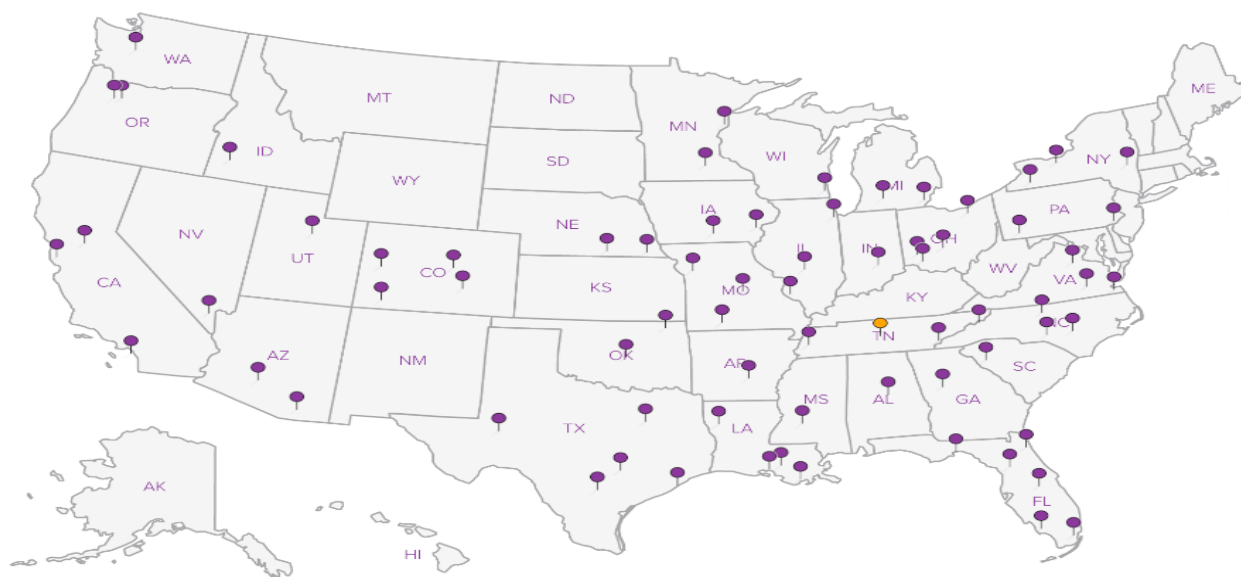
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Company Name/Address:
AECOM-Overland Park, KS
 8300 College Blvd, Suite 200
 Overland Park, KS 66210

Billing Information:
 Dana Monroe -1334927
 8300 College Blvd. Suite 200
 Overland Park, KS 66210

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Report to:
Brian Linnan

Email To:
brian.linnin@aecom.com

Project Description:
La Cygne Generating Station

City/State Collected:
Kansas

Phone: **913-344-1000**
 Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):

Site/Facility ID #

P.O. #
URSKC-1028155

Collected by (signature):
 Immediately Packed on Ice N ___ Y **X**

Rush? (Lab MUST Be Notified)
 ___ Same Day200%
 ___ Next Day100%
 ___ Two Day50%
 ___ Three Day25%

Date Results Needed
 Email? ___ No Yes
 FAX? ___ No ___ Yes

Anions- Clid, F, SO4 250ml HDPE NoPres	TDS, pH 250mlHDPE-NoPres	Total Metals 500ml HDPE - HNO3																			



YOUR LAB OF CHOICE

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



L # **LB53420**
J001

Acctnum: **URSKC**
 Template: **T114093**
 Prelogin: **P561498**
 TSR: **206 - Jeff Carr**
 Cooler:


Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions- Clid, F, SO4 250ml HDPE NoPres	TDS, pH 250mlHDPE-NoPres	Total Metals 500ml HDPE - HNO3													
Mw -10	Grab	GW		8/11/16	1210	3	X	X	X													-01
Mw-10-MS	Grab	GW		8/11/16	1210	3	X	X	X													-02 01
Mw-10-MSD	Grab	GW		8/11/16	1210	3	X	X	X													-03 01
Mw-11	Grab	GW		8/11/16	1430	3	X	X	X													-04 02
Mw-12	Grab	GW		8/11/16	1715	3	X	X	X													-05 03
Mw-803	Grab	GW		8/12/16	1035	3	X	X	X													-06 04
Mw-905	Grab	GW		8/12/16	1150	3	X	X	X													-07 05
Mw-902	Grab	GW		8/11/16	1235	3	X	X	X													-08 06
Mw-14R	Grab	GW		8/11/16	1020	3	X	X	X													-09 07
Mw-903	Grab	GW		8/11/16	1120	3	X	X	X													-10 08
Mw-901	Grab	GW		8/11/16	14:40	3	X	X	X													-11 09

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other GW


pH _____ Temp _____

Remarks: Flow _____ Other _____

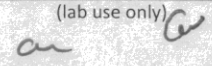
Hold #

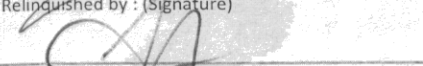
Relinquished by: (Signature)


Date: **8-12-16**
 Time: **1622**

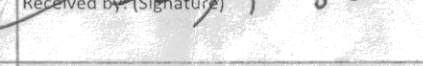
Received by: (Signature)


Samples returned via: UPS
 FedEx Courier _____

Condition: (lab use only)
 on 

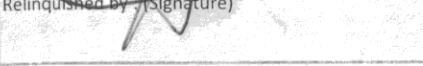
Relinquished by: (Signature)


Date: **8/12/16**
 Time: **1700**

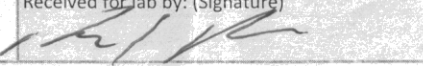
Received by: (Signature)


Temp: _____ °C Bottles Received:
2.9 **30**

COC Seal Intact: ___ Y ___ N / NA

Relinquished by: (Signature)


Date: _____
 Time: _____

Received for lab by: (Signature)


Date: **8-13-16** Time: **1900**

pH Checked: **2.9** NCF:



L·A·B S·C·I·E·N·C·E·S

YOUR LAB OF CHOICE

Cooler Receipt Checklist

Client: URSK SDG# LB53420

Cooler Received/Opened On: 8-13-16 By Richard Hughes

Temperature Upon Receipt: 2.9 °C  (Signature)

Cooler Receipt Check List				Yes	No	N/A
Were custody seals on outside of cooler and intact?						<input checked="" type="checkbox"/>
Were custody papers properly filled out (ink, signed, etc.)?				<input checked="" type="checkbox"/>		
Did all bottles arrive in good condition?				<input checked="" type="checkbox"/>		
Were correct bottles used for the analyses requested?				<input checked="" type="checkbox"/>		
Was sufficient amount of sample sent in each bottle?				<input checked="" type="checkbox"/>		
Were correct preservatives used?				<input checked="" type="checkbox"/>		
Were all applicable sample containers checked for preservation? (Any samples not in accepted pH range noted on COC.)						
If applicable, was an observable VOA headspace present?						<input checked="" type="checkbox"/>
Non Conformance Generated? (If yes see attached NCF)					<input checked="" type="checkbox"/>	



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N·A·T·I·O·N·W·I·D·E

Case Narrative

Lab No: 20160782

This report contains the analytical results for the 11 sample(s) received under chain of custody by ESC Lab Sciences on 8/15/2016 1:30:00 PM. These samples are associated with your La Cygne Generating Station project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

Observations / Nonconformances



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20160782
 Date Reported : 09/08/16
 Date Received : 08/15/16
 Page Number : 2 of 4

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20160782-01								
Client ID : MW-10								
Date Sampled : 8/11/2016 12:10:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	0.294 +/- 0.248	0.326	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.995 +/- 0.401	0.474	pCi/l		08/31/16	09/06/16	JR
Lab ID : 20160782-02								
Client ID : MW-10 MS								
Date Sampled : 8/11/2016 12:10:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	90.5		% Rec		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	96.1		% Rec		08/31/16	09/06/16	JR
Lab ID : 20160782-03								
Client ID : MW-10 MSD								
Date Sampled : 8/11/2016 12:10:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	11.8		RPD		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	4.44		RPD		08/31/16	09/06/16	JR
Lab ID : 20160782-04								
Client ID : MW-11								
Date Sampled : 8/11/2016 2:30:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	-0.039 +/- 0.096	0.246	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	1.07 +/- 0.505	0.735	pCi/l		08/31/16	09/06/16	JR
Lab ID : 20160782-05								
Client ID : MW-13								
Date Sampled : 8/11/2016 5:15:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	0.158 +/- 0.116	0.145	pCi/l		08/22/16	08/23/16	AK

*NELAC Certified Parameter BDL = Below Detection Limit



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20160782
 Date Reported : 09/08/16
 Date Received : 08/15/16
 Page Number : 3 of 4

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Radium-228	EPA 904*/9320*	0.510 +/- 0.462	0.520	pCi/l		08/31/16	09/06/16	JR

Lab ID : 20160782-06
Client ID : MW-803
Date Sampled : 8/12/2016 10:35:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	1.41 +/- 0.269	0.176	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.246 +/- 0.721	0.890	pCi/l		08/31/16	09/06/16	JR

Lab ID : 20160782-07
Client ID : MW-905
Date Sampled : 8/12/2016 11:50:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	0.354 +/- 0.171	0.118	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.854 +/- 0.465	0.543	pCi/l		08/31/16	09/06/16	JR

Lab ID : 20160782-08
Client ID : MW-902
Date Sampled : 8/11/2016 12:35:00 PM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	0.992 +/- 0.232	0.146	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.466 +/- 0.527	0.646	pCi/l		08/31/16	09/06/16	JR

Lab ID : 20160782-09
Client ID : MW-14R
Date Sampled : 8/11/2016 10:20:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	0.993 +/- 0.231	0.174	pCi/l		08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.231 +/- 0.450	0.538	pCi/l		08/31/16	09/06/16	JR

Lab ID : 20160782-10
Client ID : MW-903
Date Sampled : 8/11/2016 11:20:00 AM
Matrix : NPW

*NELAC Certified Parameter BDL = Below Detection Limit



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20160782
 Date Reported : 09/08/16
 Date Received : 08/15/16
 Page Number : 4 of 4

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Radiochemical Analyses							
Radium-226	SM 7500 Ra B M*	0.184 +/- 0.144	0.193	pCi/l	08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	0.673 +/- 0.273	0.470	pCi/l	08/31/16	09/06/16	JR

Lab ID : 20160782-11
Client ID : MW-901
Date Sampled : 8/11/2016 2:40:00 PM
Matrix : NPW

Radiochemical Analyses							
Radium-226	SM 7500 Ra B M*	0.261 +/- 0.124	0.106	pCi/l	08/22/16	08/23/16	AK
Radium-228	EPA 904*/9320*	1.93 +/- 0.415	0.713	pCi/l	08/31/16	09/06/16	JR

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.033	94.4			NC	0.312	90.5	102.0	11.8	R1124
Radium-228	0.305	103.0			NC	0.326	96.1	101.0	4.4	R3849

Lab Approval:

Ron Eidson
 Director of Radiochemistry

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

L# 85369

Table #

Acctnum: **JURSKC**

Template: **T114093**

Prelogin: **P561498**

TSR: **206 - Jeff Gatt**

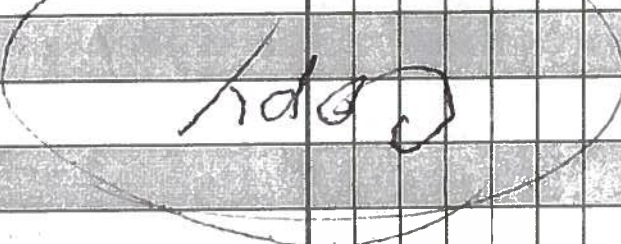
Cooler:

Shipped Via:

Rem./Contaminant

Sample # (lab only)

Analysis / Container / Preservative

	
--	--

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: UPS

FedEx Courier

Temp: _____ °C Bottles Received:

Date: 8/15/16 Time: 1330

Hold#

Condition: (lab use only)

COC Seal Intact: Y N NA

pH Checked: NGF:

Billing Information:
 Dana Monroe -1334927
 8300 College Blvd. Suite 200
 Overland Park, KS 66210

Email To:
brian.linnin@aecom.com

City/State Collected: **Kansas**

Lab Project #
URSKC-LACYGNE

P.O. #
URSKC-1028155

Date Results Needed

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Immediately Packed on Ice N Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-10	Grab	GW		8/11/16	12:10	2
MW-10-MS	Grab	GW		8/11/16	12:10	2
MW-10-MSD	Grab	GW		8/11/16	12:10	2
MW-11	Grab	GW		8/11/16	14:30	2
MW-13	Grab	GW		8/11/16	17:15	2
MW-803	Grab	GW		8/12/16	10:35	2
MW-905	Grab	GW		8/12/16	11:50	2
MW-902	Grab	GW		8/11/16	18:35	2
MW-14R	Grab	GW		8/11/16	10:20	2
MW-903	Grab	GW		8/11/16	11:20	2
MW-901	Grab	GW		8/11/16	14:40	2

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OI - Other GW

Remarks: 2060787

Relinquished by: (Signature) [Signature]

Date: 8-12-16 Time: 1622

Relinquished by: (Signature) [Signature]

Date: _____ Time: _____

Relinquished by: (Signature) [Signature]

Date: _____ Time: _____

Received for lab by: (Signature) [Signature]

Date: _____ Time: _____

ORL-RA-226, RA-228 1L HDPE-Add HN03

SAMPLE LOGIN

Date Received: 8/15/2016 1:30:00

Lab Number: 20160782

Due: 9/12/2016

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20160782-01 B	MW-10	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20160782-01 A	MW-10	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20160782-02 A	MW-10 MS	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20160782-02 B	MW-10 MS	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20160782-03 A	MW-10 MSD	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20160782-03 B	MW-10 MSD	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20160782-04 A	MW-11	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20160782-04 B	MW-11	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20160782-05 B	MW-13	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20160782-05 A	MW-13	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20160782-06 B	MW-803	NPW	08/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20160782-06 A	MW-803	NPW	08/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20160782-07 A	MW-905	NPW	08/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20160782-07 B	MW-905	NPW	08/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						

20160782-08 A	MW-902	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
20160782-08 B	MW-902	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
Radium-226			SM 7500 Ra B M*					
Radium-228			EPA 904*/9320*					
20160782-09 A	MW-14R	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
20160782-09 B	MW-14R	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
Radium-226			SM 7500 Ra B M*					
Radium-228			EPA 904*/9320*					
20160782-10 A	MW-903	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
20160782-10 B	MW-903	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
Radium-226			SM 7500 Ra B M*					
Radium-228			EPA 904*/9320*					
20160782-11 B	MW-901	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
20160782-11 A	MW-901	NPW	08/11/16	Plastic	1 L	HNO ₃ , pH < 2	No	No
Radium-226			SM 7500 Ra B M*					
Radium-228			EPA 904*/9320*					

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken N/A Temperature: Amb Ice

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact

Anomalies

Radiation Survey: <300 cpm

Radiation Survey Complete N/A

Inspected By: Aubrey Taylor DATE 8/15/16
 QA or Designee Review: Raymond Thomas DATE 08/15/16
 Sample Custodian Review: Sida DATE 8/15/16

Project Notes:

Jared Morrison
December 16, 2022

ATTACHMENT 1-3
October 2016 Sampling Event Laboratory Report

AECOM - Overland Park, KS

Sample Delivery Group: L866342
Samples Received: 10/15/2016
Project Number:
Description: La Cygne Generating Station

Report To: Brian Linnan
8300 College Blvd., Suite 200
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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

SAMPLE SUMMARY



MW-951 L866342-01 GW

				Collected by	Collected date/time	Received date/time
				JM / TA	10/13/16 09:40	10/15/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG918711	1	10/20/16 04:21	10/20/16 05:52	JM	
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:19	NJB	
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:44	LTB	
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:20	JDG	
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:29	JDG	
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM	
Wet Chemistry by Method 9056A	WG918299	1	10/20/16 00:18	10/20/16 00:18	SAM	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

MW-803 L866342-02 GW

				Collected by	Collected date/time	Received date/time
				JM / TA	10/13/16 10:15	10/15/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG918711	1	10/20/16 04:21	10/20/16 05:52	JM	
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:22	NJB	
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:47	LTB	
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:23	JDG	
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:33	JDG	
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM	
Wet Chemistry by Method 9056A	WG918299	1	10/20/16 00:34	10/20/16 00:34	SAM	

MW-14R L866342-03 GW

				Collected by	Collected date/time	Received date/time
				JM / TA	10/13/16 11:25	10/15/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG918711	1	10/20/16 04:21	10/20/16 05:52	JM	
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:25	NJB	
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:50	LTB	
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:26	JDG	
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:36	JDG	
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM	
Wet Chemistry by Method 9056A	WG918299	1	10/20/16 00:49	10/20/16 00:49	SAM	

MW-601 L866342-04 GW

				Collected by	Collected date/time	Received date/time
				JM / TA	10/13/16 12:20	10/15/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG918711	1	10/20/16 04:21	10/20/16 05:52	JM	
Mercury by Method 7470A	WG918084	1	10/18/16 13:16	10/19/16 15:39	NJB	
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:53	LTB	
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:35	JDG	
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:39	JDG	
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM	
Wet Chemistry by Method 9056A	WG918588	1	10/19/16 14:21	10/19/16 14:21	CM	
Wet Chemistry by Method 9056A	WG918588	10	10/19/16 15:33	10/19/16 15:33	CM	

MW-903 L866342-05 GW

				Collected by	Collected date/time	Received date/time
				JM / TA	10/13/16 15:50	10/15/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Gravimetric Analysis by Method 2540 C-2011	WG918711	1	10/20/16 04:21	10/20/16 05:52	JM	
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:28	NJB	

SAMPLE SUMMARY



MW-903 L866342-05 GW

Collected by JM / TA
Collected date/time 10/13/16 15:50
Received date/time 10/15/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:56	LTB
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:38	JDG
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:42	JDG
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM
Wet Chemistry by Method 9056A	WG918588	1	10/19/16 15:47	10/19/16 15:47	CM
Wet Chemistry by Method 9056A	WG919075	20	10/20/16 17:24	10/20/16 17:24	SAM

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-902 L866342-06 GW

Collected by JM / TA
Collected date/time 10/13/16 16:15
Received date/time 10/15/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG918711	1	10/20/16 04:21	10/20/16 05:52	JM
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:31	NJB
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:58	LTB
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:41	JDG
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:45	JDG
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM
Wet Chemistry by Method 9056A	WG918588	1	10/19/16 16:16	10/19/16 16:16	CM

MW-901 L866342-07 GW

Collected by JM / TA
Collected date/time 10/14/16 09:50
Received date/time 10/15/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG918712	1	10/20/16 04:42	10/20/16 07:09	JM
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:34	NJB
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 04:01	LTB
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:44	JDG
Metals (ICPMS) by Method 6020	WG920405	1	10/24/16 23:34	10/26/16 04:48	JDG
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM
Wet Chemistry by Method 9056A	WG918588	1	10/19/16 16:30	10/19/16 16:30	CM

MW-905 L866342-08 GW

Collected by JM / TA
Collected date/time 10/14/16 10:20
Received date/time 10/15/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG918712	1	10/20/16 04:42	10/20/16 07:09	JM
Mercury by Method 7470A	WG917807	1	10/17/16 13:17	10/18/16 17:37	NJB
Metals (ICP) by Method 6010B	WG918724	1	10/19/16 14:29	10/20/16 03:16	LTB
Metals (ICPMS) by Method 6020	WG918486	1	10/20/16 14:42	10/24/16 14:48	JDG
Metals (ICPMS) by Method 6020	WG920430	9	10/26/16 10:22	10/28/16 10:05	JPD
Wet Chemistry by Method 9040C	WG917853	1	10/20/16 13:16	10/20/16 13:16	MHM
Wet Chemistry by Method 9056A	WG918588	1	10/19/16 16:47	10/19/16 16:47	CM



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
Technical Service Representative

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

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L866342-01	MW-951	9040C
L866342-02	MW-803	9040C
L866342-03	MW-14R	9040C
L866342-04	MW-601	9040C
L866342-05	MW-903	9040C
L866342-06	MW-902	9040C
L866342-07	MW-901	9040C
L866342-08	MW-905	9040C



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	539		10.0	1	10/20/2016 05:52	WG918711

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.54		1	10/20/2016 13:16	WG917853

Sample Narrative:

9040C L866342-01 WG917853: 7.54 at 13.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4.36		1.00	1	10/20/2016 00:18	WG918299
Fluoride	0.193		0.100	1	10/20/2016 00:18	WG918299
Sulfate	41.4		5.00	1	10/20/2016 00:18	WG918299

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/18/2016 17:19	WG917807

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.475		0.200	1	10/20/2016 03:44	WG918724
Lithium	0.0362		0.0150	1	10/20/2016 03:44	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:44	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:20	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:20	WG918486
Barium	0.0355		0.00500	1	10/24/2016 14:20	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:20	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:20	WG918486
Calcium	58.6		1.00	1	10/24/2016 14:20	WG918486
Chromium	ND		0.00200	1	10/26/2016 04:29	WG920405
Cobalt	ND		0.00200	1	10/24/2016 14:20	WG918486
Lead	ND		0.00200	1	10/24/2016 14:20	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:20	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:20	WG918486

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	592		10.0	1	10/20/2016 05:52	WG918711

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.74		1	10/20/2016 13:16	WG917853

3 Ss

4 Cn

Sample Narrative:

9040C L866342-02 WG917853: 7.74 at 13.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	48.4		1.00	1	10/20/2016 00:34	WG918299
Fluoride	0.645		0.100	1	10/20/2016 00:34	WG918299
Sulfate	17.9		5.00	1	10/20/2016 00:34	WG918299

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/18/2016 17:22	WG917807

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.12		0.200	1	10/20/2016 03:47	WG918724
Lithium	0.0686		0.0150	1	10/20/2016 03:47	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:47	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:23	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:23	WG918486
Barium	0.220		0.00500	1	10/24/2016 14:23	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:23	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:23	WG918486
Calcium	49.7		1.00	1	10/24/2016 14:23	WG918486
Chromium	ND		0.00200	1	10/26/2016 04:33	WG920405
Cobalt	ND		0.00200	1	10/24/2016 14:23	WG918486
Lead	ND		0.00200	1	10/24/2016 14:23	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:23	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:23	WG918486



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	545		10.0	1	10/20/2016 05:52	WG918711

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.54		1	10/20/2016 13:16	WG917853

3 Ss

4 Cn

Sample Narrative:

9040C L866342-03 WG917853: 7.54 at 12.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4.22		1.00	1	10/20/2016 00:49	WG918299
Fluoride	0.215		0.100	1	10/20/2016 00:49	WG918299
Sulfate	40.1		5.00	1	10/20/2016 00:49	WG918299

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/18/2016 17:25	WG917807

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.463		0.200	1	10/20/2016 03:50	WG918724
Lithium	0.0347		0.0150	1	10/20/2016 03:50	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:50	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:26	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:26	WG918486
Barium	0.0370		0.00500	1	10/24/2016 14:26	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:26	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:26	WG918486
Calcium	59.1		1.00	1	10/24/2016 14:26	WG918486
Chromium	ND		0.00200	1	10/26/2016 04:36	WG920405
Cobalt	ND		0.00200	1	10/24/2016 14:26	WG918486
Lead	ND		0.00200	1	10/24/2016 14:26	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:26	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:26	WG918486



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1000		10.0	1	10/20/2016 05:52	WG918711

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.84		1	10/20/2016 13:16	WG917853

3 Ss

4 Cn

Sample Narrative:

9040C L866342-04 WG917853: 7.84 at 20.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	201		10.0	10	10/19/2016 15:33	WG918588
Fluoride	1.68		0.100	1	10/19/2016 14:21	WG918588
Sulfate	ND		5.00	1	10/19/2016 14:21	WG918588

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/19/2016 15:39	WG918084

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.81		0.200	1	10/20/2016 03:53	WG918724
Lithium	0.0725		0.0150	1	10/20/2016 03:53	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:53	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:35	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:35	WG918486
Barium	0.117		0.00500	1	10/24/2016 14:35	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:35	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:35	WG918486
Calcium	23.9		1.00	1	10/24/2016 14:35	WG918486
Chromium	ND		0.00200	1	10/26/2016 04:39	WG920405
Cobalt	ND		0.00200	1	10/24/2016 14:35	WG918486
Lead	ND		0.00200	1	10/24/2016 14:35	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:35	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:35	WG918486



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2120		10.0	1	10/20/2016 05:52	WG918711

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.94		1	10/20/2016 13:16	WG917853

Sample Narrative:

9040C L866342-05 WG917853: 6.94 at 20.4c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	24.8		1.00	1	10/19/2016 15:47	WG918588
Fluoride	ND		0.100	1	10/19/2016 15:47	WG918588
Sulfate	1030		100	20	10/20/2016 17:24	WG919075

Mercury by Method 7470A

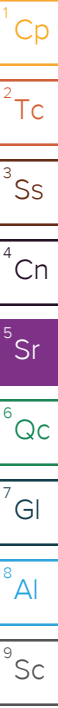
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/18/2016 17:28	WG917807

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.401		0.200	1	10/20/2016 03:56	WG918724
Lithium	0.0546		0.0150	1	10/20/2016 03:56	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:56	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:38	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:38	WG918486
Barium	0.0232		0.00500	1	10/24/2016 14:38	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:38	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:38	WG918486
Calcium	333		1.00	1	10/24/2016 14:38	WG918486
Chromium	0.00315		0.00200	1	10/26/2016 04:42	WG920405
Cobalt	0.00424		0.00200	1	10/24/2016 14:38	WG918486
Lead	ND		0.00200	1	10/24/2016 14:38	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:38	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:38	WG918486





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	537		10.0	1	10/20/2016 05:52	WG918711

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.56		1	10/20/2016 13:16	WG917853

Sample Narrative:

9040C L866342-06 WG917853: 7.56 at 15.8c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	32.9		1.00	1	10/19/2016 16:16	WG918588
Fluoride	0.490		0.100	1	10/19/2016 16:16	WG918588
Sulfate	29.2		5.00	1	10/19/2016 16:16	WG918588

Mercury by Method 7470A

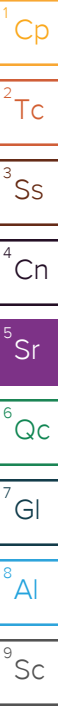
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/18/2016 17:31	WG917807

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.26		0.200	1	10/20/2016 03:58	WG918724
Lithium	0.0386		0.0150	1	10/20/2016 03:58	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:58	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:41	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:41	WG918486
Barium	0.106		0.00500	1	10/24/2016 14:41	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:41	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:41	WG918486
Calcium	65.7		1.00	1	10/24/2016 14:41	WG918486
Chromium	ND		0.00200	1	10/26/2016 04:45	WG920405
Cobalt	ND		0.00200	1	10/24/2016 14:41	WG918486
Lead	ND		0.00200	1	10/24/2016 14:41	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:41	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:41	WG918486





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	516		10.0	1	10/20/2016 07:09	WG918712

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45		1	10/20/2016 13:16	WG917853

Sample Narrative:

9040C L866342-07 WG917853: 7.45 at 16.3c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	21.8		1.00	1	10/19/2016 16:30	WG918588
Fluoride	0.497		0.100	1	10/19/2016 16:30	WG918588
Sulfate	15.6		5.00	1	10/19/2016 16:30	WG918588

Mercury by Method 7470A

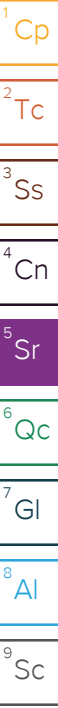
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/18/2016 17:34	WG917807

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.18		0.200	1	10/20/2016 04:01	WG918724
Lithium	0.0865		0.0150	1	10/20/2016 04:01	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 04:01	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/24/2016 14:44	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:44	WG918486
Barium	0.155		0.00500	1	10/24/2016 14:44	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:44	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:44	WG918486
Calcium	52.1		1.00	1	10/24/2016 14:44	WG918486
Chromium	ND		0.00200	1	10/26/2016 04:48	WG920405
Cobalt	ND		0.00200	1	10/24/2016 14:44	WG918486
Lead	ND		0.00200	1	10/24/2016 14:44	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:44	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:44	WG918486





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Dissolved Solids	603		10.0	1	10/20/2016 07:09	WG918712

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
pH	7.52		1	10/20/2016 13:16	WG917853

Sample Narrative:

9040C L866342-08 WG917853: 7.52 at 16.9c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Chloride	50.7		1.00	1	10/19/2016 16:47	WG918588
Fluoride	0.535		0.100	1	10/19/2016 16:47	WG918588
Sulfate	29.5		5.00	1	10/19/2016 16:47	WG918588

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Mercury	ND		0.000200	1	10/18/2016 17:37	WG917807

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Boron	1.87		0.200	1	10/20/2016 03:16	WG918724
Lithium	0.0639		0.0150	1	10/20/2016 03:16	WG918724
Molybdenum	ND		0.00500	1	10/20/2016 03:16	WG918724

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Antimony	ND		0.00200	1	10/24/2016 14:48	WG918486
Arsenic	ND		0.00200	1	10/24/2016 14:48	WG918486
Barium	0.0985		0.00500	1	10/24/2016 14:48	WG918486
Beryllium	ND		0.00200	1	10/24/2016 14:48	WG918486
Cadmium	ND		0.00100	1	10/24/2016 14:48	WG918486
Calcium	52.7		1.00	1	10/24/2016 14:48	WG918486
Chromium	ND		0.0180	9	10/28/2016 10:05	WG920430
Cobalt	ND		0.00200	1	10/24/2016 14:48	WG918486
Lead	ND		0.00200	1	10/24/2016 14:48	WG918486
Selenium	ND		0.00200	1	10/24/2016 14:48	WG918486
Thallium	ND		0.00200	1	10/24/2016 14:48	WG918486

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



Method Blank (MB)

(MB) R3172256-1 10/20/16 05:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L866319-03 Original Sample (OS) • Duplicate (DUP)

(OS) L866319-03 10/20/16 05:52 • (DUP) R3172256-4 10/20/16 05:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	938	898	1	4.36		5

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

(LCS) R3172256-2 10/20/16 05:52 • (LCSD) R3172256-3 10/20/16 05:52

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8230	8420	93.5	95.7	85.0-115			2.28	5



Method Blank (MB)

(MB) R3172254-1 10/20/16 07:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L866296-01 Original Sample (OS) • Duplicate (DUP)

(OS) L866296-01 10/20/16 07:09 • (DUP) R3172254-4 10/20/16 07:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1000	970	1	3.44		5

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

(LCS) R3172254-2 10/20/16 07:09 • (LCSD) R3172254-3 10/20/16 07:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8270	8560	94.0	97.3	85.0-115			3.45	5

⁷ Gl

⁸ Al

⁹ Sc



L866258-02 Original Sample (OS) • Duplicate (DUP)

(OS) L866258-02 10/20/16 13:16 • (DUP) WG917853-3 10/20/16 13:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.19	7.15	1	0.558		1

L866362-01 Original Sample (OS) • Duplicate (DUP)

(OS) L866362-01 10/20/16 13:16 • (DUP) WG917853-4 10/20/16 13:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.41	6.39	1	0.313		1

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

(LCS) WG917853-1 10/20/16 13:16 • (LCSD) WG917853-2 10/20/16 13:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.11	6.08	6.06	99.5	99.2	98.4-102			0.329	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3171908-1 10/19/16 07:53

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L866168-03 Original Sample (OS) • Duplicate (DUP)

(OS) L866168-03 10/19/16 15:50 • (DUP) R3171908-4 10/19/16 16:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	6.90	6.89	1	0		15
Fluoride	0.387	0.387	1	0		15
Sulfate	22.2	22.1	1	1		15

L866326-01 Original Sample (OS) • Duplicate (DUP)

(OS) L866326-01 10/19/16 19:56 • (DUP) R3171908-6 10/19/16 20:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	2.31	2.28	1	1		15
Fluoride	ND	0.0255	1	0		15
Sulfate	ND	0.375	1	0		15

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

(LCS) R3171908-2 10/19/16 08:09 • (LCSD) R3171908-3 10/19/16 08:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	38.7	38.7	97	97	80-120			0	15
Fluoride	8.00	7.81	7.81	98	98	80-120			0	15
Sulfate	40.0	38.9	38.9	97	97	80-120			0	15

L866319-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L866319-01 10/19/16 17:22 • (MS) R3171908-5 10/19/16 17:37

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	16.8	65.8	98	1	80-120	
Fluoride	5.00	1.30	6.18	97	1	80-120	



L866319-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L866319-01 10/19/16 17:22 • (MS) R3171908-5 10/19/16 17:37

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	23.4	71.6	96	1	80-120	

L866342-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866342-03 10/20/16 00:49 • (MS) R3171908-7 10/20/16 01:04 • (MSD) R3171908-8 10/20/16 01:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	4.22	52.4	53.6	96	99	1	80-120			2	15
Fluoride	5.00	0.215	4.96	5.11	95	98	1	80-120			3	15
Sulfate	50.0	40.1	86.1	87.5	92	95	1	80-120			2	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3171910-1 10/19/16 07:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L865895-01 Original Sample (OS) • Duplicate (DUP)

(OS) L865895-01 10/19/16 15:04 • (DUP) R3171910-6 10/19/16 15:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	117	112	10	4		15
Fluoride	0.175	0.119	10	38	J P1	15
Sulfate	493	496	10	1		15

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

(LCS) R3171910-2 10/19/16 07:39 • (LCSD) R3171910-3 10/19/16 07:54

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	38.4	38.5	96	96	80-120			0	15
Fluoride	8.00	7.78	7.78	97	97	80-120			0	15
Sulfate	40.0	38.8	38.9	97	97	80-120			0	15

L866342-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866342-08 10/19/16 16:47 • (MS) R3171910-7 10/19/16 17:01 • (MSD) R3171910-8 10/19/16 17:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	50.7	97.8	97.8	94	94	1	80-120			0	15
Fluoride	5.00	0.535	5.37	5.34	97	96	1	80-120			0	15
Sulfate	50.0	29.5	76.9	77.0	95	95	1	80-120			0	15



Method Blank (MB)

(MB) R3172300-1 10/20/16 08:37

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L866033-01 Original Sample (OS) • Duplicate (DUP)

(OS) L866033-01 10/20/16 14:10 • (DUP) R3172300-4 10/20/16 14:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	677	677	10	0		15

L866284-11 Original Sample (OS) • Duplicate (DUP)

(OS) L866284-11 10/20/16 18:23 • (DUP) R3172300-6 10/20/16 18:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	18.5	18.5	1	0		15

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

(LCS) R3172300-2 10/20/16 08:52 • (LCSD) R3172300-3 10/20/16 09:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	39.1	39.0	98	97	80-120			0	15

L866284-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L866284-08 10/20/16 14:54 • (MS) R3172300-5 10/20/16 15:39

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	13.9	62.2	97	1	80-120	

L866284-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866284-09 10/20/16 18:53 • (MS) R3172300-7 10/20/16 19:08 • (MSD) R3172300-8 10/20/16 19:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	30.0	77.6	77.8	95	96	1	80-120			0	15



Method Blank (MB)

(MB) R3171449-1 10/18/16 16:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

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

(LCS) R3171449-2 10/18/16 16:53 • (LCSD) R3171449-3 10/18/16 16:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00309	0.00312	103	104	80-120			1	20

L866319-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866319-01 10/18/16 16:58 • (MS) R3171449-4 10/18/16 17:01 • (MSD) R3171449-5 10/18/16 17:10

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00300	0.00308	100	103	1	75-125			3	20

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3171809-1 10/19/16 15:08

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3171809-2 10/19/16 15:11 • (LCSD) R3171809-3 10/19/16 15:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00289	0.00240	96	80	80-120			19	20

L866450-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866450-01 10/19/16 15:16 • (MS) R3171809-4 10/19/16 15:18 • (MSD) R3171809-5 10/19/16 15:21

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	U	0.00189	0.00195	63	65	1	75-125	<u>J6</u>	<u>J6</u>	3	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3171877-1 10/20/16 03:08

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3171877-2 10/20/16 03:11 • (LCSD) R3171877-3 10/20/16 03:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	1.01	0.994	101	99	80-120			1	20
Lithium	1.00	1.00	0.993	100	99	80-120			1	20
Molybdenum	1.00	1.04	1.02	104	102	80-120			1	20

L866342-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866342-08 10/20/16 03:16 • (MS) R3171877-5 10/20/16 03:22 • (MSD) R3171877-6 10/20/16 03:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	1.87	2.82	2.84	95	98	1	75-125			1	20
Lithium	1.00	0.0639	1.03	1.04	97	97	1	75-125			0	20
Molybdenum	1.00	ND	1.01	0.997	101	99	1	75-125			2	20



Method Blank (MB)

(MB) R3172876-8 10/24/16 14:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

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

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

(LCS) R3172876-2 10/24/16 14:01 • (LCSD) R3172876-3 10/24/16 14:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0579	0.0504	0.0505	87	87	80-120			0	20
Arsenic	0.0500	0.0505	0.0511	101	102	80-120			1	20
Barium	0.0500	0.0469	0.0455	94	91	80-120			3	20
Beryllium	0.0500	0.0460	0.0460	92	92	80-120			0	20
Cadmium	0.0500	0.0525	0.0523	105	105	80-120			0	20
Calcium	5.00	4.83	4.79	97	96	80-120			1	20
Cobalt	0.0500	0.0521	0.0523	104	105	80-120			0	20
Lead	0.0500	0.0495	0.0507	99	101	80-120			2	20
Selenium	0.0500	0.0500	0.0513	100	103	80-120			3	20
Thallium	0.0500	0.0499	0.0488	100	98	80-120			2	20

L866366-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866366-09 10/24/16 14:07 • (MS) R3172876-5 10/24/16 14:13 • (MSD) R3172876-6 10/24/16 14:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0579	ND	0.0512	0.0526	88	91	1	75-125			3	20
Arsenic	0.0500	0.0245	0.0761	0.0759	103	103	1	75-125			0	20
Barium	0.0500	ND	0.0474	0.0471	92	92	1	75-125			1	20
Beryllium	0.0500	ND	0.0458	0.0460	92	92	1	75-125			0	20
Cadmium	0.0500	ND	0.0543	0.0530	109	106	1	75-125			2	20
Calcium	5.00		26.4	26.5	86	88	1	75-125			0	20
Cobalt	0.0500	ND	0.0516	0.0520	102	103	1	75-125			1	20



L866366-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L866366-09 10/24/16 14:07 • (MS) R3172876-5 10/24/16 14:13 • (MSD) R3172876-6 10/24/16 14:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	0.0500	ND	0.0507	0.0502	101	100	1	75-125			1	20
Selenium	0.0500	ND	0.0532	0.0510	106	102	1	75-125			4	20
Thallium	0.0500	ND	0.0505	0.0495	101	99	1	75-125			2	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3173351-1 10/26/16 04:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chromium	U		0.00054	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3173351-2 10/26/16 04:05 • (LCSD) R3173351-3 10/26/16 04:08

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chromium	0.0500	0.0511	0.0514	102	103	80-120			1	20

L867714-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L867714-03 10/26/16 04:11 • (MS) R3173351-5 10/26/16 04:17 • (MSD) R3173351-6 10/26/16 04:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chromium	0.0500	ND	0.0482	0.0481	96	96	1	75-125			0	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3174141-1 10/28/16 09:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chromium	U		0.00054	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3174141-2 10/28/16 09:31 • (LCSD) R3174141-3 10/28/16 09:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chromium	0.0500	0.0526	0.0521	105	104	80-120			1	20

L868239-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L868239-01 10/28/16 09:37 • (MS) R3174141-5 10/28/16 09:43 • (MSD) R3174141-6 10/28/16 09:47

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chromium	0.0500	ND	0.0508	0.0510	102	102	1	75-125			0	20

⁷Gl

⁸Al

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

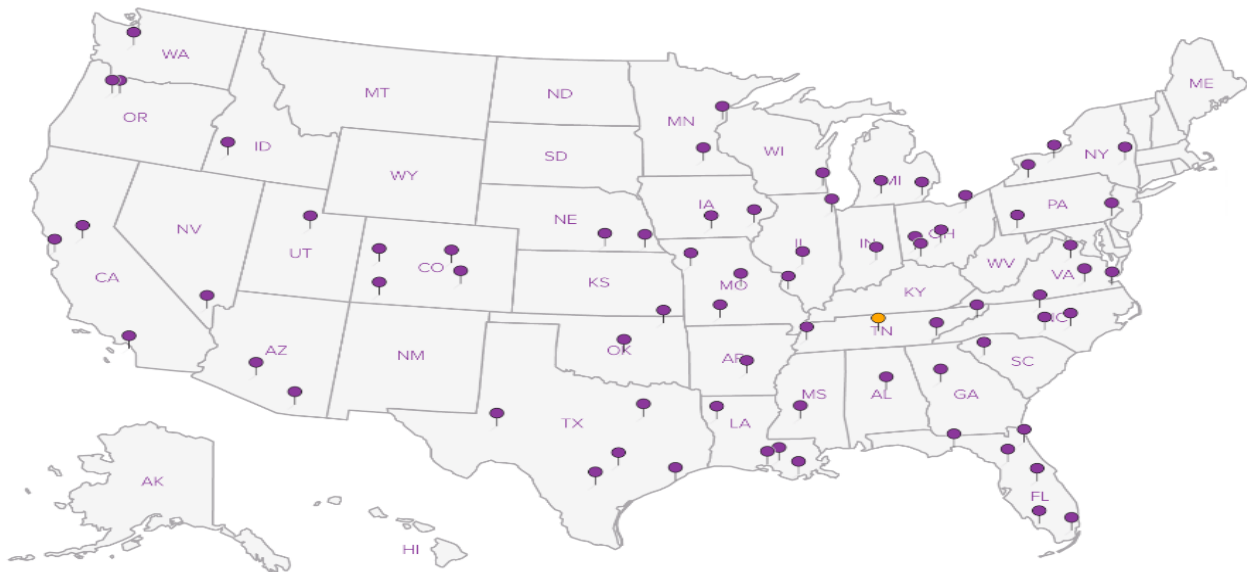
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information & Quote Number:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Terry Andrews

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):
Jim Mullin

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Date Results Needed

Email? No Yes

FAX? No Yes

No. of
Cntrs

Anions - Cl, F, SO4 250mlHDPE-NoPres

TDS, pH 250mlHDPE-NoPres

Total Metals 250mlHDPE-HNO3

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



L# **L866342**

D188

Accnum: **URSKC**

Template: **T114093**

Prelogin: **P570773**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Rem./Contaminant Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	Anions - Cl, F, SO4 250mlHDPE-NoPres	TDS, pH 250mlHDPE-NoPres	Total Metals 250mlHDPE-HNO3											
MW-951	Grab	GW		10-13-16	09:40	3	X	X	X											-01
MW-803A	Grab	GW		10-13-16	10:15	3	X	X	X											02
MW-14R	Grab	GW		10-13-16	11:25	3	X	X	X											03
MW-601	Grab	GW		10-13-16	12:20	3	X	X	X											04
MW-903	Grab	GW		10-13-16	15:50	3	X	X	X											05
MW-902	Grab	GW		10-13-16	16:15	3	X	X	X											06
MW-901	Grab	GW		10-14-16	9:50	3	X	X	X											07
MW-905	Grab	GW		10-14-16	10:20	3	X	X	X											08
		GW				3	X	X	X											
		GW				3	X	X	X											

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

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

pH _____ Temp _____

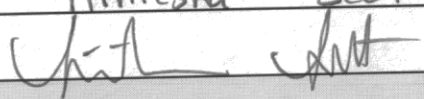
Flow _____ Other _____

Hold #

Please indicate sample ID for the MS/MSD.

Relinquished by: (Signature) <i>Jim Mullin</i>	Date: 10-14-16	Time: 14:02	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>ow</i>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: _____ °C Bottles Received: 3.2 24	COC Seal Intact: <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 10-15-16 Time: 9 ⁰⁰	pH Checked: _____ NCF: _____



Cooler Receipt Form				
Client:	URSKC	SDG#	L866342	
Cooler Received/Opened On:	10-15-16	Temperature Upon Receipt:	3.2 °C	
Received By:	Timiesha Scott			
Signature:				
Receipt Check List		Yes	No	N/A
Were custody seals on outside of cooler and intact?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were custody papers properly filled out?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive in good condition?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were correct bottles used for the analyses requested?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent in each bottle?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If applicable, was an observable VOA headspace present?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non Conformance Generated. (If yes see attached NCF)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Jeff Carr

From: Skaskevych, Alla <alla.skaskevych@aecom.com>
Sent: Wednesday, November 09, 2016 10:57 AM
To: Jeff Carr
Subject: RE: ESC Lab Sciences Report for La Cygne Generating Station L866342
Attachments: DOC.pdf

Jeff,

Can you please regenerate the report L866342 along with the EDD? MW-803A should be changed to MW-803. Can you mark the change on COC attached to the report as well? In attached, I updated our copy of COC, but it's just a copy.

Thank you, Alla

-----Original Message-----

From: Jeff Carr [<mailto:JCarr@eslabsciences.com>]
Sent: Wednesday, November 09, 2016 7:43 AM
To: Skaskevych, Alla
Subject: RE: ESC Lab Sciences Report for La Cygne Generating Station L866342

The EDDs for the following SDGs have been posted to the web:

URSKC L866319
URSKC L865759
URSKC L866342

-----Original Message-----

From: Skaskevych, Alla [<mailto:alla.skaskevych@aecom.com>]
Sent: Tuesday, November 08, 2016 1:56 PM
To: Jeff Carr
Subject: RE: ESC Lab Sciences Report for La Cygne Generating Station L866342

Jeff,

I need the EDDs for the last October sampling event in the format we agreed to.

Thank you,
Alla

-----Original Message-----

From: JCarr@eslabsciences.com [<mailto:JCarr@eslabsciences.com>]
Sent: Friday, October 28, 2016 2:13 PM
To: Linnan, Brian; Exceen, Robert; Skaskevych, Alla
Subject: ESC Lab Sciences Report for La Cygne Generating Station L866342
Importance: High

Thank you for choosing ESC Lab Sciences!

Please find enclosed PDF files containing your laboratory analysis and chain of custody.

ESC is pleased to announce that we are accepting samples from 21 states for the new 3511 prep technique for PAHs by 8270 and 8270SIM. This technique allows for a 98% reduction in solvent usage, and requires only 2 to 3 40 mL non-preserved amber vials vs. the traditional 1 or 2 amber liter jars. Please contact your Technical Service Representative for details.

ESC is leading the laboratory industry with our On-line Data Management tools. Please contact your Technical Service Representative to learn how to create historical Excel tables or access data in real time using powerful and intuitive software that is only available at <http://www.esclabsciences.com>.

How are we doing? ESC would like to hear from you. Please take a moment and complete our customer feedback survey at <https://www.surveymonkey.com/s/TCGLB7I>.

ESC ... "Your Lab of Choice"

Jeff Carr
Technical Service Representative
615-773-9667
jcarr@esclabsciences.com

ESC Lab Sciences
12065 Lebanon Rd
Mount Juliet, TN 37122

https://linkprotect.cudasvc.com?url=https://www.esclabsciences.com&c=E,1_s69LuTVinsUoTqm39DcF7ANORsTS29_Q1nMqgWQMwuOx1KK_v4wOy9nvlGvH7jHvxmHXSQ0SH537QjF83NlpsNWNbUJJXSz2gCr9ICxOF5Viv450fQ&typo=1

Recipients configured to receive report file: brian.linnan@aecom.com, robert.exceed@aecom.com, alla.skaskevych@aecom.com

Notice: This communication and any attached files may contain privileged or other confidential information. If you have received this in error, please contact the sender immediately via reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.

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Overland Park, KS 66210

Billing Information & Quote Number:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Analysis / Container / Preservative

Chain of Custody Page of



YOUR CHOICE OF CHOICE

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Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: 913-344-1000
Fax: 913-344-1011

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Terry Andrews

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):
Jim Muckler

Rush? (Lab MUST Be Notified)

Date Results Needed

Same Day200%
Next Day100%
Two Day50%
Three Day25%

Email? No Yes

FAX? No Yes

No.
of
Cnts

Immediately

Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Anions - Clid, F, SO4 250mlHDPE-NoPres	TDS, pH 250mlHDPE-NoPres	Total Metals 250mlHDPE-HNO3										
MW-951	Grab	GW		10-13-16	09:40	3	X	X	X										
MW-803A ^{AS}	Grab	GW		10-13-16	10:15	3	X	X	X										
MW-14B	Grab	GW		10-13-16	11:25	3	X	X	X										
MW-601	Grab	GW		10-13-16	12:20	3	X	X	X										
MW-903	Grab	GW		10-13-16	15:50	3	X	X	X										
MW-902	Grab	GW		10-13-16	16:15	3	X	X	X										
MW-901	Grab	GW		10-14-16	7:50	3	X	X	X										
MW-905	Grab	GW		10-14-16	10:20	3	X	X	X										
		GW				3	X	X	X										
		GW				3	X	X	X										

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

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

pH _____ Temp _____

Flow _____ Other _____

Hold #

Please indicate sample ID for the MS/MSD.

Relinquished by: (Signature) <i>Jim Muckler</i>	Date: 10-14-16	Time: 14:00	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: *C Bottles Received:	COC Seal Intact: <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	pH Checked: NCF:

AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information & Quote Number:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE
12065 Lebaion Rd
Mount Juliet, TN 37122
Phone: 615-758-5458
Phone: 800-767-5459
Fax: 615-758-1059



Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project # -
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Terry Andrews

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):
Jim Muckler

Rush? (Lab MUST Be Notified)

Date Results Needed

- ___ Same Day 200%
- ___ Next Day 100%
- ___ Two Day 50%
- ___ Three Day 25%

Email? ___ No **X** Yes
FAX? ___ No ___ Yes

No. of
Cnts

Immediately
Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts															
MW-951	Grab	NPW		10-17-16	09:40	2	X														
MW-803 ^{MS}	Grab	NPW		10-13-16	10:15	2	X														
MW-14R	Grab	NPW		10-17-16	11:25	2	X														
MW-601	Grab	NPW		10-13-16	12:20	2	X														
MW-903	Grab	NPW		10-13-16	15:50	2	X														
MW-902	Grab	NPW		10-13-16	16:15	2	X														
MW-901	Grab	NPW		10-14-16	9:50	2	X														
MW-905	Grab	NPW		10-14-16	10:20	2	X														
		NPW				2	X														
		NPW				2	X														

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature) <i>Jim Muckler</i>	Date: 10-14-16	Time: 14:02	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Hold #
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	COC Seal Intact: ___ Y ___ N ___ NA pH Checked: NCF:

Case Narrative

Lab No: 20161009

This report contains the analytical results for the 12 sample(s) received under chain of custody by ESC Lab Sciences on 10/17/2016 2:46:19 PM. These samples are associated with your La Cygne Generating Station project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

Observations / Nonconformances

L866569



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161009
 Date Reported : 11/15/16
 Date Received : 10/17/16
 Page Number : 2 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161009-01
Client ID : MW-951
Date Sampled : 10/13/2016 9:40:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.62 +/- 0.694	0.869	pCi/l			
Radium-226	SM 7500 Ra B M*	0.153 +/- 0.184	0.266	pCi/l	11/07/16	11/14/16	AK
Radium-228	EPA 904*/9320*	1.47 +/- 0.510	0.603	pCi/l	10/31/16	11/03/16	JR

Lab ID : 20161009-02
Client ID : MW-803A
Date Sampled : 10/13/2016 10:15:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.93 +/- 0.514	0.537	pCi/l			
Radium-226	SM 7500 Ra B M*	0.281 +/- 0.138	0.120	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	1.65 +/- 0.376	0.417	pCi/l	10/31/16	11/03/16	JR

Lab ID : 20161009-03
Client ID : MW-14R
Date Sampled : 10/13/2016 11:25:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.30 +/- 0.615	1.00	pCi/l			
Radium-226	SM 7500 Ra B M*	0.081 +/- 0.095	0.140	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	1.22 +/- 0.520	0.864	pCi/l	10/31/16	11/03/16	JR

Lab ID : 20161009-04
Client ID : MW-601
Date Sampled : 10/13/2016 12:20:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.698 +/- 0.573	0.682	pCi/l			
Radium-226	SM 7500 Ra B M*	0.255 +/- 0.130	0.123	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	0.443 +/- 0.443	0.559	pCi/l	10/31/16	11/03/16	JR



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161009
 Date Reported : 11/15/16
 Date Received : 10/17/16
 Page Number : 3 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161009-05
Client ID : MW-903
Date Sampled : 10/13/2016 3:50:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.911 +/- 0.574	0.778	pCi/l			
Radium-226	SM 7500 Ra B M*	0.007 +/- 0.033	0.081	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	0.904 +/- 0.541	0.697	pCi/l	10/31/16	11/03/16	JR

Lab ID : 20161009-06
Client ID : MW-902
Date Sampled : 10/13/2016 4:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.320 +/- 0.593	0.689	pCi/l			
Radium-226	SM 7500 Ra B M*	0.320 +/- 0.146	0.096	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	-0.262 +/- 0.447	0.593	pCi/l	10/31/16	11/03/16	JR

Lab ID : 20161009-07
Client ID : MW-901
Date Sampled : 10/14/2016 9:50:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.407 +/- 0.659	0.821	pCi/l			
Radium-226	SM 7500 Ra B M*	0.306 +/- 0.135	0.108	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	0.101 +/- 0.524	0.713	pCi/l	10/31/16	11/03/16	JR

Lab ID : 20161009-08
Client ID : MW-905
Date Sampled : 10/14/2016 10:20:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.37 +/- 0.599	0.737	pCi/l			
Radium-226	SM 7500 Ra B M*	0.220 +/- 0.121	0.129	pCi/l	11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	1.15 +/- 0.478	0.608	pCi/l	10/31/16	11/03/16	JR



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161009
 Date Reported : 11/15/16
 Date Received : 10/17/16
 Page Number : 4 of 5

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161009-09
Client ID : MW-602
Date Sampled : 10/13/2016 11:50:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.896 +/- 0.527	0.651	pCi/l				
Radium-226	SM 7500 Ra B M*	0.125 +/- 0.115	0.146	pCi/l		11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	0.771 +/- 0.412	0.505	pCi/l		10/31/16	11/03/16	JR

Lab ID : 20161009-10
Client ID : MW-13
Date Sampled : 10/13/2016 1:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.613 +/- 0.644	0.860	pCi/l				
Radium-226	SM 7500 Ra B M*	0.029 +/- 0.096	0.164	pCi/l		11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	0.584 +/- 0.548	0.696	pCi/l		10/31/16	11/03/16	JR

Lab ID : 20161009-11
Client ID : MW-7
Date Sampled : 10/13/2016 3:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.82 +/- 0.635	0.692	pCi/l				
Radium-226	SM 7500 Ra B M*	0.820 +/- 0.208	0.151	pCi/l		11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	1.00 +/- 0.427	0.541	pCi/l		10/31/16	11/03/16	JR

Lab ID : 20161009-12
Client ID : MW-6
Date Sampled : 10/13/2016 5:30:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.89 +/- 0.717	0.941	pCi/l				
Radium-226	SM 7500 Ra B M*	0.208 +/- 0.143	0.186	pCi/l		11/07/16	11/09/16	AK
Radium-228	EPA 904*/9320*	1.68 +/- 0.574	0.755	pCi/l		10/31/16	11/03/16	JR



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161009
 Date Reported : 11/15/16
 Date Received : 10/17/16
 Page Number : 5 of 5

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.000	108.0			NC	0.454	124.0	104.0	17.6	R1157
Radium-228	-0.354	84.5			NC	0.300	99.7	98.2	1.4	R3874

Lab Approval:

Ron Eidson
 Director of Radiochemistry

AECOM - Overland Park, KS

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Overland Park, KS 66210

Billing Information & Quote Number:
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Email To: brian.linnan@aecom.com;
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Description: **La Cygne Generating Station**

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Fax: 913-344-1011

Client Project #
URSKC-LACYGNE

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P.O. #
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Jim Muckler + Terry Andrews
 Collected by (signature):
Jim Muckler
 Immediately Packed on ice N Y X

Date Results Needed
 Email? ___ No X ___ Yes
 FAX? ___ No ___ Yes
 No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs
MW-951	Grab	NPW		10-13-16	09:40	2
MW-803A	Grab	NPW		10-13-16	10:15	2
MW-14R	Grab	NPW		10-13-16	11:25	2
MW-601	Grab	NPW		10-13-16	12:20	2
MW-903	Grab	NPW		10-13-16	15:50	2
MW-902	Grab	NPW		10-13-16	16:15	2
MW-901	Grab	NPW		10-14-16	9:50	2
MW-905	Grab	NPW		10-14-16	10:20	2
		NPW				2
		NPW				2

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

[Handwritten signature]

Chain of Custody Page of

ESC
L.A.B S.C.I.E.N.C.E.S.

YOUR LAB OF CHOICE

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

L# **866569**
 Table #
 Account: **URSKC**
 Template: **T112863**
 Prelogin: **P570767**
 TSR: **206 - Jeff Carr**
 PB:
 Shipped Via:
 Item/Contaminant Sample # (lab only)

[Handwritten number] 274009

* Matrix: SS - Soil GW - Groundwater WW - Waste Water DW - Drinking Water OT - Other

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

PH Temp

Flow Other

Hold #

Condition: (lab use only)

COC Seal Intact: Y N X

pH Checked: NCF:

Received by: (Signature) *[Signature]* Time: 14:02 Date: 10-14-16

Received by: (Signature) *[Signature]* Time: Date:

Received by: (Signature) *[Signature]* Time: Date:

Temp: °C Bottles Received:

Date: Time:

Date: 10/17/16 Time: 1440

Analysis / Container / Preservative

Hold # _____
Condition: (lab use only)
COC Seal Intact: Y N X NA
pH Checked: 72 NGF:

Billing Information & Quote Number:
Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

AECOM - Overland Park, KS
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Project
Description: **La Cygne Generating Station**

Lab Project # **URSKC-LACYGNE**
P.O. # **URSKC1028155**

City/State Collected: _____
Lab Project # **URSKC-LACYGNE**
P.O. # **URSKC1028155**

Date Results Needed

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs
MW-602	Grab	NPW		10/13	1150	2 X
MW-13	↓	NPW		1340		2 X
MW-7	↓	NPW		1515		2 X
MW-6	↓	NPW		1730		2 X

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs
MW-602	Grab	NPW		10/13	1150	2 X
MW-13	↓	NPW		1340		2 X
MW-7	↓	NPW		1515		2 X
MW-6	↓	NPW		1730		2 X

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

* Matrix: SS - Soil GW - Groundwater WW - Waste Water DW - Drinking Water OT - Other

Temp: _____ °C
Flow: _____
pH: _____

Received by: (Signature) _____ Time: 14:02
Date: 10-14-16

Received by: (Signature) _____ Time: _____
Date: _____

Received by: (Signature) _____ Time: _____
Date: _____

Temp: **Ambs** °C Bottles Received: **24**
Date: **10/17/16** Time: **1440**

2016/10/29

[Handwritten signature]

ORL RA-226, RA-228 1L-HDPE-Add HN03

SAMPLE LOGIN

Date Received: 10/17/2016 2:46:1

Lab Number: 20161009

Due: 11/14/2016

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20161009-01 B	MW-951	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-01 A	MW-951	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-02 A	MW-803A	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-02 B	MW-803A	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-03 A	MW-14R	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-03 B	MW-14R	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-04 A	MW-601	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-04 B	MW-601	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-05 A	MW-903	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-05 B	MW-903	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-06 B	MW-902	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-06 A	MW-902	NPW	10/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-07 B	MW-901	NPW	10/14/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-07 A	MW-901	NPW	10/14/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

20161009-08 A	MW-905	NPW	10/14/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-08 B	MW-905	NPW	10/14/16	Plastic	I L	HNO ₃ , pH ≤ 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-09 A	MW-602	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-09 B	MW-602	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-10 A	MW-13	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-10 B	MW-13	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-11 A	MW-7	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-11 B	MW-7	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161009-12 B	MW-6	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161009-12 A	MW-6	NPW	10/13/16	Plastic	I L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken Temperature: Amb C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete N/A

Anomalies

Inspected By: [Signature] DATE 10/17/16
QA or Designee Review: Ronald Thomas DATE 10/17/16
Sample Custodian Review: Auto Mem DATE 10/17/16

Project Notes:

Jared Morrison
December 16, 2022

ATTACHMENT 1-4
December 2016 Sampling Event Laboratory Report

AECOM - Overland Park, KS

Sample Delivery Group: L878474
Samples Received: 12/14/2016
Project Number:
Description: La Cygne Generating Station

Report To: Brian Linnan
8300 College Blvd., Suite 200
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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SAMPLE SUMMARY



MW-903 L878474-01 GW

			Collected by JM / DH	Collected date/time 12/09/16 14:50	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:12	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:03	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:05	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 19:26	12/15/16 19:26	KCF
Wet Chemistry by Method 9056A	WG935290	50	12/15/16 19:36	12/15/16 19:36	KCF

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

MW-14R L878474-02 GW

			Collected by JM / DH	Collected date/time 12/09/16 15:55	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:15	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:11	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:09	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 19:46	12/15/16 19:46	KCF

6 Qc

7 Gl

8 Al

9 Sc

MW-905 L878474-03 GW

			Collected by JM / DH	Collected date/time 12/09/16 15:10	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:17	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:14	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:12	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 19:56	12/15/16 19:56	KCF

MW-902 L878474-04 GW

			Collected by JM / DH	Collected date/time 12/12/16 10:30	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935741	1	12/16/16 17:45	12/16/16 18:30	MMF
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:20	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:17	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:26	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 20:27	12/15/16 20:27	KCF

MW-901 L878474-05 GW

			Collected by JM / DH	Collected date/time 12/12/16 10:50	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935741	1	12/16/16 17:45	12/16/16 18:30	MMF
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:22	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:19	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:30	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 20:37	12/15/16 20:37	KCF

SAMPLE SUMMARY



MW-13 L878474-06 GW

			Collected by JM / DH	Collected date/time 12/13/16 12:00	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG936116	1	12/19/16 15:27	12/19/16 16:00	MMF
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:25	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:22	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:33	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 20:47	12/15/16 20:47	KCF
Wet Chemistry by Method 9056A	WG935290	50	12/15/16 20:57	12/15/16 20:57	KCF

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

MW-6 L878474-07 GW

			Collected by JM / DH	Collected date/time 12/12/16 16:10	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935741	1	12/16/16 17:45	12/16/16 18:30	MMF
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:27	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:25	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:37	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 21:08	12/15/16 21:08	KCF
Wet Chemistry by Method 9056A	WG935290	10	12/15/16 21:18	12/15/16 21:18	KCF

MW-7 L878474-08 GW

			Collected by JM / DH	Collected date/time 12/12/16 15:05	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935741	1	12/16/16 17:45	12/16/16 18:30	MMF
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:38	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:28	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:40	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 21:28	12/15/16 21:28	KCF

MW-702 L878474-09 GW

			Collected by JM / DH	Collected date/time 12/08/16 09:15	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935407	1	12/15/16 21:41	12/15/16 23:30	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:40	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:30	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:44	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 21:48	12/15/16 21:48	KCF

MW-708 L878474-10 GW

			Collected by JM / DH	Collected date/time 12/09/16 09:40	Received date/time 12/14/16 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:43	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:33	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:47	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 22:29	12/15/16 22:29	KCF

SAMPLE SUMMARY



MW-10 L878474-11 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 19:44	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 12:48	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 11:51	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 22:39	12/15/16 22:39	KCF

Collected by JM / DH
Collected date/time 12/09/16 11:30
Received date/time 12/14/16 09:00



MW-11 L878474-12 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:45	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:36	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:51	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 23:09	12/15/16 23:09	KCF
Wet Chemistry by Method 9056A	WG935290	10	12/15/16 23:20	12/15/16 23:20	KCF

Collected by JM / DH
Collected date/time 12/09/16 13:30
Received date/time 12/14/16 09:00

MW-602 L878474-13 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG935408	1	12/15/16 21:49	12/16/16 01:12	JM
Mercury by Method 7470A	WG935534	1	12/15/16 12:27	12/15/16 20:48	NJB
Metals (ICP) by Method 6010B	WG935359	1	12/15/16 08:45	12/15/16 13:44	CCE
Metals (ICPMS) by Method 6020	WG935499	1	12/15/16 08:47	12/15/16 12:54	JPD
Wet Chemistry by Method 9040C	WG935592	1	12/21/16 11:13	12/21/16 11:13	MHM
Wet Chemistry by Method 9056A	WG935290	1	12/15/16 23:30	12/15/16 23:30	KCF

Collected by JM / DH
Collected date/time 12/09/16 14:25
Received date/time 12/14/16 09:00



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
Technical Service Representative

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

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L878474-01	MW-903	9040C
L878474-02	MW-14R	9040C
L878474-03	MW-905	9040C
L878474-04	MW-902	9040C
L878474-05	MW-901	9040C
L878474-06	MW-13	9040C
L878474-07	MW-6	9040C
L878474-08	MW-7	9040C
L878474-09	MW-702	9040C
L878474-10	MW-708	9040C
L878474-11	MW-10	9040C
L878474-12	MW-11	9040C
L878474-13	MW-602	9040C



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2110		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.09		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-01 WG935592: 7.09 at 16.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	24.3		1.00	1	12/15/2016 19:26	WG935290
Fluoride	0.104		0.100	1	12/15/2016 19:26	WG935290
Sulfate	899		250	50	12/15/2016 19:36	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:12	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.386		0.200	1	12/15/2016 13:03	WG935359
Lithium	0.0462		0.0150	1	12/15/2016 13:03	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:03	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:05	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:05	WG935499
Barium	0.0160		0.00500	1	12/15/2016 12:05	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:05	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:05	WG935499
Calcium	331		1.00	1	12/15/2016 12:05	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:05	WG935499
Cobalt	0.00294		0.00200	1	12/15/2016 12:05	WG935499
Lead	ND		0.00200	1	12/15/2016 12:05	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:05	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:05	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	533		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-02 WG935592: 7.95 at 14.3c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3.86		1.00	1	12/15/2016 19:46	WG935290
Fluoride	0.178		0.100	1	12/15/2016 19:46	WG935290
Sulfate	34.9		5.00	1	12/15/2016 19:46	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:15	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.427		0.200	1	12/15/2016 13:11	WG935359
Lithium	0.0326		0.0150	1	12/15/2016 13:11	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:11	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:09	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:09	WG935499
Barium	0.0374		0.00500	1	12/15/2016 12:09	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:09	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:09	WG935499
Calcium	56.4		1.00	1	12/15/2016 12:09	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:09	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:09	WG935499
Lead	ND		0.00200	1	12/15/2016 12:09	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:09	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:09	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	584		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.59		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-03 WG935592: 7.59 at 13.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	48.6		1.00	1	12/15/2016 19:56	WG935290
Fluoride	0.444		0.100	1	12/15/2016 19:56	WG935290
Sulfate	28.5		5.00	1	12/15/2016 19:56	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:17	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.84		0.200	1	12/15/2016 13:14	WG935359
Lithium	0.0591		0.0150	1	12/15/2016 13:14	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:14	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:12	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:12	WG935499
Barium	0.105		0.00500	1	12/15/2016 12:12	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:12	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:12	WG935499
Calcium	49.7		1.00	1	12/15/2016 12:12	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:12	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:12	WG935499
Lead	ND		0.00200	1	12/15/2016 12:12	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:12	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:12	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	517		10.0	1	12/16/2016 18:30	WG935741

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.79		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-04 WG935592: 7.79 at 12.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	31.0		1.00	1	12/15/2016 20:27	WG935290
Fluoride	0.404		0.100	1	12/15/2016 20:27	WG935290
Sulfate	27.4		5.00	1	12/15/2016 20:27	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:20	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.22		0.200	1	12/15/2016 13:17	WG935359
Lithium	0.0326		0.0150	1	12/15/2016 13:17	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:17	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:26	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:26	WG935499
Barium	0.111		0.00500	1	12/15/2016 12:26	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:26	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:26	WG935499
Calcium	66.3		1.00	1	12/15/2016 12:26	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:26	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:26	WG935499
Lead	ND		0.00200	1	12/15/2016 12:26	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:26	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:26	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	524		10.0	1	12/16/2016 18:30	WG935741

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.58		1	12/21/2016 11:13	WG935592

Sample Narrative:

9040C L878474-05 WG935592: 7.58 at 13.2c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	20.9		1.00	1	12/15/2016 20:37	WG935290
Fluoride	0.413		0.100	1	12/15/2016 20:37	WG935290
Sulfate	14.5		5.00	1	12/15/2016 20:37	WG935290

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:22	WG935534

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.17		0.200	1	12/15/2016 13:19	WG935359
Lithium	0.0443		0.0150	1	12/15/2016 13:19	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:19	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:30	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:30	WG935499
Barium	0.195		0.00500	1	12/15/2016 12:30	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:30	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:30	WG935499
Calcium	56.9		1.00	1	12/15/2016 12:30	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:30	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:30	WG935499
Lead	ND		0.00200	1	12/15/2016 12:30	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:30	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:30	WG935499

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2590		10.0	1	12/19/2016 16:00	WG936116

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.32		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-06 WG935592: 7.32 at 18.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	16.4		1.00	1	12/15/2016 20:47	WG935290
Fluoride	0.142		0.100	1	12/15/2016 20:47	WG935290
Sulfate	1270		250	50	12/15/2016 20:57	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:25	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.403		0.200	1	12/15/2016 13:22	WG935359
Lithium	0.0507		0.0150	1	12/15/2016 13:22	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:22	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:33	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:33	WG935499
Barium	0.0181		0.00500	1	12/15/2016 12:33	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:33	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:33	WG935499
Calcium	336		1.00	1	12/15/2016 12:33	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:33	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:33	WG935499
Lead	ND		0.00200	1	12/15/2016 12:33	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:33	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:33	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1220		10.0	1	12/16/2016 18:30	WG935741

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.47		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-07 WG935592: 7.47 at 17.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	189		10.0	10	12/15/2016 21:18	WG935290
Fluoride	0.401		0.100	1	12/15/2016 21:08	WG935290
Sulfate	160		50.0	10	12/15/2016 21:18	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:27	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.18		0.200	1	12/15/2016 13:25	WG935359
Lithium	0.0456		0.0150	1	12/15/2016 13:25	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:25	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:37	WG935499
Arsenic	0.00515		0.00200	1	12/15/2016 12:37	WG935499
Barium	0.168		0.00500	1	12/15/2016 12:37	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:37	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:37	WG935499
Calcium	103		1.00	1	12/15/2016 12:37	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:37	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:37	WG935499
Lead	ND		0.00200	1	12/15/2016 12:37	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:37	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:37	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	902		10.0	1	12/16/2016 18:30	WG935741

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.21		1	12/21/2016 11:13	WG935592

Sample Narrative:

9040C L878474-08 WG935592: 8.21 at 15.4c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	98.0		1.00	1	12/15/2016 21:28	WG935290
Fluoride	1.13		0.100	1	12/15/2016 21:28	WG935290
Sulfate	ND		5.00	1	12/15/2016 21:28	WG935290

Mercury by Method 7470A

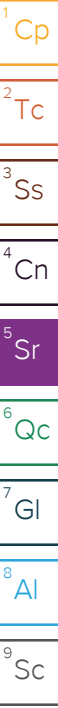
Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	12/15/2016 20:38	WG935534

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Boron	1.60		0.200	1	12/15/2016 13:28	WG935359
Lithium	0.0713		0.0150	1	12/15/2016 13:28	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:28	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	12/15/2016 12:40	WG935499
Arsenic	0.00278		0.00200	1	12/15/2016 12:40	WG935499
Barium	0.552		0.00500	1	12/15/2016 12:40	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:40	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:40	WG935499
Calcium	23.2		1.00	1	12/15/2016 12:40	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:40	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:40	WG935499
Lead	ND		0.00200	1	12/15/2016 12:40	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:40	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:40	WG935499





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	783		10.0	1	12/15/2016 23:30	WG935407

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.13		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-09 WG935592: 8.13 at 14.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	46.7		1.00	1	12/15/2016 21:48	WG935290
Fluoride	1.39		0.100	1	12/15/2016 21:48	WG935290
Sulfate	ND		5.00	1	12/15/2016 21:48	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:40	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.81		0.200	1	12/15/2016 13:30	WG935359
Lithium	0.0671		0.0150	1	12/15/2016 13:30	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:30	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:44	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:44	WG935499
Barium	0.376		0.00500	1	12/15/2016 12:44	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:44	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:44	WG935499
Calcium	19.4		1.00	1	12/15/2016 12:44	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:44	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:44	WG935499
Lead	ND		0.00200	1	12/15/2016 12:44	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:44	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:44	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	639		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.05		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-10 WG935592: 8.05 at 15.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	44.4		1.00	1	12/15/2016 22:29	WG935290
Fluoride	0.548		0.100	1	12/15/2016 22:29	WG935290
Sulfate	8.72		5.00	1	12/15/2016 22:29	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:43	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.44		0.200	1	12/15/2016 13:33	WG935359
Lithium	0.0687		0.0150	1	12/15/2016 13:33	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:33	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:47	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:47	WG935499
Barium	0.257		0.00500	1	12/15/2016 12:47	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:47	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:47	WG935499
Calcium	30.7		1.00	1	12/15/2016 12:47	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:47	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:47	WG935499
Lead	ND		0.00200	1	12/15/2016 12:47	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:47	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:47	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	612		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.60		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-11 WG935592: 7.60 at 15.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	66.6		1.00	1	12/15/2016 22:39	WG935290
Fluoride	0.299		0.100	1	12/15/2016 22:39	WG935290
Sulfate	26.8		5.00	1	12/15/2016 22:39	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 19:44	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.940		0.200	1	12/15/2016 12:48	WG935359
Lithium	0.0382		0.0150	1	12/15/2016 12:48	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 12:48	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 11:51	WG935499
Arsenic	0.00326		0.00200	1	12/15/2016 11:51	WG935499
Barium	0.312		0.00500	1	12/15/2016 11:51	WG935499
Beryllium	ND		0.00200	1	12/15/2016 11:51	WG935499
Cadmium	ND		0.00100	1	12/15/2016 11:51	WG935499
Calcium	59.0	<u>O1</u>	1.00	1	12/15/2016 11:51	WG935499
Chromium	ND		0.00200	1	12/15/2016 11:51	WG935499
Cobalt	ND		0.00200	1	12/15/2016 11:51	WG935499
Lead	ND		0.00200	1	12/15/2016 11:51	WG935499
Selenium	ND		0.00200	1	12/15/2016 11:51	WG935499
Thallium	ND		0.00200	1	12/15/2016 11:51	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1100		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.93		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-12 WG935592: 7.93 at 14.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	107		10.0	10	12/15/2016 23:20	WG935290
Fluoride	0.425		0.100	1	12/15/2016 23:09	WG935290
Sulfate	215		50.0	10	12/15/2016 23:20	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:45	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.786		0.200	1	12/15/2016 13:36	WG935359
Lithium	0.0577		0.0150	1	12/15/2016 13:36	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:36	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:51	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:51	WG935499
Barium	0.0332		0.00500	1	12/15/2016 12:51	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:51	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:51	WG935499
Calcium	67.1		1.00	1	12/15/2016 12:51	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:51	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:51	WG935499
Lead	ND		0.00200	1	12/15/2016 12:51	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:51	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:51	WG935499



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	614		10.0	1	12/16/2016 01:12	WG935408

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.02		1	12/21/2016 11:13	WG935592

3 Ss

4 Cn

Sample Narrative:

9040C L878474-13 WG935592: 8.02 at 15.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	16.4		1.00	1	12/15/2016 23:30	WG935290
Fluoride	1.16		0.100	1	12/15/2016 23:30	WG935290
Sulfate	24.2		5.00	1	12/15/2016 23:30	WG935290

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	12/15/2016 20:48	WG935534

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.34		0.200	1	12/15/2016 13:44	WG935359
Lithium	0.0533		0.0150	1	12/15/2016 13:44	WG935359
Molybdenum	ND		0.00500	1	12/15/2016 13:44	WG935359

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	12/15/2016 12:54	WG935499
Arsenic	ND		0.00200	1	12/15/2016 12:54	WG935499
Barium	0.0913		0.00500	1	12/15/2016 12:54	WG935499
Beryllium	ND		0.00200	1	12/15/2016 12:54	WG935499
Cadmium	ND		0.00100	1	12/15/2016 12:54	WG935499
Calcium	25.3		1.00	1	12/15/2016 12:54	WG935499
Chromium	ND		0.00200	1	12/15/2016 12:54	WG935499
Cobalt	ND		0.00200	1	12/15/2016 12:54	WG935499
Lead	ND		0.00200	1	12/15/2016 12:54	WG935499
Selenium	ND		0.00200	1	12/15/2016 12:54	WG935499
Thallium	ND		0.00200	1	12/15/2016 12:54	WG935499



Method Blank (MB)

(MB) R3185364-1 12/15/16 23:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L877474-01 Original Sample (OS) • Duplicate (DUP)

(OS) L877474-01 12/15/16 23:30 • (DUP) R3185364-4 12/15/16 23:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	168	163	1	3.02		5

⁷ Gl

⁸ Al

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

(LCS) R3185364-2 12/15/16 23:30 • (LCSD) R3185364-3 12/15/16 23:30

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8420	8810	95.7	100	85.0-115			4.53	5

⁹ Sc



Method Blank (MB)

(MB) R3185366-1 12/16/16 01:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L877998-01 Original Sample (OS) • Duplicate (DUP)

(OS) L877998-01 12/16/16 01:12 • (DUP) R3185366-4 12/16/16 01:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	298	289	1	3.07		5

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

(LCS) R3185366-2 12/16/16 01:12 • (LCSD) R3185366-3 12/16/16 01:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8270	8630	94.0	98.1	85.0-115			4.26	5



Method Blank (MB)

(MB) R3185660-1 12/16/16 18:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L878645-01 Original Sample (OS) • Duplicate (DUP)

(OS) L878645-01 12/16/16 18:30 • (DUP) R3185660-4 12/16/16 18:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1150	1190	1	3.20		5

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

(LCS) R3185660-2 12/16/16 18:30 • (LCSD) R3185660-3 12/16/16 18:30

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8490	8480	96.5	96.4	85.0-115			0.118	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3186047-1 12/19/16 16:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L878474-06 Original Sample (OS) • Duplicate (DUP)

(OS) L878474-06 12/19/16 16:00 • (DUP) R3186047-4 12/19/16 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2590	2570	1	0.777		5

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

(LCS) R3186047-2 12/19/16 16:00 • (LCSD) R3186047-3 12/19/16 16:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8220	8460	93.4	96.1	85.0-115			2.88	5

⁷ Gl

⁸ Al

⁹ Sc



L878411-01 Original Sample (OS) • Duplicate (DUP)

(OS) L878411-01 12/21/16 11:13 • (DUP) WG935592-3 12/21/16 11:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.76	7.75	1	0.129		1

L878513-01 Original Sample (OS) • Duplicate (DUP)

(OS) L878513-01 12/21/16 11:13 • (DUP) WG935592-4 12/21/16 11:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	11.9	11.9	1	0.000		1

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

(LCS) WG935592-1 12/21/16 11:13 • (LCSD) WG935592-2 12/21/16 11:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.07	6.08	6.07	100	100	98.4-102			0.165	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3185179-1 12/15/16 14:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L878376-01 Original Sample (OS) • Duplicate (DUP)

(OS) L878376-01 12/15/16 17:24 • (DUP) R3185179-4 12/15/16 17:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	6.11	6.09	1	0		15
Fluoride	1.25	1.24	1	1		15

L878474-09 Original Sample (OS) • Duplicate (DUP)

(OS) L878474-09 12/15/16 21:48 • (DUP) R3185179-7 12/15/16 22:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	46.7	46.8	1	0		15
Fluoride	1.39	1.39	1	0		15
Sulfate	ND	2.48	1	0	J	15

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

(LCS) R3185179-2 12/15/16 15:02 • (LCSD) R3185179-3 12/15/16 15:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	38.5	38.6	96	97	80-120			0	15
Fluoride	8.00	8.05	8.07	101	101	80-120			0	15
Sulfate	40.0	37.8	37.9	94	95	80-120			0	15

L878426-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L878426-02 12/15/16 18:05 • (MS) R3185179-5 12/15/16 18:35 • (MSD) R3185179-6 12/15/16 18:45

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	77.4	127	125	98	94	1	80-120	E	E	2	15
Fluoride	5.00	0.155	5.20	5.04	101	98	1	80-120			3	15
Sulfate	50.0	74.4	120	120	91	91	1	80-120	E	E	0	15



L878474-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L878474-11 12/15/16 22:39 • (MS) R3185179-8 12/15/16 22:49 • (MSD) R3185179-9 12/15/16 22:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	66.6	115	113	96	93	1	80-120	E	E	1	15
Fluoride	5.00	0.299	5.27	5.19	99	98	1	80-120			2	15
Sulfate	50.0	26.8	74.5	74.5	95	95	1	80-120			0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3185030-1 12/15/16 19:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3185030-2 12/15/16 19:39 • (LCSD) R3185030-3 12/15/16 19:42

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00281	0.00306	94	102	80-120			8	20

L878474-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L878474-11 12/15/16 19:44 • (MS) R3185030-4 12/15/16 19:47 • (MSD) R3185030-5 12/15/16 19:49

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00310	0.00309	103	103	1	75-125			0	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3184945-1 12/15/16 12:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) R3184945-2 12/15/16 12:43 • (LCSD) R3184945-3 12/15/16 12:45

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.976	0.982	98	98	80-120			1	20
Lithium	1.00	0.973	0.984	97	98	80-120			1	20
Molybdenum	1.00	1.03	1.04	103	104	80-120			1	20

L878474-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L878474-11 12/15/16 12:48 • (MS) R3184945-5 12/15/16 12:53 • (MSD) R3184945-6 12/15/16 12:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.940	1.86	1.91	92	97	1	75-125			2	20
Lithium	1.00	0.0382	0.992	1.00	95	97	1	75-125			1	20
Molybdenum	1.00	ND	1.03	1.04	103	104	1	75-125			1	20



Method Blank (MB)

(MB) R3184906-1 12/15/16 11:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	0.000313	J	0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3184906-2 12/15/16 11:45 • (LCSD) R3184906-3 12/15/16 11:48

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0579	0.0500	0.0503	86	87	80-120			1	20
Arsenic	0.0500	0.0468	0.0470	94	94	80-120			0	20
Barium	0.0500	0.0469	0.0472	94	94	80-120			1	20
Beryllium	0.0500	0.0456	0.0449	91	90	80-120			2	20
Cadmium	0.0500	0.0505	0.0487	101	97	80-120			4	20
Calcium	5.00	4.88	4.71	98	94	80-120			3	20
Chromium	0.0500	0.0486	0.0487	97	97	80-120			0	20
Cobalt	0.0500	0.0492	0.0496	98	99	80-120			1	20
Lead	0.0500	0.0481	0.0483	96	97	80-120			0	20
Selenium	0.0500	0.0476	0.0474	95	95	80-120			1	20
Thallium	0.0500	0.0483	0.0483	97	97	80-120			0	20

L878474-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L878474-11 12/15/16 11:51 • (MS) R3184906-5 12/15/16 11:58 • (MSD) R3184906-6 12/15/16 12:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Antimony	0.0579	ND	0.0516	0.0514	89	89	1	75-125			0	20
Arsenic	0.0500	0.00326	0.0503	0.0486	94	91	1	75-125			3	20
Barium	0.0500	0.312	0.355	0.358	87	92	1	75-125			1	20
Beryllium	0.0500	ND	0.0443	0.0447	89	89	1	75-125			1	20
Cadmium	0.0500	ND	0.0489	0.0489	98	98	1	75-125			0	20



[L878474-01,02,03,04,05,06,07,08,09,10,11,12,13](#)

L878474-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L878474-11 12/15/16 11:51 • (MS) R3184906-5 12/15/16 11:58 • (MSD) R3184906-6 12/15/16 12:02

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	59.0	62.8	62.9	77	78	1	75-125			0	20
Chromium	0.0500	ND	0.0478	0.0461	96	92	1	75-125			4	20
Cobalt	0.0500	ND	0.0476	0.0464	95	93	1	75-125			2	20
Lead	0.0500	ND	0.0485	0.0482	97	96	1	75-125			1	20
Selenium	0.0500	ND	0.0490	0.0466	98	93	1	75-125			5	20
Thallium	0.0500	ND	0.0488	0.0485	98	97	1	75-125			1	20

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



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

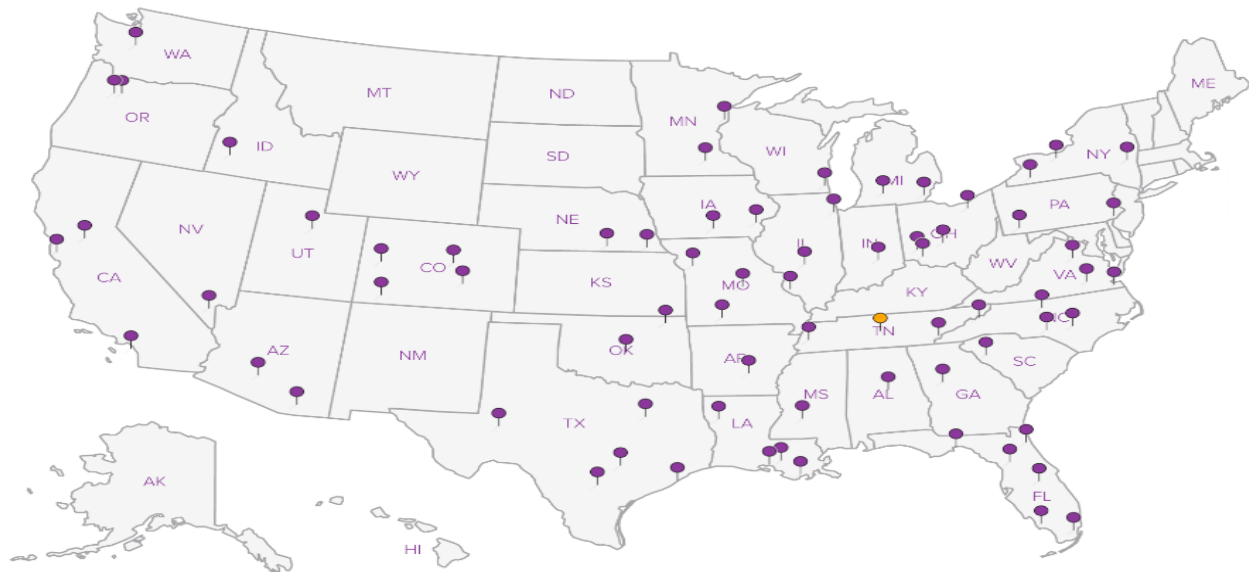
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



AECOM - Overland Park, KS

830 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information & Quote Number:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Analysis / Container / Preservative

Chain of Custody Page 1 of 4



YOUR LAB OF CHOICE

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



Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Daryle Harrison

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):
Jim Muckler

Rush? (Lab MUST Be Notified)

Date Results Needed

___ Same Day200%
___ Next Day100%
___ Two Day50%
___ Three Day25%

Email? ___ No **X** Yes

FAX? ___ No ___ Yes

Immediately Packed on Ice N ___ Y **X**

No. of
Entrs

Anions - Cl, F, SO4 250mlHDPE-NoPres

TDS, pH 250mlHDPE-NoPres

Total Metals 250mlHDPE-HNO3

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Entrs	Anions - Cl, F, SO4 250mlHDPE-NoPres	TDS, pH 250mlHDPE-NoPres	Total Metals 250mlHDPE-HNO3										
MW-903	Grab	GW		12-9-16	14:50	3	X	X	X										
MW-14R	Grab	GW		12-9-16	15:55	3	X	X	X										01
MW-905	Grab	GW		12-9-16	15:10	3	X	X	X										02
MW-902	Grab	GW		12-12-16	10:30	3	X	X	X										03
MW-901	Grab	GW		12-12-16	10:50	3	X	X	X										04
MW-13	Grab	GW		12-13-16	12:00	3	X	X	X										05
MW-6	Grab	GW		12-12-16	16:10	3	X	X	X										06
MW-7	Grab	GW		12-12-16	15:05	3	X	X	X										07
MW-4	Grab	GW		12-12-16	Jim	3	X	X	X										08
		GW				3	X	X	X										

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

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

pH _____ Temp _____
Flow _____ Other _____

Please indicate sample ID for the MS/MSD.

Relinquished by: (Signature) <i>Jim Muckler</i>	Date: 12-13-16	Time: 15:30	Received by: (Signature) <i>Jeff Carr</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Hold #
Relinquished by: (Signature) <i>[Signature]</i>	Date: 12/13/16	Time: 1700	Received by: (Signature) <i>[Signature]</i>	Temp: 37 °C Bottles Received: 45	Condition: (lab use only) M ²
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 12-14-16 Time: 0900	COC Seal Intact: ___ Y ___ N ___ NA pH Checked: _____ NCF: _____

AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing information & Quote Number:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Daryle Harrison

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):
Jim Muckler

Rush? (Lab MUST Be Notified)
 Same Day 200%
 Next Day 100%
 Two Day 50%
 Three Day 25%

Date Results Needed

Email? No Yes
 FAX? No Yes

Immediately
 Packed on Ice N Y

No. of
 Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-903	Grab	NPW		12-9-16	14:50	2
MW-14R	Grab	NPW		12-9-16	15:55	2
MW-905	Grab	NPW		12-9-16	15:10	2
MW-902	Grab	NPW		12-12-16	10:30	2
MW-901	Grab	NPW		12-12-16	10:50	2
MW-13	Grab	NPW		12-13-16	12:00	2
MW-6	Grab	NPW		12-12-16	16:10	2
MW-7	Grab	NPW		12-12-16	15:05	2
		NPW				2
		NPW				2

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

Analysis / Container / Preservative

Chain of Custody Page 2 of 4



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



L # *MS/214*
373477

Table #

Acctnum: **URSKC**
 Template: **T112863**
 Prelogin: **P578228**
 TSR: 206 - Jeff Carr

PB:

Shipped Via:

Rem./Contaminant	Sample # (lab only)
	14
	15
	16
	17
	18
	19
	20
	21

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Sent to outreach

Relinquished by: (Signature) <i>Jim Muckler</i>	Date: 12-13-16	Time: 15:30	Received by: (Signature) <i>[Signature]</i>
Relinquished by: (Signature) <i>[Signature]</i>	Date: 12/31/16	Time: 1700	Received by: (Signature) <i>[Signature]</i>
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>

pH _____ Temp _____
 Flow _____ Other _____

Samples returned via: UPS
 FedEx Courier _____

Temp: _____ °C Bottles Received: **45**

Date: **12-14-16** Time: **0900**

Hold #

Condition: (lab use only)
mic

COC Seal Intact: Y N NA

pH Checked: NCF:

AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information & Quote Number:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Analysis / Container / Preservative

Chain of Custody Page 4 of 4



YOUR LAB OF CHOICE

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



Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):

Rush? (Lab MUST Be Notified)

Date Results Needed

___ Same Day200%
___ Next Day100%
___ Two Day50%
___ Three Day25%

Email? ___ No **X** Yes

FAX? ___ No ___ Yes

No.
of
Cntrs

Immediately
Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs													
MW-702	Grab	NPW		12/8	0915	2	X												
MW-708		NPW		12/9	0940	2	X												
MW-10		NPW			1130	2	X												
MW-10-MS		NPW			1130	2	X												
MW-10-MSD		NPW			1130	2	X												
MW-11		NPW			1330	2	X												
MW-602		NPW			1425	2	X												
		NPW				2	X												
		NPW				2	X												
		NPW				2	X												

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

L #
Table #
Acctnum: **URSKC**
Template: **T112863**
PrelogIn: **P578228**
TSR: **206 - Jeff Carr**
PB:
Shipped Via:
Rem./Contaminant Sample # (lab only)

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Samples returned via: UPS

Condition: (lab use only)

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: _____ °C Bottles Received:

COC Seal Intact: ___ Y ___ N **NA**

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: _____ Time: _____

pH Checked: _____ NCF: _____

** sent to outreach * MW-10 for MS/MSD*

[Signature]

12/19 1544

1544

[Signature]

FedEx Courier _____

[Signature]

12/13/16 1700

1700

[Signature]

3.1 45

[Signature]

12-14-16 0900

0900

[Signature]

12-14-16 0900

MW



Cooler Receipt Form

Client:	UPSKC	SDG#	878474
Cooler Received/Opened On:	12/14/16	Temperature Upon Receipt:	3.1 °C

Received By: Richard Hughes

Signature: *[Handwritten Signature]*

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			-
Were custody papers properly filled out?	-		
Did all bottles arrive in good condition?	-		
Were correct bottles used for the analyses requested?	-		
Was sufficient amount of sample sent in each bottle?	-		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			
If applicable, was an observable VOA headspace present?			-
Non Conformance Generated. (If yes see attached NCF)			

Case Narrative

Lab No: 20161219

This report contains the analytical results for the 15 sample(s) received under chain of custody by ESC Lab Sciences on 12/14/2016 11:41:20 AM. These samples are associated with your La Cygne Generating Station project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

Observations / Nonconformances

L878717



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161219
 Date Reported : 01/16/17
 Date Received : 12/14/16
 Page Number : 2 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161219-01
Client ID : MW-702
Date Sampled : 12/8/2016 9:15:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.522 +/- 0.773	0.859	pCi/l				
Radium-226 SM 7500 Ra B M*	0.522 +/- 0.255	0.262	pCi/l		12/27/16	01/03/17	AK
Radium-228 EPA 904*/9320*	-0.369 +/- 0.518	0.597	pCi/l		01/09/17	01/14/17	JR

Lab ID : 20161219-02
Client ID : MW-708
Date Sampled : 12/9/2016 9:40:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.29 +/- 0.680	0.769	pCi/l				
Radium-226 SM 7500 Ra B M*	0.365 +/- 0.174	0.193	pCi/l		12/27/16	01/05/17	AK
Radium-228 EPA 904*/9320*	0.922 +/- 0.506	0.576	pCi/l		01/09/17	01/14/17	JR

Lab ID : 20161219-03
Client ID : MW-10
Date Sampled : 12/9/2016 11:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.80 +/- 0.738	0.827	pCi/l				
Radium-226 SM 7500 Ra B M*	0.507 +/- 0.206	0.220	pCi/l		12/27/16	01/05/17	AK
Radium-228 EPA 904*/9320*	1.29 +/- 0.532	0.607	pCi/l		01/09/17	01/14/17	JR

Lab ID : 20161219-04
Client ID : MW-10-MS
Date Sampled : 12/9/2016 11:30:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226 SM 7500 Ra B M*	118		% Rec		12/27/16	12/30/16	AK
Radium-228 EPA 904*/9320*	97.1		% Rec		01/09/17	01/14/17	JR



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161219
 Date Reported : 01/16/17
 Date Received : 12/14/16
 Page Number : 3 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161219-05
Client ID : MW-10-MSD
Date Sampled : 12/9/2016 11:30:00 AM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	6.7	RPD		12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	4.5	RPD		01/09/17	01/14/17	JR

Lab ID : 20161219-06
Client ID : MW-11
Date Sampled : 12/9/2016 1:30:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.15 +/- 0.651	0.845	pCi/l			
Radium-226	SM 7500 Ra B M*	0.113 +/- 0.172	0.267	pCi/l	12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	1.04 +/- 0.479	0.578	pCi/l	01/09/17	01/14/17	JR

Lab ID : 20161219-07
Client ID : MW-602
Date Sampled : 12/9/2016 2:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.650 +/- 0.600	0.809	pCi/l			
Radium-226	SM 7500 Ra B M*	-0.169 +/- 0.176	0.354	pCi/l	12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	0.650 +/- 0.424	0.455	pCi/l	01/09/17	01/14/17	JR

Lab ID : 20161219-08
Client ID : MW-903
Date Sampled : 12/9/2016 2:50:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.24 +/- 0.720	0.848	pCi/l			
Radium-226	SM 7500 Ra B M*	0.063 +/- 0.127	0.202	pCi/l	12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	1.18 +/- 0.593	0.646	pCi/l	01/09/17	01/14/17	JR



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161219
 Date Reported : 01/16/17
 Date Received : 12/14/16
 Page Number : 4 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161219-09
Client ID : MW-14R
Date Sampled : 12/9/2016 3:55:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.634 +/- 0.575	0.613	pCi/l			
Radium-226	SM 7500 Ra B M*	0.286 +/- 0.148	0.126	pCi/l	12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	0.348 +/- 0.427	0.487	pCi/l	01/09/17	01/14/17	JR

Lab ID : 20161219-10
Client ID : MW-905
Date Sampled : 12/9/2016 3:10:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.529 +/- 0.726	0.807	pCi/l			
Radium-226	SM 7500 Ra B M*	0.334 +/- 0.160	0.145	pCi/l	12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	0.195 +/- 0.566	0.662	pCi/l	01/09/17	01/14/17	JR

Lab ID : 20161219-11
Client ID : MW-902
Date Sampled : 12/12/2016 10:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.168 +/- 0.628	0.810	pCi/l			
Radium-226	SM 7500 Ra B M*	0.168 +/- 0.178	0.258	pCi/l	12/27/16	12/30/16	AK
Radium-228	EPA 904*/9320*	-0.453 +/- 0.450	0.552	pCi/l	01/09/17	01/14/17	JR

Lab ID : 20161219-12
Client ID : MW-901
Date Sampled : 12/12/2016 10:50:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.932 +/- 0.698	0.900	pCi/l			
Radium-226	SM 7500 Ra B M*	0.222 +/- 0.239	0.352	pCi/l	12/27/16	01/05/17	AK
Radium-228	EPA 904*/9320*	0.710 +/- 0.459	0.548	pCi/l	01/09/17	01/14/17	JR



Client : AECOM
 Client Project : La Cygne Generating Station
 Lab Number : 20161219
 Date Reported : 01/16/17
 Date Received : 12/14/16
 Page Number : 5 of 6

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20161219-13
Client ID : MW-13
Date Sampled : 12/13/2016 12:00:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.000 +/- 0.548	0.777	pCi/l				
Radium-226	SM 7500 Ra B M*	-0.006 +/- 0.122	0.216	pCi/l		12/27/16	01/05/17	AK
Radium-228	EPA 904*/9320*	-0.155 +/- 0.426	0.561	pCi/l		01/09/17	01/14/17	JR

Lab ID : 20161219-14
Client ID : MW-6
Date Sampled : 12/12/2016 4:10:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.37 +/- 0.618	0.661	pCi/l				
Radium-226	SM 7500 Ra B M*	0.373 +/- 0.187	0.154	pCi/l		12/27/16	01/05/17	AK
Radium-228	EPA 904*/9320*	1.00 +/- 0.431	0.507	pCi/l		01/09/17	01/14/17	JR

Lab ID : 20161219-15
Client ID : MW-7
Date Sampled : 12/12/2016 3:05:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.55 +/- 0.684	0.613	pCi/l				
Radium-226	SM 7500 Ra B M*	0.747 +/- 0.233	0.151	pCi/l		12/27/16	01/05/17	AK
Radium-228	EPA 904*/9320*	0.804 +/- 0.451	0.462	pCi/l		01/09/17	01/14/17	JR



Client : AECOM
Client Project : La Cygne Generating Station
Lab Number : 20161219
Date Reported : 01/16/17
Date Received : 12/14/16
Page Number : 6 of 6

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.000	120.0			NC	0.321	118.0	110.0	6.7	R1175
Radium-228	0.018	98.4			140.0	1.680	97.1	92.1	4.5	R3904

Lab Approval:

Ron Eidson
Director of Radiochemistry

Analysis / Container / Preservative

Billing Information & Quote Number:
Dana Monroe - 1334927
 8300 College Blvd., Suite 200
 Overland Park, KS 66210

AECOM - Overland Park, KS
 8300 College Blvd., Suite 200
 Overland Park, KS 66210

Report to:
Brian Linnan
 Project Description: **La Cygne Generating Station**
 Phone: **913-344-1000**
 Fax: **913-344-1011**
 Collected by (print): **Gwyn Stokely**
 Collected by (signature): *[Signature]*
 Immediately Packed on Ice Y N

City/State Collected:
 Lab Project # **URSKC-LACYGNE**
 P.O. # **URSKC1028155**
 Date Results Needed
 Email? No Yes
 FAX? No Yes

Matrix *
 NPW
 NPW
 NPW
 NPW
 NPW
 NPW
 NPW
 NPW
 NPW

Sample ID
 1 MW-302
 2 MW-308
 3 MW-10
 4 MW-10-MS
 5 MW-10-MSD
 6 MW-11
 7 MW-602

Acctnum: **URSKC**
 Template: **T112863**
 Prelogin: **P578228**
 TSR: **206 Jeff Carr**
 PB:
 Shipped Via:
 Rem./Contaminant
 Sample # (lab only)

ORL-RA-226-RA-228 1L-HDPE-Add HNO3

Date
 12/18 0915
 12/19 0940
 1130
 1130
 1130
 1330
 1425

Comp/Grab
 Grab
 Grab
 Grab
 Grab
 Grab
 Grab
 Grab
 Grab

Temp
 20/6/12/19

Flow
 Temp returned via: UPS
 FedEx Courier

Temp: **Amb** °C
 Bottles Received: **30**
 Date: **12/14/16** Time: **1141**

Relinquished by: (Signature) *[Signature]*
 Relinquished by: (Signature) *[Signature]*
 Relinquished by: (Signature) *[Signature]*

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Entries
1 MW-302	Grab	NPW		12/18	0915	2
2 MW-308	Grab	NPW		12/19	0940	2
3 MW-10	Grab	NPW			1130	2
4 MW-10-MS	Grab	NPW			1130	2
5 MW-10-MSD	Grab	NPW			1130	2
6 MW-11	Grab	NPW			1330	2
7 MW-602	Grab	NPW			1425	2
		NPW				2
		NPW				2
		NPW				2

Matrix: **SS - Soil GW - Groundwater WW - Waste Water DW - Drinking Water OT - Other**
 Remarks: **Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.**
Mw-10 for MS/MSD

Relinquished by: (Signature) *[Signature]*
 Relinquished by: (Signature) *[Signature]*
 Relinquished by: (Signature) *[Signature]*

Date: **12/19** Time: **1544**
 Date: **12/13/16** Time: **1700**
 Date: Time:

Received by: (Signature) *[Signature]*
 Received by: (Signature) *[Signature]*
 Received by: (Signature) *[Signature]*

Hold # **20161219**
 Condition: (lab use only)
 COC Seal Intact: Y N NA
 pH Checked: NCF:

Account: **URSKC**
Template: **T112863**
Prelogin: **P578228**
TSR: 206 - Jeff Carr
PB:
Shipped Via:
Rem./Contaminant
Sample # (lab only)

Billing Information & Quote Number:
Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan
Project Description: **La Cygne Generating Station**

Client Project #
URSKC-LACYGNE

Site/Facility ID #
URSKC1028155

Collected by (print):
Jim Mueller + Daxyle Harrison

Collected by (signature):
Jim Mueller

Immediately Packed on Ice N Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date		Time	No. of Cntrs
				Email? <u> </u> No <u>X</u> Yes	FAX? <u> </u> No <u> </u> Yes		
8 MW-903	Grab	NPW		12-9-16		14:50	2 X
9 MW-14R	Grab	NPW		12-9-16		15:55	2 X
10 MW-905	Grab	NPW		12-9-16		15:10	2 X
11 MW-902	Grab	NPW		12-12-16		10:30	2 X
12 MW-901	Grab	NPW		12-12-16		10:50	2 X
13 MW-13	Grab	NPW		12-13-16		12:00	2 X
14 MW-6	Grab	NPW		12-12-16		16:10	2 X
15 MW-7	Grab	NPW		12-12-16		15:05	2 X
		NPW					2 X
		NPW					2 X

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

PH Temp

Flow Other

Samples returned via: UPS FedEx Courier

Temp: °C Bottles Received:

Date: Time:

Received by: (Signature) *[Signature]* Time:

Received by: (Signature) *[Signature]* Time:

Received by: (Signature) *[Signature]* Time:

Relinquished by: (Signature) *[Signature]* Date:

Relinquished by: (Signature) *[Signature]* Date:

Relinquished by: (Signature) *[Signature]* Date:

Hold # Condition: (lab use only)

COC Seal Intact: Y N NA

pH Checked: NCF:

Sub-Contract Chain of Custody

Environmental Science Corp
 12065 Lebanon Road
 Mt. Juliet, TN 37122
 (615) 773-9756 (615) 758-5859 fax

Sub-Contract Lab : ORLBAOK
 City / State : Broken Arrow, OK
 Res. Its Needed by : 1/12/17
 ESC Purchase Order # : S24858
 Send Reports To : Janice Cozby jcozby@esclabsciences.com

WORKGROUP **WG934489**
 Date Created : 12/12/2016

SAMPLENO Container #	MATRIX	Date / Time Collected	PARAMETER	Code	METHOD	Comments
L877538-01	DW	12/7/2016 15:35	Gross Alpha	ORL-GA	900	
S21732145 S21732146 S21732148 S21732147						
L877538-01	DW	12/7/2016 15:35	Radium 226	ORL-RA-226	SM 7500 Ra B	
S21732147 S21732148 S21732145 S21732146						
L877538-01	DW	12/7/2016 15:35	Radium 228	ORL-RA-228	904	
S21732146 S21732148 S21732145 S21732147						

Relinquished by _____ Date: 12/15/16
 Received by: [Signature] Date: 12/14/16 1306 ~~20161229~~
 Relinquished by _____ Date: 20161219
 Received by: _____ Date: _____

SAMPLE LOGIN

Date Received: 12/14/2016 11:41:

Lab Number: 20161219

Due: 1/13/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20161219-01 B	MW-702	NPW	12/08/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-01 A	MW-702	NPW	12/08/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-02 A	MW-708	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-02 B	MW-708	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-03 A	MW-10	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-03 B	MW-10	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-04 A	MW-10-MS	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-04 B	MW-10-MS	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-05 A	MW-10-MSD	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-05 B	MW-10-MSD	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-06 A	MW-11	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-06 B	MW-11	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-07 B	MW-602	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-07 A	MW-602	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

20161219-08 B	MW-903	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-08 A	MW-903	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-09 A	MW-14R	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-09 B	MW-14R	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-10 A	MW-905	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-10 B	MW-905	NPW	12/09/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-11 A	MW-902	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161219-11 B	MW-902	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-12 A	MW-901	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-12 B	MW-901	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-13 A	MW-13	NPW	12/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20161219-13 B	MW-13	NPW	12/13/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-14 A	MW-6	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-14 B	MW-6	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20161219-15 A	MW-7	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20161219-15 B	MW-7	NPW	12/12/16	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken Temperature: Auto Ice

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact

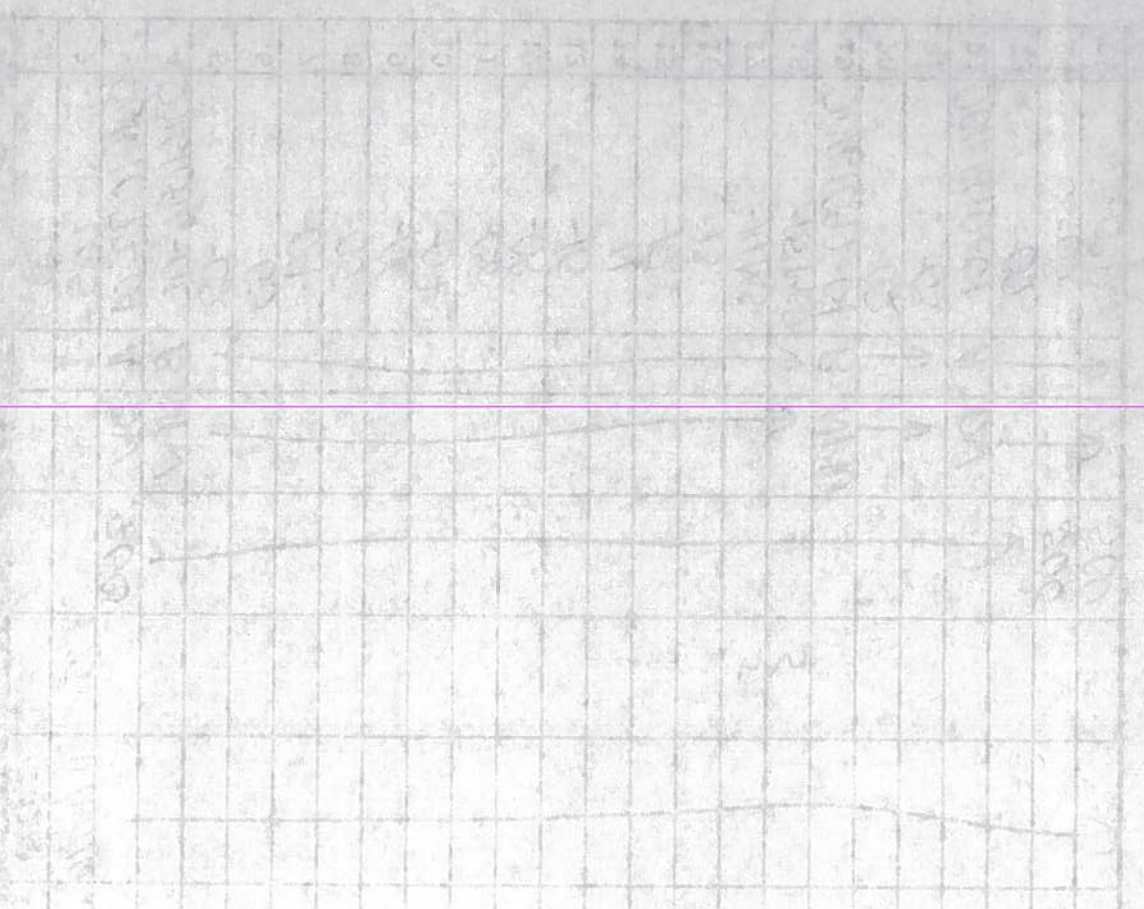
Anomalies

Radiation Survey: <300 cpm

Radiation Survey Complete N/A

Inspected By: [Signature] DATE 12/14/16
QA or Designee Review: Raymond Thomas DATE 12/14/16
Sample Custodian Review: _____ DATE _____

Project Notes:



Jared Morrison
December 16, 2022

ATTACHMENT 1-5
February 2017 Sampling Event Laboratory Report

AECOM - Overland Park, KS

Sample Delivery Group: L889664
Samples Received: 02/11/2017
Project Number: 60482842
Description: La Cygne Generating Station

Report To: Brian Linnan
8300 College Blvd., Suite 200
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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SAMPLE SUMMARY



MW-905 L889664-01 GW

						Collected by JM/TA/DH/DM	Collected date/time 02/08/17 15:45	Received date/time 02/11/17 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG952277	1	02/15/17 14:04	02/15/17 15:09	MCG			
Mercury by Method 7470A	WG952307	1	02/14/17 19:12	02/16/17 09:24	NJB			
Metals (ICP) by Method 6010B	WG952071	1	02/17/17 08:25	02/17/17 16:19	LTB			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/16/17 14:42	LAT			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/17/17 10:55	LAT			
Wet Chemistry by Method 9040C	WG952264	1	02/17/17 10:23	02/17/17 10:23	MHM			
Wet Chemistry by Method 9056A	WG952287	1	02/16/17 09:27	02/16/17 09:27	KCF			

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-901 L889664-02 GW

						Collected by JM/TA/DH/DM	Collected date/time 02/09/17 13:10	Received date/time 02/11/17 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG952720	1	02/16/17 00:58	02/16/17 05:21	JM			
Mercury by Method 7470A	WG952307	1	02/14/17 19:12	02/16/17 09:47	NJB			
Metals (ICP) by Method 6010B	WG952071	1	02/17/17 08:25	02/17/17 16:21	LTB			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/16/17 14:46	LAT			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/17/17 10:59	LAT			
Wet Chemistry by Method 9040C	WG953431	1	02/18/17 11:04	02/18/17 11:04	MHM			
Wet Chemistry by Method 9056A	WG952287	1	02/16/17 09:41	02/16/17 09:41	KCF			

6
Qc

7
Gl

8
Al

9
Sc

MW-14R L889664-03 GW

						Collected by JM/TA/DH/DM	Collected date/time 02/09/17 14:05	Received date/time 02/11/17 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG952720	1	02/16/17 00:58	02/16/17 05:21	JM			
Mercury by Method 7470A	WG952307	1	02/14/17 19:12	02/16/17 09:49	NJB			
Metals (ICP) by Method 6010B	WG952071	1	02/17/17 08:25	02/17/17 16:24	LTB			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/16/17 14:50	LAT			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/17/17 11:02	LAT			
Wet Chemistry by Method 9040C	WG953431	1	02/18/17 11:04	02/18/17 11:04	MHM			
Wet Chemistry by Method 9056A	WG952287	1	02/16/17 09:56	02/16/17 09:56	KCF			

MW-13 L889664-04 GW

						Collected by JM/TA/DH/DM	Collected date/time 02/10/17 12:15	Received date/time 02/11/17 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG952840	1	02/17/17 01:36	02/17/17 04:16	JM			
Mercury by Method 7470A	WG952307	1	02/14/17 19:12	02/16/17 09:52	NJB			
Metals (ICP) by Method 6010B	WG952071	1	02/17/17 08:25	02/17/17 16:27	LTB			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/16/17 14:53	LAT			
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/17/17 11:06	LAT			
Wet Chemistry by Method 9040C	WG953431	1	02/18/17 11:04	02/18/17 11:04	MHM			
Wet Chemistry by Method 9056A	WG952287	1	02/16/17 10:10	02/16/17 10:10	KCF			
Wet Chemistry by Method 9056A	WG952287	100	02/16/17 10:24	02/16/17 10:24	KCF			

MW-902 L889664-05 GW

						Collected by JM/TA/DH/DM	Collected date/time 02/10/17 13:25	Received date/time 02/11/17 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG952840	1	02/17/17 01:36	02/17/17 04:16	JM			
Mercury by Method 7470A	WG952307	1	02/14/17 19:12	02/16/17 09:54	NJB			

SAMPLE SUMMARY



MW-902 L889664-05 GW

Collected by JM/TA/DH/DM Collected date/time 02/10/17 13:25 Received date/time 02/11/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG952071	1	02/17/17 08:25	02/17/17 16:30	LTB
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/16/17 14:57	LAT
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/17/17 11:09	LAT
Wet Chemistry by Method 9040C	WG953431	1	02/18/17 11:04	02/18/17 11:04	MHM
Wet Chemistry by Method 9056A	WG952287	1	02/16/17 10:39	02/16/17 10:39	KCF

1
Cp

2
Tc

3
Ss

4
Cn

MW-903 L889664-06 GW

Collected by JM/TA/DH/DM Collected date/time 02/10/17 13:00 Received date/time 02/11/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG952840	1	02/17/17 01:36	02/17/17 04:16	JM
Mercury by Method 7470A	WG952307	1	02/14/17 19:12	02/16/17 09:56	NJB
Metals (ICP) by Method 6010B	WG952071	1	02/17/17 08:25	02/17/17 16:33	LTB
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/16/17 15:07	LAT
Metals (ICPMS) by Method 6020	WG952077	1	02/15/17 14:18	02/17/17 11:13	LAT
Wet Chemistry by Method 9040C	WG953431	1	02/18/17 11:04	02/18/17 11:04	MHM
Wet Chemistry by Method 9056A	WG952287	1	02/16/17 17:03	02/16/17 17:03	KCF
Wet Chemistry by Method 9056A	WG953425	20	02/20/17 10:17	02/20/17 10:17	KCF

5
Sr

6
Qc

7
Gl

8
Al

9
Sc



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
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L889664-01	MW-905	9040C
L889664-02	MW-901	9040C
L889664-03	MW-14R	9040C
L889664-04	MW-13	9040C
L889664-05	MW-902	9040C
L889664-06	MW-903	9040C

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	580		10.0	1	02/15/2017 15:09	WG952277

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00		1	02/17/2017 10:23	WG952264

3 Ss

4 Cn

Sample Narrative:

9040C L889664-01 WG952264: 8.00 at 17.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	52.5		1.00	1	02/16/2017 09:27	WG952287
Fluoride	0.562		0.100	1	02/16/2017 09:27	WG952287
Sulfate	31.2		5.00	1	02/16/2017 09:27	WG952287

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/16/2017 09:24	WG952307

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.92		0.200	1	02/17/2017 16:19	WG952071
Lithium	0.0705		0.0150	1	02/17/2017 16:19	WG952071
Molybdenum	ND		0.00500	1	02/17/2017 16:19	WG952071

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	02/16/2017 14:42	WG952077
Arsenic	ND		0.00200	1	02/16/2017 14:42	WG952077
Barium	0.104		0.00500	1	02/16/2017 14:42	WG952077
Beryllium	ND		0.00200	1	02/16/2017 14:42	WG952077
Cadmium	ND		0.00100	1	02/16/2017 14:42	WG952077
Calcium	49.8		1.00	1	02/16/2017 14:42	WG952077
Chromium	ND		0.00200	1	02/16/2017 14:42	WG952077
Cobalt	ND		0.00200	1	02/16/2017 14:42	WG952077
Lead	ND		0.00200	1	02/17/2017 10:55	WG952077
Selenium	ND		0.00200	1	02/16/2017 14:42	WG952077
Thallium	ND		0.00200	1	02/17/2017 10:55	WG952077



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	552		10.0	1	02/16/2017 05:21	WG952720

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.63		1	02/18/2017 11:04	WG953431

Sample Narrative:

9040C L889664-02 WG953431: 7.63 at 18.8c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	22.6		1.00	1	02/16/2017 09:41	WG952287
Fluoride	0.520		0.100	1	02/16/2017 09:41	WG952287
Sulfate	17.1		5.00	1	02/16/2017 09:41	WG952287

Mercury by Method 7470A

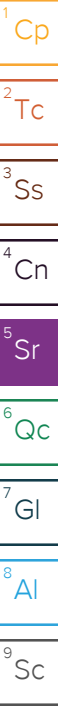
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/16/2017 09:47	WG952307

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.23		0.200	1	02/17/2017 16:21	WG952071
Lithium	0.0548		0.0150	1	02/17/2017 16:21	WG952071
Molybdenum	ND		0.00500	1	02/17/2017 16:21	WG952071

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	02/16/2017 14:46	WG952077
Arsenic	ND		0.00200	1	02/16/2017 14:46	WG952077
Barium	0.186		0.00500	1	02/16/2017 14:46	WG952077
Beryllium	ND		0.00200	1	02/16/2017 14:46	WG952077
Cadmium	ND		0.00100	1	02/16/2017 14:46	WG952077
Calcium	55.7		1.00	1	02/16/2017 14:46	WG952077
Chromium	ND		0.00200	1	02/16/2017 14:46	WG952077
Cobalt	ND		0.00200	1	02/16/2017 14:46	WG952077
Lead	ND		0.00200	1	02/17/2017 10:59	WG952077
Selenium	ND		0.00200	1	02/16/2017 14:46	WG952077
Thallium	ND		0.00200	1	02/17/2017 10:59	WG952077





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	536		10.0	1	02/16/2017 05:21	WG952720

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.75		1	02/18/2017 11:04	WG953431

Sample Narrative:

9040C L889664-03 WG953431: 7.75 at 18.9c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	3.98		1.00	1	02/16/2017 09:56	WG952287
Fluoride	0.211		0.100	1	02/16/2017 09:56	WG952287
Sulfate	50.4		5.00	1	02/16/2017 09:56	WG952287

Mercury by Method 7470A

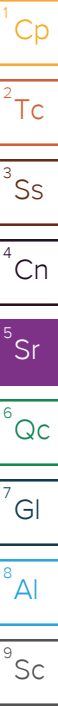
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/16/2017 09:49	WG952307

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.566		0.200	1	02/17/2017 16:24	WG952071
Lithium	0.0421		0.0150	1	02/17/2017 16:24	WG952071
Molybdenum	ND		0.00500	1	02/17/2017 16:24	WG952071

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	02/16/2017 14:50	WG952077
Arsenic	ND		0.00200	1	02/16/2017 14:50	WG952077
Barium	0.0411		0.00500	1	02/16/2017 14:50	WG952077
Beryllium	ND		0.00200	1	02/16/2017 14:50	WG952077
Cadmium	ND		0.00100	1	02/16/2017 14:50	WG952077
Calcium	57.3		1.00	1	02/16/2017 14:50	WG952077
Chromium	ND		0.00200	1	02/16/2017 14:50	WG952077
Cobalt	ND		0.00200	1	02/16/2017 14:50	WG952077
Lead	ND		0.00200	1	02/17/2017 11:02	WG952077
Selenium	ND		0.00200	1	02/16/2017 14:50	WG952077
Thallium	ND		0.00200	1	02/17/2017 11:02	WG952077





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2220		10.0	1	02/17/2017 04:16	WG952840

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.37		1	02/18/2017 11:04	WG953431

3 Ss

4 Cn

Sample Narrative:

9040C L889664-04 WG953431: 7.37 at 18.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	15.6		1.00	1	02/16/2017 10:10	WG952287
Fluoride	0.167		0.100	1	02/16/2017 10:10	WG952287
Sulfate	1950		500	100	02/16/2017 10:24	WG952287

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/16/2017 09:52	WG952307

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.483		0.200	1	02/17/2017 16:27	WG952071
Lithium	0.0644		0.0150	1	02/17/2017 16:27	WG952071
Molybdenum	ND		0.00500	1	02/17/2017 16:27	WG952071

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	02/16/2017 14:53	WG952077
Arsenic	ND		0.00200	1	02/16/2017 14:53	WG952077
Barium	0.0161		0.00500	1	02/16/2017 14:53	WG952077
Beryllium	ND		0.00200	1	02/16/2017 14:53	WG952077
Cadmium	ND		0.00100	1	02/16/2017 14:53	WG952077
Calcium	297		1.00	1	02/16/2017 14:53	WG952077
Chromium	ND		0.00200	1	02/16/2017 14:53	WG952077
Cobalt	ND		0.00200	1	02/16/2017 14:53	WG952077
Lead	ND		0.00200	1	02/17/2017 11:06	WG952077
Selenium	ND		0.00200	1	02/16/2017 14:53	WG952077
Thallium	ND		0.00200	1	02/17/2017 11:06	WG952077



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	552		10.0	1	02/17/2017 04:16	WG952840

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

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.67		1	02/18/2017 11:04	WG953431

Sample Narrative:

9040C L889664-05 WG953431: 7.67 at 18.7c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	34.4		1.00	1	02/16/2017 10:39	WG952287
Fluoride	0.510		0.100	1	02/16/2017 10:39	WG952287
Sulfate	34.5		5.00	1	02/16/2017 10:39	WG952287

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/16/2017 09:54	WG952307

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.31		0.200	1	02/17/2017 16:30	WG952071
Lithium	0.0436		0.0150	1	02/17/2017 16:30	WG952071
Molybdenum	ND		0.00500	1	02/17/2017 16:30	WG952071

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	02/16/2017 14:57	WG952077
Arsenic	ND		0.00200	1	02/16/2017 14:57	WG952077
Barium	0.112		0.00500	1	02/16/2017 14:57	WG952077
Beryllium	ND		0.00200	1	02/16/2017 14:57	WG952077
Cadmium	ND		0.00100	1	02/16/2017 14:57	WG952077
Calcium	66.2		1.00	1	02/16/2017 14:57	WG952077
Chromium	ND		0.00200	1	02/16/2017 14:57	WG952077
Cobalt	ND		0.00200	1	02/16/2017 14:57	WG952077
Lead	ND		0.00200	1	02/17/2017 11:09	WG952077
Selenium	ND		0.00200	1	02/16/2017 14:57	WG952077
Thallium	ND		0.00200	1	02/17/2017 11:09	WG952077



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1880		10.0	1	02/17/2017 04:16	WG952840

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.86		1	02/18/2017 11:04	WG953431

3 Ss

4 Cn

Sample Narrative:

9040C L889664-06 WG953431: 6.86 at 7.3c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.0		1.00	1	02/16/2017 17:03	WG952287
Fluoride	ND		0.100	1	02/16/2017 17:03	WG952287
Sulfate	1000		100	20	02/20/2017 10:17	WG953425

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/16/2017 09:56	WG952307

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.432		0.200	1	02/17/2017 16:33	WG952071
Lithium	0.0505		0.0150	1	02/17/2017 16:33	WG952071
Molybdenum	ND		0.00500	1	02/17/2017 16:33	WG952071

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	02/16/2017 15:07	WG952077
Arsenic	ND		0.00200	1	02/16/2017 15:07	WG952077
Barium	0.0146		0.00500	1	02/16/2017 15:07	WG952077
Beryllium	ND		0.00200	1	02/16/2017 15:07	WG952077
Cadmium	ND		0.00100	1	02/16/2017 15:07	WG952077
Calcium	321		1.00	1	02/16/2017 15:07	WG952077
Chromium	ND		0.00200	1	02/16/2017 15:07	WG952077
Cobalt	0.00272		0.00200	1	02/16/2017 15:07	WG952077
Lead	ND		0.00200	1	02/17/2017 11:13	WG952077
Selenium	ND		0.00200	1	02/16/2017 15:07	WG952077
Thallium	ND		0.00200	1	02/17/2017 11:13	WG952077



Method Blank (MB)

(MB) R3197313-1 02/15/17 15:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L889664-01 Original Sample (OS) • Duplicate (DUP)

(OS) L889664-01 02/15/17 15:09 • (DUP) R3197313-4 02/15/17 15:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	580	596	1	2.72		5

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

(LCS) R3197313-2 02/15/17 15:09 • (LCSD) R3197313-3 02/15/17 15:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8500	8560	96.6	97.3	85.0-115			0.703	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3197388-1 02/16/17 05:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L889665-05 Original Sample (OS) • Duplicate (DUP)

(OS) L889665-05 02/16/17 05:21 • (DUP) R3197388-4 02/16/17 05:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1180	1160	1	1.53		5

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

(LCS) R3197388-2 02/16/17 05:21 • (LCSD) R3197388-3 02/16/17 05:21

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8200	8390	93.2	95.3	85.0-115			2.29	5



Method Blank (MB)

(MB) R3197784-1 02/17/17 04:16

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L889536-01 Original Sample (OS) • Duplicate (DUP)

(OS) L889536-01 02/17/17 04:16 • (DUP) R3197784-4 02/17/17 04:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	964	968	1	0.414		5

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

(LCS) R3197784-2 02/17/17 04:16 • (LCSD) R3197784-3 02/17/17 04:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8480	8720	96.4	99.1	85.0-115			2.79	5

⁷ Gl

⁸ Al

⁹ Sc



L889116-14 Original Sample (OS) • Duplicate (DUP)

(OS) L889116-14 02/17/17 10:23 • (DUP) WG952264-3 02/17/17 10:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.81	6.79	1	0.294		1

L889811-02 Original Sample (OS) • Duplicate (DUP)

(OS) L889811-02 02/17/17 10:23 • (DUP) WG952264-4 02/17/17 10:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.38	7.38	1	0.000		1

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

(LCS) WG952264-1 02/17/17 10:23 • (LCSD) WG952264-2 02/17/17 10:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.07	6.12	6.11	101	101	98.4-102			0.164	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



L889226-01 Original Sample (OS) • Duplicate (DUP)

(OS) L889226-01 02/18/17 11:04 • (DUP) WG953431-3 02/18/17 11:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.23	8.23	1	0.000		1

L889958-01 Original Sample (OS) • Duplicate (DUP)

(OS) L889958-01 02/18/17 11:04 • (DUP) WG953431-4 02/18/17 11:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.30	9.26	1	0.431		1

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

(LCS) WG953431-1 02/18/17 11:04 • (LCSD) WG953431-2 02/18/17 11:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.07	6.02	6.03	99.2	99.3	98.4-102			0.166	1

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3197418-1 02/16/17 06:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L889633-01 Original Sample (OS) • Duplicate (DUP)

(OS) L889633-01 02/16/17 07:46 • (DUP) R3197418-4 02/16/17 08:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Fluoride	0.276	0.261	1	6		15
Sulfate	ND	0.000	1	0		15

L889664-05 Original Sample (OS) • Duplicate (DUP)

(OS) L889664-05 02/16/17 10:39 • (DUP) R3197418-6 02/16/17 10:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	34.4	34.4	1	0		15
Fluoride	0.510	0.505	1	1		15
Sulfate	34.5	34.3	1	1		15

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

(LCS) R3197418-2 02/16/17 06:21 • (LCSD) R3197418-3 02/16/17 06:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.4	39.5	98	99	80-120			0	15
Fluoride	8.00	7.95	7.95	99	99	80-120			0	15
Sulfate	40.0	41.0	41.8	102	104	80-120			2	15

L889633-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L889633-03 02/16/17 08:29 • (MS) R3197418-5 02/16/17 09:12

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Fluoride	5.00	0.268	5.26	100	1	80-120	
Sulfate	50.0	ND	50.3	101	1	80-120	



L889671-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L889671-03 02/16/17 14:29 • (MS) R3197418-7 02/16/17 14:44 • (MSD) R3197418-8 02/16/17 16:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	254	292	294	77	80	20	80-120	√		1	15
Fluoride	5.00	U	5.67	5.69	113	114	20	80-120			0	15
Sulfate	50.0	1220	1210	1200	0	0	20	80-120	√	√	0	15

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



Method Blank (MB)

(MB) R3197920-1 02/20/17 08:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L890105-01 Original Sample (OS) • Duplicate (DUP)

(OS) L890105-01 02/20/17 12:18 • (DUP) R3197920-6 02/20/17 12:31

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	406	410	10	1		15

L890789-04 Original Sample (OS) • Duplicate (DUP)

(OS) L890789-04 02/20/17 16:07 • (DUP) R3197920-8 02/20/17 16:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	168	166	5	1		15

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

(LCS) R3197920-2 02/20/17 09:10 • (LCSD) R3197920-3 02/20/17 09:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	38.1	38.1	95	95	80-120			0	15

L889859-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L889859-07 02/20/17 10:30 • (MS) R3197920-4 02/20/17 10:44 • (MSD) R3197920-5 02/20/17 10:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	U	42.8	42.9	86	86	1	80-120			0	15

L890828-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L890828-01 02/20/17 15:12 • (MS) R3197920-7 02/20/17 15:26

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	28.2	75.9	95	1	80-120	



Method Blank (MB)

(MB) R3197183-6 02/16/17 09:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	0.0000685	J	0.000049	0.000200

1 Cp

2 Tc

3 Ss

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

(LCS) R3197183-7 02/16/17 09:20 • (LCSD) R3197183-8 02/16/17 09:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00345	0.00352	115	117	80-120			2	20

4 Cn

5 Sr

L889664-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L889664-01 02/16/17 09:24 • (MS) R3197183-9 02/16/17 09:27 • (MSD) R3197183-10 02/16/17 09:29

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00342	0.00330	114	110	1	75-125			4	20

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3197778-1 02/17/17 15:53

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	0.0134	J	0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) R3197778-2 02/17/17 15:55 • (LCSD) R3197778-3 02/17/17 15:58

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	1.01	1.03	101	103	80-120			1	20
Lithium	1.00	0.992	0.999	99	100	80-120			1	20
Molybdenum	1.00	1.00	1.01	100	101	80-120			1	20

L889671-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L889671-02 02/17/17 16:07 • (MS) R3197778-5 02/17/17 16:13 • (MSD) R3197778-6 02/17/17 16:16

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.484	1.47	1.49	99	100	1	75-125			1	20
Lithium	1.00	0.0706	1.15	1.15	108	108	1	75-125			0	20
Molybdenum	1.00	U	1.00	1.01	100	101	1	75-125			1	20



Method Blank (MB)

(MB) R3197270-1 02/16/17 13:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

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

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

(LCS) R3197270-2 02/16/17 13:42 • (LCSD) R3197270-3 02/16/17 13:45

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0579	0.0495	0.0484	86	84	80-120			2	20
Arsenic	0.0500	0.0489	0.0482	98	96	80-120			2	20
Barium	0.0500	0.0470	0.0474	94	95	80-120			1	20
Beryllium	0.0500	0.0486	0.0485	97	97	80-120			0	20
Cadmium	0.0500	0.0510	0.0506	102	101	80-120			1	20
Calcium	5.00	4.72	4.86	94	97	80-120			3	20
Chromium	0.0500	0.0505	0.0499	101	100	80-120			1	20
Cobalt	0.0500	0.0523	0.0517	105	103	80-120			1	20
Lead	0.0500	0.0488	0.0492	98	98	80-120			1	20
Selenium	0.0500	0.0499	0.0488	100	98	80-120			2	20
Thallium	0.0500	0.0490	0.0491	98	98	80-120			0	20

L889456-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L889456-04 02/16/17 13:49 • (MS) R3197270-5 02/16/17 13:56 • (MSD) R3197270-6 02/16/17 13:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0579	0.00209	0.0517	0.0517	86	86	1	75-125			0	20
Arsenic	0.0500	0.0169	0.0652	0.0654	97	97	1	75-125			0	20
Barium	0.0500	0.0333	0.0807	0.0798	95	93	1	75-125			1	20
Beryllium	0.0500	ND	0.0476	0.0483	95	97	1	75-125			2	20
Cadmium	0.0500	ND	0.0514	0.0525	101	104	1	75-125			2	20



[L889664-01,02,03,04,05,06](#)

L889456-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L889456-04 02/16/17 13:49 • (MS) R3197270-5 02/16/17 13:56 • (MSD) R3197270-6 02/16/17 13:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	89.4	93.3	93.4	79	79	1	75-125			0	20
Chromium	0.0500	ND	0.0499	0.0505	98	99	1	75-125			1	20
Cobalt	0.0500	ND	0.0505	0.0515	101	103	1	75-125			2	20
Lead	0.0500	ND	0.0491	0.0501	98	100	1	75-125			2	20
Selenium	0.0500	0.0243	0.0748	0.0746	101	101	1	75-125			0	20
Thallium	0.0500	ND	0.0490	0.0501	98	100	1	75-125			2	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Billing Information:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
**Jim Muckler, Terry Andrews
+ Daryle Harrison + Dillon Moran**

Site/Facility ID #

P.O. #
URSKC1028155

Collected by (signature):
Jim Muckler

Rush? (Lab MUST Be Notified)
 Same Day 200%
 Next Day 100%
 Two Day 50%
 Three Day 25%

Date Results Needed

Email? No Yes
FAX? No Yes

No.
of
Cnts

Immediately
Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	CLD, F, SO4	125mIHDPE-NoPres	Metals 250mIHDPE-HNO3	TDS, pH	500mIHDPE-NoPres
MW-905	Grab	GW		2-8-17	15:45	3	X	X	X		
MW-901	Grab	GW		2-9-17	13:10	3	X	X	X		
MW-14R	Grab	GW		2-9-17	14:05	3	X	X	X		
MW-13	Grab	GW		2-10-17	12:15	3	X	X	X		
MW-902	Grab	GW		2-10-17	13:25	3	X	X	X		
MW-903	Grab	GW		2-10-17	13:00	3	X	X	X		
		GW				3	X	X	X		
		GW				3	X	X	X		
		GW				3	X	X	X		
		GW				3	X	X	X		

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE

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



L# **889664**
C201

Accnum: **URSKC**

Template: **T112860**

Prelogin: **P556948**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Rem./Contaminant Sample # (lab only)

01
02
03
07
05
04

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other
Remarks: Metals: (6020) AS,BA,BE,BP,CA,CD,CO,CR,PB,SB,SE,TL (6010B) B,MO,LI (7470) HG.

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by: (Signature)

Jim Muckler

Date: **2-10-17**

Time: **16:30**

Received by: (Signature)

[Signature]

Samples returned via: UPS

FedEx Courier _____

Condition: (lab use only)

G

Relinquished by: (Signature)

[Signature]

Date: **2-10-17**

Time: **1700**

Received by: (Signature)

[Signature]

Temp: **2.9** °C Bottles Received: **18**

Date: **2-11-17** Time: **9:00**

COC Seal Intact: Y N NA

pH Checked: NCF:

ESC LAB SCIENCES Cooler Receipt Form

Client: <i>URSKC</i>	SDG#	<i>889664</i>		
Cooler Received/Opened On: <i>2/11/17</i>	Temperature:	<i>2.9</i>		
Received By: Rickey Mosley				
Signature: <i>Rickey Mosley</i>				
Receipt Check List		NP	Yes	No
COC Seal Present / Intact?		<i>x</i>		
COC Signed / Accurate?			<i>x</i>	
Bottles arrive intact?			<i>x</i>	
Correct bottles used?			<i>x</i>	
Sufficient volume sent?			<i>x</i>	
If Applicable				
VOA Zero headspace?				
Preservation Correct / Checked?			<i>x</i>	

Case Narrative

Lab No: 20170108

This report contains the analytical results for the 11 sample(s) received under chain of custody by ESC Lab Sciences on 2/13/2017 1:54:29 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

Observations / Nonconformances

L889881



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170108
 Date Reported : 03/13/17
 Date Received : 02/13/17
 Page Number : 2 of 5

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170108-01
Client ID : MW-905
Date Sampled : 2/8/2017 3:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.396 +/- 0.803	1.02	pCi/l				
Radium-226	SM 7500 Ra B M*	0.227 +/- 0.282	0.392	pCi/l		03/07/17	03/10/17	SD
Radium-228	EPA 904*/9320*	0.169 +/- 0.521	0.632	pCi/l		03/06/17	03/12/17	JR

Lab ID : 20170108-02
Client ID : MW-901
Date Sampled : 2/9/2017 1:10:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.986 +/- 0.707	0.850	pCi/l				
Radium-226	SM 7500 Ra B M*	0.170 +/- 0.169	0.196	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.816 +/- 0.538	0.654	pCi/l		03/06/17	03/12/17	JR

Lab ID : 20170108-03
Client ID : MW-14R
Date Sampled : 2/9/2017 2:05:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.279 +/- 0.839	1.04	pCi/l				
Radium-226	SM 7500 Ra B M*	0.229 +/- 0.221	0.274	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.050 +/- 0.618	0.766	pCi/l		03/06/17	03/12/17	JR

Lab ID : 20170108-04
Client ID : MW-13
Date Sampled : 2/10/2017 12:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.354 +/- 0.727	1.13	pCi/l				
Radium-226	SM 7500 Ra B M*	-0.041 +/- 0.216	0.516	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.354 +/- 0.511	0.616	pCi/l		03/06/17	03/12/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170108
 Date Reported : 03/13/17
 Date Received : 02/13/17
 Page Number : 3 of 5

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20170108-05
Client ID : MW-902
Date Sampled : 2/10/2017 1:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.791 +/- 0.824	0.976	pCi/l				
Radium-226	SM 7500 Ra B M*	0.315 +/- 0.265	0.251	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.476 +/- 0.559	0.725	pCi/l		03/06/17	03/12/17	JR

Lab ID : 20170108-06
Client ID : MW-903
Date Sampled : 2/10/2017 1:00:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.850 +/- 0.674	0.812	pCi/l				
Radium-226	SM 7500 Ra B M*	0.189 +/- 0.200	0.229	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.661 +/- 0.474	0.583	pCi/l		03/06/17	03/12/17	JR

Lab ID : 20170108-07
Client ID : MW-950
Date Sampled : 2/9/2017 9:30:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.02 +/- 0.782	0.960	pCi/l				
Radium-226	SM 7500 Ra B M*	0.481 +/- 0.386	0.429	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.538 +/- 0.396	0.531	pCi/l		03/06/17	03/12/17	JR

Lab ID : 20170108-08
Client ID : MW-705
Date Sampled : 2/9/2017 10:20:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.555 +/- 0.712	0.940	pCi/l				
Radium-226	SM 7500 Ra B M*	0.273 +/- 0.307	0.405	pCi/l		03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.282 +/- 0.405	0.535	pCi/l		03/06/17	03/12/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170108
 Date Reported : 03/13/17
 Date Received : 02/13/17
 Page Number : 4 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20170108-09
Client ID : MW-708
Date Sampled : 2/9/2017 12:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.502 +/- 0.710	0.976	pCi/l				
Radium-226	SM 7500 Ra B M*	0.189 +/- 0.276	0.415	pCi/l	03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.313 +/- 0.434	0.561	pCi/l	03/06/17	03/12/17	JR

Lab ID : 20170108-10
Client ID : MW-11
Date Sampled : 2/9/2017 2:20:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.711 +/- 0.580	0.888	pCi/l				
Radium-226	SM 7500 Ra B M*	0.039 +/- 0.105	0.226	pCi/l	03/07/17	03/09/17	SD
Radium-228	EPA 904*/9320*	0.672 +/- 0.475	0.662	pCi/l	03/06/17	03/12/17	JR

Lab ID : 20170108-11
Client ID : MW-6
Date Sampled : 2/9/2017 4:00:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.431 +/- 0.695	1.04	pCi/l				
Radium-226	SM 7500 Ra B M*	0.255 +/- 0.291	0.374	pCi/l	03/07/17	03/10/17	SD
Radium-228	EPA 904*/9320*	0.176 +/- 0.404	0.668	pCi/l	03/06/17	03/12/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170108
 Date Reported : 03/13/17
 Date Received : 02/13/17
 Page Number : 5 of 5

QC Report

Parameter	Blank	LCS %REC	LCSD %REC RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC RPD	Batch ID
Radium-226	0.017	81.0		NC	0.511	79.4	88.0 10.1	R1199
Radium-228	-0.212	88.0		NC	0.202	89.2	106.0 17.1	R3930

Lab Approval: _____

AECOM - Overland Park, KS

8300 College Blvd., Suite 200
Overland Park, KS 66210

Report to:
Brian Linnan

Phone: 913-344-1000
Fax: 913-344-1011

Description: **La Cygne Generating Station**

Client Project #
00482842

Collected by (print): **Terry Andrews**
+ Dwayne Harrison + Wilson Moran

Collected by (signature): *Terry Andrews*

Immediately Packed on Ice N Y

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Billing Information:

Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

City/State
Collected:

Lab Project #
URSKC-LACYGNE

P.O. #
URSKC1028155

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix*	Depth	Date Results Needed		No. of Cntrs
				Date	Time	
MW-905	Grab	NPW		2-8-17	15:45	2
MW-901	Grab	NPW		2-9-17	13:10	2
MW-14R	Grab	NPW		2-9-17	14:05	2
MW-13	Grab	NPW		2-10-17	12:15	2
MW-902	Grab	NPW		2-10-17	13:25	2
MW-903	Grab	NPW		2-10-17	13:00	2
		NPW				2
		NPW				2
		NPW				2
		NPW				2

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Samples returned via: UPS FedEx Courier

Relinquished by: (Signature) *Sam Miller*
Date: 2-10-17 16:30

Tracking #
Received by: (Signature) *Sam Miller*

Received by: (Signature) *Sam Miller*

Temp: *Amb* °C Bottles Received: *22*
Date: *2/13/17 1354*

Temp: _____ °C Bottles Received: _____
Date: _____

Analysis / Container / Preservative



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

L# *889881*

Table #

Acctnum: **URSKC**

Template: **T112863**

Prelogin: **P587A137**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Rem./Contaminant

Sample # (lab only)

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

COPY

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

20170108

Chain of Custody

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

Billing Information:
Dana Monroe - 1334927
8300 College Blvd., Suite 200
Overland Park, KS 66210

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

ECOM - Overland Park, KS
800 College Blvd., Suite 200
Overland Park, KS 66210

Client Project #
60482842

Site/Facility ID #
URSKC1028155

Quote #

City/State Collected:

Lab Project #
URSKC-LACYGNE

P.O. #
URSKC1028155

Account: URSKC
Template: T112863
Prelogin: P587137
TSR: 206 - Jeff Carr
PB:

Shipped Via:

Item/Contaminant Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	Analysis / Container / Preservative
MW-950	Grab	NPW		2/9/17	0930	2	X	COPY
MW-705		NPW			1020	2	X	
MW-708		NPW			1245	2	X	
MW-11		NPW			1420	2	X	
MW-6		NPW			1600	2	X	
		NPW				2	X	
		NPW				2	X	
		NPW				2	X	

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Matrix: S - Soil AIR - Air IW - Groundwater VW - Waste Water DW - Drinking Water OT - Other

Temp _____ pH _____

Flow _____ Other _____

VOA Zero Headspace: _____
Preservation Correct/checked: _____

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

Trip Blank Received: Yes No
HCL / MeOH TBR

Temp: _____ °C Bottles Received: _____
Date: _____ Time: _____

Received by: (Signature) _____
Date: _____ Time: _____

Received for lab by: (Signature) _____
Date: _____ Time: _____

Condition: NCF / OK

SAMPLE LOGIN

Date Received: 2/13/2017 1:54:29

Lab Number: 20170108

Due: 3/13/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170108-01 B	MW-905	NPW	02/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170108-01 A	MW-905	NPW	02/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170108-02 A	MW-901	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170108-02 B	MW-901	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170108-03 A	MW-14R	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170108-03 B	MW-14R	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170108-04 A	MW-13	NPW	02/10/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170108-04 B	MW-13	NPW	02/10/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170108-05 B	MW-902	NPW	02/10/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	Yes	No
20170108-05 A	MW-902	NPW	02/10/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170108-06 B	MW-903	NPW	02/10/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170108-06 A	MW-903	NPW	02/10/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170108-07 A	MW-950	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170108-07 B	MW-950	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						

20170108-08 A	MW-705	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
20170108-08 B	MW-705	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
Radium-226	SM 7500 Ra B M*							
Radium-228	EPA 904*/9320*							
20170108-09 A	MW-708	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
20170108-09 B	MW-708	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
Radium-226	SM 7500 Ra B M*							
Radium-228	EPA 904*/9320*							
20170108-10 A	MW-11	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
20170108-10 B	MW-11	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
Radium-226	SM 7500 Ra B M*							
Radium-228	EPA 904*/9320*							
20170108-11 B	MW-6	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
20170108-11 A	MW-6	NPW	02/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No
Radium-226	SM 7500 Ra B M*							
Radium-228	EPA 904*/9320*							

CONTAINER INSPECTION

Coolers Custody Seals Broken Temperature: Amb Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete

Anomalies

Inspected By: [Signature] DATE 2/13/17
 QA or Designee Review: [Signature] DATE 02/13/17
 Sample Custodian Review: [Signature] DATE 2/13/17

Project Notes:

Jared Morrison
December 16, 2022

ATTACHMENT 1-6
April 2017 Sampling Event Laboratory Report

AECOM - Kansas City, MO

Sample Delivery Group: L901219
Samples Received: 04/07/2017
Project Number: 60482842
Description: La Cygne Generating Station

Report To: Brian Linnan
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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

SAMPLE SUMMARY



MW-903 L901219-01 GW

						Collected by JM/ DH / TA	Collected date/time 04/04/17 10:00	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG969126	1	04/11/17 15:20	04/11/17 16:10	JER			
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA			
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 15:39	04/10/17 15:39	KCF			
Wet Chemistry by Method 9056A	WG968771	20	04/10/17 15:51	04/10/17 15:51	KCF			
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 10:22	TRB			
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:07	CCE			
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 15:45	JPD			

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

MW-902 L901219-02 GW

						Collected by JM/ DH / TA	Collected date/time 04/04/17 10:15	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF			
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA			
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 16:03	04/10/17 16:03	KCF			
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 10:43	TRB			
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 12:51	CCE			
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:00	JPD			

MW-901 L901219-03 GW

						Collected by JM/ DH / TA	Collected date/time 04/04/17 10:40	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF			
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA			
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 16:28	04/10/17 16:28	KCF			
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 10:45	TRB			
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:15	CCE			
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:03	JPD			

MW-905 L901219-04 GW

						Collected by JM/ DH / TA	Collected date/time 04/04/17 11:05	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF			
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA			
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 17:18	04/10/17 17:18	KCF			
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 10:48	TRB			
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:18	CCE			
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:07	JPD			

MW-802 L901219-05 GW

						Collected by JM/ DH / TA	Collected date/time 04/04/17 11:50	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF			
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA			
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 17:30	04/10/17 17:30	KCF			
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 10:50	TRB			
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:21	CCE			
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:10	JPD			

SAMPLE SUMMARY



MW-804 L901219-06 GW

			Collected by JM/ DH / TA	Collected date/time 04/04/17 13:15	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 17:43	04/10/17 17:43	KCF
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:03	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:24	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:14	JPD

1
Cp

2
Tc

3
Ss

4
Cn

MW-805 L901219-07 GW

			Collected by JM/ DH / TA	Collected date/time 04/04/17 13:30	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 18:20	04/10/17 18:20	KCF
Wet Chemistry by Method 9056A	WG968771	20	04/10/17 18:32	04/10/17 18:32	KCF
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:05	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:27	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:18	JPD

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-703 L901219-08 GW

			Collected by JM/ DH / TA	Collected date/time 04/04/17 11:00	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 18:45	04/10/17 18:45	KCF
Wet Chemistry by Method 9056A	WG968771	20	04/10/17 18:57	04/10/17 18:57	KCF
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:07	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:30	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:21	JPD

TW-1 L901219-09 GW

			Collected by JM/ DH / TA	Collected date/time 04/04/17 12:30	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 19:34	04/10/17 19:34	KCF
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:10	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:33	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:25	JPD

MW-701 L901219-10 GW

			Collected by JM/ DH / TA	Collected date/time 04/04/17 13:15	Received date/time 04/07/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG968771	1	04/10/17 19:59	04/10/17 19:59	KCF
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:12	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:36	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:28	JPD

SAMPLE SUMMARY



MW-704 L901219-11 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969128	1	04/11/17 16:12	04/11/17 17:04	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG969114	1	04/10/17 21:42	04/10/17 21:42	SAM
Wet Chemistry by Method 9056A	WG969114	5	04/10/17 21:57	04/10/17 21:57	SAM
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:14	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:38	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:48	JPD

Collected by JM/ DH / TA Collected date/time 04/04/17 14:20 Received date/time 04/07/17 08:45

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

MW-707B L901219-12 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969129	1	04/11/17 17:16	04/11/17 17:32	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG969114	1	04/10/17 22:44	04/10/17 22:44	SAM
Wet Chemistry by Method 9056A	WG969114	50	04/10/17 22:59	04/10/17 22:59	SAM
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:16	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:42	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:52	JPD

Collected by JM/ DH / TA Collected date/time 04/04/17 15:45 Received date/time 04/07/17 08:45

MW-706 L901219-13 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969129	1	04/11/17 17:16	04/11/17 17:32	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG969114	1	04/10/17 23:15	04/10/17 23:15	SAM
Wet Chemistry by Method 9056A	WG969114	10	04/10/17 23:30	04/10/17 23:30	SAM
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:19	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:50	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:56	JPD

Collected by JM/ DH / TA Collected date/time 04/04/17 16:45 Received date/time 04/07/17 08:45

MW-702 L901219-14 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969412	1	04/12/17 18:20	04/12/17 18:49	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG969114	1	04/10/17 23:45	04/10/17 23:45	SAM
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:21	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:53	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 16:59	JPD

Collected by JM/ DH / TA Collected date/time 04/05/17 09:15 Received date/time 04/07/17 08:45

MW-7 L901219-15 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969412	1	04/12/17 18:20	04/12/17 18:49	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG969114	1	04/11/17 00:32	04/11/17 00:32	SAM
Wet Chemistry by Method 9056A	WG969114	5	04/11/17 00:47	04/11/17 00:47	SAM

Collected by JM/ DH / TA Collected date/time 04/05/17 12:00 Received date/time 04/07/17 08:45

SAMPLE SUMMARY



MW-7 L901219-15 GW

Collected by JM/ DH / TA Collected date/time 04/05/17 12:00 Received date/time 04/07/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:23	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:55	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 17:03	JPD

1
Cp

2
Tc

3
Ss

4
Cn

MW-6 L901219-16 GW

Collected by JM/ DH / TA Collected date/time 04/05/17 13:50 Received date/time 04/07/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG969412	1	04/12/17 18:20	04/12/17 18:49	MMF
Wet Chemistry by Method 9040C	WG968639	1	04/11/17 09:32	04/11/17 09:32	MA
Wet Chemistry by Method 9056A	WG969115	1	04/11/17 15:27	04/11/17 15:27	KCF
Wet Chemistry by Method 9056A	WG969115	10	04/11/17 15:37	04/11/17 15:37	KCF
Mercury by Method 7470A	WG968464	1	04/07/17 15:30	04/08/17 11:33	TRB
Metals (ICP) by Method 6010B	WG968653	1	04/11/17 08:41	04/11/17 13:58	CCE
Metals (ICPMS) by Method 6020	WG968611	1	04/11/17 14:30	04/12/17 17:06	JPD

5
Sr

6
Qc

7
Gl

8
Al

9
Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1990		10.0	1	04/11/2017 16:10	WG969126

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	6.95	<u>T8</u>		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-01 WG968639: 6.95 at 20.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.7		1.00	1	04/10/2017 15:39	WG968771
Fluoride	ND		0.100	1	04/10/2017 15:39	WG968771
Sulfate	1090		100	20	04/10/2017 15:51	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 10:22	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.423		0.200	1	04/11/2017 13:07	WG968653
Lithium	0.0502		0.0150	1	04/11/2017 13:07	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:07	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 15:45	WG968611
Arsenic	ND		0.00200	1	04/12/2017 15:45	WG968611
Barium	0.0151		0.00500	1	04/12/2017 15:45	WG968611
Beryllium	ND		0.00200	1	04/12/2017 15:45	WG968611
Cadmium	ND		0.00100	1	04/12/2017 15:45	WG968611
Calcium	339		1.00	1	04/12/2017 15:45	WG968611
Chromium	ND		0.00200	1	04/12/2017 15:45	WG968611
Cobalt	0.00204		0.00200	1	04/12/2017 15:45	WG968611
Lead	ND		0.00200	1	04/12/2017 15:45	WG968611
Selenium	ND		0.00200	1	04/12/2017 15:45	WG968611
Thallium	ND		0.00200	1	04/12/2017 15:45	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	533		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.42	<u>T8</u>	1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-02 WG968639: 7.42 at 21.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	34.2		1.00	1	04/10/2017 16:03	WG968771
Fluoride	0.481		0.100	1	04/10/2017 16:03	WG968771
Sulfate	33.1		5.00	1	04/10/2017 16:03	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 10:43	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.24		0.200	1	04/11/2017 12:51	WG968653
Lithium	0.0396		0.0150	1	04/11/2017 12:51	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 12:51	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:00	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:00	WG968611
Barium	0.116		0.00500	1	04/12/2017 16:00	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:00	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:00	WG968611
Calcium	68.8		1.00	1	04/12/2017 16:00	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:00	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:00	WG968611
Lead	ND		0.00200	1	04/12/2017 16:00	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:00	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:00	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	546		10.0	1	04/11/2017 17:04	WG969128

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.60	<u>T8</u>	1	04/11/2017 09:32	WG968639

Sample Narrative:

9040C L901219-03 WG968639: 7.60 at 20.9c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	23.1		1.00	1	04/10/2017 16:28	WG968771
Fluoride	0.493		0.100	1	04/10/2017 16:28	WG968771
Sulfate	18.4		5.00	1	04/10/2017 16:28	WG968771

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 10:45	WG968464

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.18		0.200	1	04/11/2017 13:15	WG968653
Lithium	0.0521		0.0150	1	04/11/2017 13:15	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:15	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:03	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:03	WG968611
Barium	0.192		0.00500	1	04/12/2017 16:03	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:03	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:03	WG968611
Calcium	57.6		1.00	1	04/12/2017 16:03	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:03	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:03	WG968611
Lead	ND		0.00200	1	04/12/2017 16:03	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:03	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:03	WG968611

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	618		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.64	<u>T8</u>		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-04 WG968639: 7.64 at 21.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	52.5		1.00	1	04/10/2017 17:18	WG968771
Fluoride	0.522		0.100	1	04/10/2017 17:18	WG968771
Sulfate	28.6		5.00	1	04/10/2017 17:18	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 10:48	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.84		0.200	1	04/11/2017 13:18	WG968653
Lithium	0.0703		0.0150	1	04/11/2017 13:18	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:18	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:07	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:07	WG968611
Barium	0.119		0.00500	1	04/12/2017 16:07	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:07	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:07	WG968611
Calcium	51.8		1.00	1	04/12/2017 16:07	WG968611
Chromium	0.00327		0.00200	1	04/12/2017 16:07	WG968611
Cobalt	0.00214		0.00200	1	04/12/2017 16:07	WG968611
Lead	ND		0.00200	1	04/12/2017 16:07	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:07	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:07	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	693		10.0	1	04/11/2017 17:04	WG969128

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.59	<u>T8</u>	1	04/11/2017 09:32	WG968639

Sample Narrative:

9040C L901219-05 WG968639: 7.59 at 20.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	37.4		1.00	1	04/10/2017 17:30	WG968771
Fluoride	0.947		0.100	1	04/10/2017 17:30	WG968771
Sulfate	ND		5.00	1	04/10/2017 17:30	WG968771

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 10:50	WG968464

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.48		0.200	1	04/11/2017 13:21	WG968653
Lithium	0.0919		0.0150	1	04/11/2017 13:21	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:21	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:10	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:10	WG968611
Barium	0.861		0.00500	1	04/12/2017 16:10	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:10	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:10	WG968611
Calcium	35.0		1.00	1	04/12/2017 16:10	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:10	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:10	WG968611
Lead	ND		0.00200	1	04/12/2017 16:10	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:10	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:10	WG968611

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	555		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.47	<u>T8</u>	1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-06 WG968639: 7.47 at 20.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.0		1.00	1	04/10/2017 17:43	WG968771
Fluoride	0.429		0.100	1	04/10/2017 17:43	WG968771
Sulfate	21.4		5.00	1	04/10/2017 17:43	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:03	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.59		0.200	1	04/11/2017 13:24	WG968653
Lithium	0.0414		0.0150	1	04/11/2017 13:24	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:24	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:14	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:14	WG968611
Barium	0.147		0.00500	1	04/12/2017 16:14	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:14	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:14	WG968611
Calcium	65.1		1.00	1	04/12/2017 16:14	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:14	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:14	WG968611
Lead	ND		0.00200	1	04/12/2017 16:14	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:14	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:14	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2270		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.51	T8	1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-07 WG968639: 6.51 at 20.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	504		20.0	20	04/10/2017 18:32	WG968771
Fluoride	0.142		0.100	1	04/10/2017 18:20	WG968771
Sulfate	836		100	20	04/10/2017 18:32	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:05	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.444		0.200	1	04/11/2017 13:27	WG968653
Lithium	0.0178		0.0150	1	04/11/2017 13:27	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:27	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:18	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:18	WG968611
Barium	0.0334		0.00500	1	04/12/2017 16:18	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:18	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:18	WG968611
Calcium	444		1.00	1	04/12/2017 16:18	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:18	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:18	WG968611
Lead	ND		0.00200	1	04/12/2017 16:18	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:18	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:18	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	926		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.91	<u>T8</u>		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-08 WG968639: 7.91 at 20.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	115		20.0	20	04/10/2017 18:57	WG968771
Fluoride	1.40		0.100	1	04/10/2017 18:45	WG968771
Sulfate	ND		5.00	1	04/10/2017 18:45	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:07	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.90		0.200	1	04/11/2017 13:30	WG968653
Lithium	0.0626		0.0150	1	04/11/2017 13:30	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:30	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:21	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:21	WG968611
Barium	0.299		0.00500	1	04/12/2017 16:21	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:21	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:21	WG968611
Calcium	22.4		1.00	1	04/12/2017 16:21	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:21	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:21	WG968611
Lead	ND		0.00200	1	04/12/2017 16:21	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:21	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:21	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1020		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.75	T8		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-09 WG968639: 7.75 at 20.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	45.7		1.00	1	04/10/2017 19:34	WG968771
Fluoride	0.420		0.100	1	04/10/2017 19:34	WG968771
Sulfate	63.4		5.00	1	04/10/2017 19:34	WG968771

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:10	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.68		0.200	1	04/11/2017 13:33	WG968653
Lithium	0.147		0.0150	1	04/11/2017 13:33	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:33	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:25	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:25	WG968611
Barium	0.0706		0.00500	1	04/12/2017 16:25	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:25	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:25	WG968611
Calcium	33.0		1.00	1	04/12/2017 16:25	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:25	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:25	WG968611
Lead	ND		0.00200	1	04/12/2017 16:25	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:25	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:25	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	607		10.0	1	04/11/2017 17:04	WG969128

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.05	<u>T8</u>	1	04/11/2017 09:32	WG968639

Sample Narrative:

9040C L901219-10 WG968639: 8.05 at 21.3c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	55.3		1.00	1	04/10/2017 19:59	WG968771
Fluoride	0.790		0.100	1	04/10/2017 19:59	WG968771
Sulfate	83.8		5.00	1	04/10/2017 19:59	WG968771

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:12	WG968464

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.06		0.200	1	04/11/2017 13:36	WG968653
Lithium	0.0399		0.0150	1	04/11/2017 13:36	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:36	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:28	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:28	WG968611
Barium	0.186		0.00500	1	04/12/2017 16:28	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:28	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:28	WG968611
Calcium	36.3		1.00	1	04/12/2017 16:28	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:28	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:28	WG968611
Lead	ND		0.00200	1	04/12/2017 16:28	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:28	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:28	WG968611

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1150		10.0	1	04/11/2017 17:04	WG969128

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.81	<u>T8</u>		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-11 WG968639: 7.81 at 20.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	84.7		1.00	1	04/10/2017 21:42	WG969114
Fluoride	0.882		0.100	1	04/10/2017 21:42	WG969114
Sulfate	176		25.0	5	04/10/2017 21:57	WG969114

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:14	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.09		0.200	1	04/11/2017 13:38	WG968653
Lithium	0.101		0.0150	1	04/11/2017 13:38	WG968653
Molybdenum	0.0102		0.00500	1	04/11/2017 13:38	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	0.00719		0.00200	1	04/12/2017 16:48	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:48	WG968611
Barium	0.0747		0.00500	1	04/12/2017 16:48	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:48	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:48	WG968611
Calcium	29.8		1.00	1	04/12/2017 16:48	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:48	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:48	WG968611
Lead	ND		0.00200	1	04/12/2017 16:48	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:48	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:48	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	7890		10.0	1	04/11/2017 17:32	WG969129

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.01	<u>T8</u>		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-12 WG968639: 7.01 at 20.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	242		50.0	50	04/10/2017 22:59	WG969114
Fluoride	0.323		0.100	1	04/10/2017 22:44	WG969114
Sulfate	4940		250	50	04/10/2017 22:59	WG969114

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:16	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.93		0.200	1	04/11/2017 13:42	WG968653
Lithium	0.821		0.0150	1	04/11/2017 13:42	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:42	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:52	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:52	WG968611
Barium	0.0133		0.00500	1	04/12/2017 16:52	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:52	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:52	WG968611
Calcium	382		1.00	1	04/12/2017 16:52	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:52	WG968611
Cobalt	0.00506		0.00200	1	04/12/2017 16:52	WG968611
Lead	ND		0.00200	1	04/12/2017 16:52	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:52	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:52	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1230		10.0	1	04/11/2017 17:32	WG969129

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.64	<u>T8</u>	1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-13 WG968639: 7.64 at 20.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	282		10.0	10	04/10/2017 23:30	WG969114
Fluoride	1.20		0.100	1	04/10/2017 23:15	WG969114
Sulfate	ND		5.00	1	04/10/2017 23:15	WG969114

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:19	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.13		0.200	1	04/11/2017 13:50	WG968653
Lithium	0.138		0.0150	1	04/11/2017 13:50	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:50	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:56	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:56	WG968611
Barium	0.276		0.00500	1	04/12/2017 16:56	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:56	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:56	WG968611
Calcium	30.8		1.00	1	04/12/2017 16:56	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:56	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:56	WG968611
Lead	ND		0.00200	1	04/12/2017 16:56	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:56	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:56	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	680		10.0	1	04/12/2017 18:49	WG969412

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.05	<u>T8</u>		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-14 WG968639: 8.05 at 20.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	48.4		1.00	1	04/10/2017 23:45	WG969114
Fluoride	1.50		0.100	1	04/10/2017 23:45	WG969114
Sulfate	ND		5.00	1	04/10/2017 23:45	WG969114

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:21	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.95		0.200	1	04/11/2017 13:53	WG968653
Lithium	0.0841		0.0150	1	04/11/2017 13:53	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:53	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 16:59	WG968611
Arsenic	ND		0.00200	1	04/12/2017 16:59	WG968611
Barium	0.373		0.00500	1	04/12/2017 16:59	WG968611
Beryllium	ND		0.00200	1	04/12/2017 16:59	WG968611
Cadmium	ND		0.00100	1	04/12/2017 16:59	WG968611
Calcium	18.5		1.00	1	04/12/2017 16:59	WG968611
Chromium	ND		0.00200	1	04/12/2017 16:59	WG968611
Cobalt	ND		0.00200	1	04/12/2017 16:59	WG968611
Lead	ND		0.00200	1	04/12/2017 16:59	WG968611
Selenium	ND		0.00200	1	04/12/2017 16:59	WG968611
Thallium	ND		0.00200	1	04/12/2017 16:59	WG968611



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	916		10.0	1	04/12/2017 18:49	WG969412

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.21	<u>T8</u>	1	04/11/2017 09:32	WG968639

Sample Narrative:

9040C L901219-15 WG968639: 8.21 at 20.7c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	102		5.00	5	04/11/2017 00:47	WG969114
Fluoride	1.28		0.100	1	04/11/2017 00:32	WG969114
Sulfate	ND		5.00	1	04/11/2017 00:32	WG969114

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:23	WG968464

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.61		0.200	1	04/11/2017 13:55	WG968653
Lithium	0.0755		0.0150	1	04/11/2017 13:55	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:55	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 17:03	WG968611
Arsenic	ND		0.00200	1	04/12/2017 17:03	WG968611
Barium	0.497		0.00500	1	04/12/2017 17:03	WG968611
Beryllium	ND		0.00200	1	04/12/2017 17:03	WG968611
Cadmium	ND		0.00100	1	04/12/2017 17:03	WG968611
Calcium	26.8		1.00	1	04/12/2017 17:03	WG968611
Chromium	ND		0.00200	1	04/12/2017 17:03	WG968611
Cobalt	ND		0.00200	1	04/12/2017 17:03	WG968611
Lead	ND		0.00200	1	04/12/2017 17:03	WG968611
Selenium	ND		0.00200	1	04/12/2017 17:03	WG968611
Thallium	ND		0.00200	1	04/12/2017 17:03	WG968611

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1180		10.0	1	04/12/2017 18:49	WG969412

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.57	T8		1	04/11/2017 09:32	WG968639

3 Ss

4 Cn

Sample Narrative:

9040C L901219-16 WG968639: 7.57 at 20.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	227		10.0	10	04/11/2017 15:37	WG969115
Fluoride	0.447		0.100	1	04/11/2017 15:27	WG969115
Sulfate	167		50.0	10	04/11/2017 15:37	WG969115

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	04/08/2017 11:33	WG968464

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.19		0.200	1	04/11/2017 13:58	WG968653
Lithium	0.0521		0.0150	1	04/11/2017 13:58	WG968653
Molybdenum	ND		0.00500	1	04/11/2017 13:58	WG968653

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	04/12/2017 17:06	WG968611
Arsenic	ND		0.00200	1	04/12/2017 17:06	WG968611
Barium	0.147		0.00500	1	04/12/2017 17:06	WG968611
Beryllium	ND		0.00200	1	04/12/2017 17:06	WG968611
Cadmium	ND		0.00100	1	04/12/2017 17:06	WG968611
Calcium	97.9		1.00	1	04/12/2017 17:06	WG968611
Chromium	ND		0.00200	1	04/12/2017 17:06	WG968611
Cobalt	ND		0.00200	1	04/12/2017 17:06	WG968611
Lead	ND		0.00200	1	04/12/2017 17:06	WG968611
Selenium	ND		0.00200	1	04/12/2017 17:06	WG968611
Thallium	ND		0.00200	1	04/12/2017 17:06	WG968611



Method Blank (MB)

(MB) R3210688-1 04/11/17 16:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

L900969-06 Original Sample (OS) • Duplicate (DUP)

(OS) L900969-06 04/11/17 16:10 • (DUP) R3210688-4 04/11/17 16:10

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2050	2020	1	1.47		5

⁶ Qc

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

(LCS) R3210688-2 04/11/17 16:10 • (LCSD) R3210688-3 04/11/17 16:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8350	8420	94.9	95.7	85.0-115			0.835	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3210841-1 04/11/17 17:04

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L901219-11 Original Sample (OS) • Duplicate (DUP)

(OS) L901219-11 04/11/17 17:04 • (DUP) R3210841-4 04/11/17 17:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1150	1170	1	1.72		5

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

(LCS) R3210841-2 04/11/17 17:04 • (LCSD) R3210841-3 04/11/17 17:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8370	8500	95.1	96.6	85.0-115			1.54	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3210837-1 04/11/17 17:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L901219-13 Original Sample (OS) • Duplicate (DUP)

(OS) L901219-13 04/11/17 17:32 • (DUP) R3210837-4 04/11/17 17:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1230	1190	1	3.32		5

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

(LCS) R3210837-2 04/11/17 17:32 • (LCSD) R3210837-3 04/11/17 17:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8500	8510	96.6	96.7	85.0-115			0.118	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3210650-1 04/12/17 18:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L901513-07 Original Sample (OS) • Duplicate (DUP)

(OS) L901513-07 04/12/17 18:49 • (DUP) R3210650-4 04/12/17 18:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	803	788	1	1.84		5

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

(LCS) R3210650-2 04/12/17 18:49 • (LCSD) R3210650-3 04/12/17 18:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8500	8500	96.6	96.6	85.0-115			0.000	5

⁷ Gl

⁸ Al

⁹ Sc



L901124-01 Original Sample (OS) • Duplicate (DUP)

(OS) L901124-01 04/11/17 09:32 • (DUP) WG968639-3 04/11/17 09:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.91	7.91	1	0.000	<u>T8</u>	1

1 Cp

2 Tc

3 Ss

L901318-02 Original Sample (OS) • Duplicate (DUP)

(OS) L901318-02 04/11/17 09:32 • (DUP) WG968639-4 04/11/17 09:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.45	7.45	1	0.000	<u>T8</u>	1

4 Cn

5 Sr

6 Qc

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

(LCS) WG968639-1 04/11/17 09:32 • (LCSD) WG968639-2 04/11/17 09:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	7.50	7.55	7.54	101	101	98.7-101			0.133	1

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3209775-1 04/10/17 12:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L901196-06 Original Sample (OS) • Duplicate (DUP)

(OS) L901196-06 04/10/17 14:12 • (DUP) R3209775-5 04/10/17 14:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	0.414	0.289	1	36	J P1	15
Fluoride	U	0.000	1	0		15
Sulfate	U	0.000	1	0		15

L901219-03 Original Sample (OS) • Duplicate (DUP)

(OS) L901219-03 04/10/17 16:28 • (DUP) R3209775-8 04/10/17 16:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	23.1	24.1	1	4		15
Fluoride	0.493	0.513	1	4		15
Sulfate	18.4	16.5	1	11		15

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

(LCS) R3209775-2 04/10/17 12:32 • (LCSD) R3209775-3 04/10/17 12:45

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.5	39.5	99	99	80-120			0	15
Fluoride	8.00	7.97	7.96	100	100	80-120			0	15
Sulfate	40.0	40.0	40.2	100	101	80-120			0	15

L901219-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L901219-02 04/10/17 16:03 • (MS) R3209775-7 04/10/17 16:16

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	34.2	83.0	98	1	80-120	
Fluoride	5.00	0.481	5.33	97	1	80-120	



L901219-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L901219-02 04/10/17 16:03 • (MS) R3209775-7 04/10/17 16:16

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	33.1	81.6	97	1	80-120	

L901219-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901219-06 04/10/17 17:43 • (MS) R3209775-9 04/10/17 17:55 • (MSD) R3209775-10 04/10/17 18:07

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	26.0	75.6	75.9	99	100	1	80-120			0	15
Fluoride	5.00	0.429	5.50	5.32	101	98	1	80-120			3	15
Sulfate	50.0	21.4	70.7	70.8	99	99	1	80-120			0	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3209769-1 04/10/17 12:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

L900991-04 Original Sample (OS) • Duplicate (DUP)

(OS) L900991-04 04/10/17 18:06 • (DUP) R3209769-4 04/10/17 18:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	195	204	20	5		15
Fluoride	1.09	1.09	20	0	J	15
Sulfate	1120	1110	20	1		15

5 Sr

6 Qc

7 Gl

L901252-02 Original Sample (OS) • Duplicate (DUP)

(OS) L901252-02 04/11/17 01:02 • (DUP) R3209769-8 04/11/17 01:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	2.89	2.77	1	4		15
Fluoride	0.215	0.215	1	0		15
Sulfate	39.5	39.6	1	0		15

8 Al

9 Sc

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

(LCS) R3209769-2 04/10/17 12:44 • (LCSD) R3209769-3 04/10/17 13:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.4	39.4	99	99	80-120			0	15
Fluoride	8.00	7.95	7.94	99	99	80-120			0	15
Sulfate	40.0	39.6	39.5	99	99	80-120			0	15

L900991-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L900991-11 04/10/17 19:08 • (MS) R3209769-5 04/10/17 19:23

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	0.269	51.0	102	1	80-120	
Fluoride	5.00	U	5.13	103	1	80-120	



L900991-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L900991-11 04/10/17 19:08 • (MS) R3209769-5 04/10/17 19:23

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	0.962	51.8	102	1	80-120	

L901219-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901219-11 04/10/17 21:42 • (MS) R3209769-6 04/10/17 22:13 • (MSD) R3209769-7 04/10/17 22:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	84.7	132	133	95	96	1	80-120	E	E	0	15
Fluoride	5.00	0.882	6.09	6.05	104	103	1	80-120			1	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3209989-1 04/11/17 08:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.239	J	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L901322-01 Original Sample (OS) • Duplicate (DUP)

(OS) L901322-01 04/11/17 12:14 • (DUP) R3209989-4 04/11/17 12:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	3.83	3.81	1	1		15
Fluoride	U	0.000	1	0		15
Sulfate	1.13	1.06	1	6	J	15

L901356-02 Original Sample (OS) • Duplicate (DUP)

(OS) L901356-02 04/11/17 14:36 • (DUP) R3209989-8 04/11/17 14:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	ND	0.841	1	0		15
Fluoride	ND	0.0555	1	0		15
Sulfate	ND	0.000	1	0		15

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

(LCS) R3209989-2 04/11/17 09:05 • (LCSD) R3209989-3 04/11/17 09:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.4	39.4	99	99	80-120			0	15
Fluoride	8.00	8.00	7.98	100	100	80-120			0	15
Sulfate	40.0	39.6	39.6	99	99	80-120			0	15

L901322-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L901322-02 04/11/17 12:34 • (MS) R3209989-5 04/11/17 12:45

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	36.4	85.5	98	1	80-120	
Fluoride	5.00	0.206	5.39	104	1	80-120	



L901322-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L901322-02 04/11/17 12:34 • (MS) R3209989-5 04/11/17 12:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	15.1	66.8	103	1	80-120	

L901356-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901356-01 04/11/17 14:06 • (MS) R3209989-6 04/11/17 14:16 • (MSD) R3209989-7 04/11/17 14:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	22.6	69.7	70.4	94	96	1	80-120			1	15
Fluoride	5.00	0.111	5.18	5.16	101	101	1	80-120			0	15
Sulfate	50.0	68.4	117	117	96	96	1	80-120	E	E	0	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3209301-1 04/08/17 10:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

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

(LCS) R3209301-2 04/08/17 10:17 • (LCSD) R3209301-3 04/08/17 10:20

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00309	0.00298	103	99	80-120			4	20

L901219-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901219-01 04/08/17 10:22 • (MS) R3209301-4 04/08/17 10:29 • (MSD) R3209301-5 04/08/17 10:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00294	0.00303	98	101	1	75-125			3	20

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3209953-1 04/11/17 12:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3209953-2 04/11/17 12:46 • (LCSD) R3209953-3 04/11/17 12:48

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.996	0.979	100	98	80-120			2	20
Lithium	1.00	1.01	0.994	101	99	80-120			2	20
Molybdenum	1.00	1.01	0.999	101	100	80-120			1	20

5 Sr

6 Qc

7 Gl

L901219-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901219-02 04/11/17 12:51 • (MS) R3209953-5 04/11/17 12:56 • (MSD) R3209953-6 04/11/17 12:59

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	1.24	2.23	2.21	99	97	1	75-125			1	20
Lithium	1.00	0.0396	1.04	1.04	100	100	1	75-125			0	20
Molybdenum	1.00	ND	1.02	1.01	102	101	1	75-125			1	20

8 Al

9 Sc



Method Blank (MB)

(MB) R3210329-1 04/12/17 15:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200



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

(LCS) R3210329-2 04/12/17 15:20 • (LCSD) R3210329-3 04/12/17 15:24

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0506	0.0513	101	103	80-120			1	20
Arsenic	0.0500	0.0487	0.0497	97	99	80-120			2	20
Barium	0.0500	0.0487	0.0482	97	96	80-120			1	20
Beryllium	0.0500	0.0440	0.0438	88	88	80-120			0	20
Cadmium	0.0500	0.0502	0.0507	100	101	80-120			1	20
Calcium	5.00	5.07	5.03	101	101	80-120			1	20
Chromium	0.0500	0.0490	0.0504	98	101	80-120			3	20
Cobalt	0.0500	0.0507	0.0522	101	104	80-120			3	20
Lead	0.0500	0.0493	0.0503	99	101	80-120			2	20
Selenium	0.0500	0.0486	0.0494	97	99	80-120			2	20
Thallium	0.0500	0.0494	0.0503	99	101	80-120			2	20

L901071-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901071-05 04/12/17 15:28 • (MS) R3210329-5 04/12/17 15:35 • (MSD) R3210329-6 04/12/17 15:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0503	0.0514	101	103	1	75-125			2	20
Arsenic	0.0500	ND	0.0498	0.0491	97	96	1	75-125			1	20
Barium	0.0500	0.0564	0.105	0.105	97	98	1	75-125			0	20
Beryllium	0.0500	ND	0.0444	0.0430	89	86	1	75-125			3	20
Cadmium	0.0500	ND	0.0520	0.0517	104	103	1	75-125			0	20



L901071-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L901071-05 04/12/17 15:28 • (MS) R3210329-5 04/12/17 15:35 • (MSD) R3210329-6 04/12/17 15:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	47.2	52.6	51.3	107	82	1	75-125			2	20
Chromium	0.0500	ND	0.0505	0.0493	99	97	1	75-125			3	20
Cobalt	0.0500	ND	0.0512	0.0504	101	100	1	75-125			1	20
Lead	0.0500	ND	0.0514	0.0508	101	100	1	75-125			1	20
Selenium	0.0500	ND	0.0494	0.0491	98	97	1	75-125			1	20
Thallium	0.0500	ND	0.0500	0.0496	100	99	1	75-125			1	20

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



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.
T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

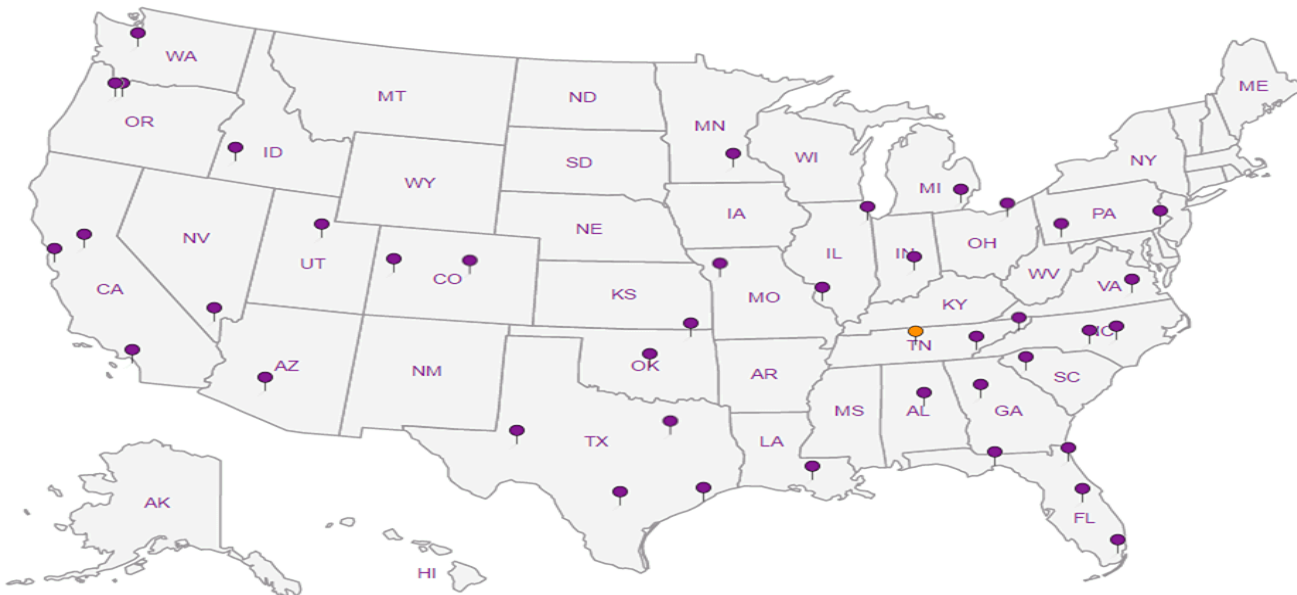
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE

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



L# ~~690~~ L901219

J249

Acctnum: **URSKC**

Template: **T112860**

Prelogin: **P594561**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Remarks Sample # (lab only)

Report to:
Brian Linnan

Email To: **brian.linnan@aecom.com;**
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Darryl Terry Andrews + Harrison

Site/Facility ID #

P.O. #
no PO number

Collected by (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

Immediately
Packed on Ice N ___ Y **X**

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CLD, F, SO4 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres										
MW-903	Grab	GW		4-4-17	10:00	3	X	X	X										
MW-902	Grab	GW		4-4-17	10:15	3	X	X	X										61
MW-901	Grab	GW		4-4-17	10:40	3	X	X	X										62
MW-905	Grab	GW		4-4-17	11:05	3	X	X	X										63
MW-802	Grab	GW		4-5-17	11:50	3	X	X	X										64
MW-804	Grab	GW		4-5-17	13:15	3	X	X	X										65
MW-805	Grab	GW		4-5-17	13:30	3	X	X	X										66
		GW				3	X	X	X										67
		GW				3	X	X	X										68
		GW				3	X	X	X										69

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

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

pH ___ Temp ___

Flow ___ Other ___

Samples returned via:

___ UPS ___ FedEx ___ Courier ___

Tracking # **526 7788 0193**

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

Relinquished by: (Signature)
Jim Muckler

Date: **4-9-17** Time: **14:45**

Received by: (Signature)
Jim Heigel

Trip Blank Received: Yes No
HCL / MeOH
TBR

Relinquished by: (Signature)
[Signature]

Date: **4/16/17** Time: **1700**

Received by: (Signature)

Temp: **3.1** °C Bottles Received: **48**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: Time:

Received for lab by: (Signature)
[Signature]

Date: **4-7-17** Time: **845**

Hold:

Condition:
NCF OK

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: La Cygne Generating Station

City/State
Collected:

Phone: 913-344-1000
Fax: 913-344-1011

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Skaskevych/Georgy
Collected by (signature):
[Signature]

Site/Facility ID #

P.O. #
no PO number

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

Quote #

Date Results Needed

No.
of
Contrs

CLD, F, S04 125mlHDPE-NoPres

Metals 250mlHDPE-HNO3

TDS, pH 500mlHDPE-NoPres

Immediately
Packed on Ice N ___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Contrs	CLD, F, S04 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-703	Grab	GW		4/9/17	1100	3	X	X	X		08
TW-1		GW			1230	3	X	X	X		09
MW-701		GW			1315	3	X	X	X		10
MW-704		GW			1420	3	X	X	X		11
MW-707 B		GW			1545	3	X	X	X		12
MW-706		GW			1645	3	X	X	X		13
MW-702		GW		4/5	0915	3	X	X	X		14
MW-7		GW			1200	3	X	X	X		15
MW-6		GW			1350	3	X	X	X		14

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

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

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
___ UPS ___ FedEx ___ Courier ___

Tracking # 526 7758 0193

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP	Y	N
COC Signed/Accurate:		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Bottles arrive intact:		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Correct bottles used:		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Sufficient volume sent:		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
If Applicable			
VOA Zero Headspace:		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Preservation Correct/Checked:		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Relinquished by: (Signature)
[Signature]
Date: 4/5/17
Time: 1620

Date: 4/6/17
Time: 1700

Received by: (Signature)
[Signature]
Received for lab by: (Signature)
[Signature]

Trip Blank Received: Yes/No
HCL/MeOH
TBR
Temp: 3.1 AL
Date: 4-7-17
Time: 845

If preservation required by Login: Date/Time
Hold:
Condition: NCF / OK

Case Narrative

Lab No: 20170285

This report contains the analytical results for the 16 sample(s) received under chain of custody by ESC Lab Sciences on 4/7/2017 9:06:40 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L901650



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170285
 Date Reported : 05/10/17
 Date Received : 04/07/17
 Page Number : 2 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170285-01
Client ID : MW-703
Date Sampled : 4/4/2017 11:00:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.30 +/- 0.938	1.08	pCi/l				
Radium-226 SM 7500 Ra B M*	1.16 +/- 0.426	0.457	pCi/l		05/01/17	05/03/17	SD
Radium-228 EPA 904*	0.142 +/- 0.512	0.623	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-02
Client ID : TW-1
Date Sampled : 4/4/2017 12:30:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.375 +/- 0.695	0.920	pCi/l				
Radium-226 SM 7500 Ra B M*	0.055 +/- 0.184	0.345	pCi/l		05/01/17	05/03/17	SD
Radium-228 EPA 904*	0.320 +/- 0.511	0.575	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-03
Client ID : MW-701
Date Sampled : 4/4/2017 1:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.371 +/- 0.671	0.802	pCi/l				
Radium-226 SM 7500 Ra B M*	0.268 +/- 0.168	0.200	pCi/l		05/01/17	05/04/17	SD
Radium-228 EPA 904*	0.103 +/- 0.503	0.602	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-04
Client ID : MW-704
Date Sampled : 4/4/2017 2:20:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.505 +/- 0.682	0.882	pCi/l				
Radium-226 SM 7500 Ra B M*	-0.011 +/- 0.204	0.332	pCi/l		05/01/17	05/04/17	SD
Radium-228 EPA 904*	0.505 +/- 0.478	0.550	pCi/l		04/21/17	05/01/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170285
 Date Reported : 05/10/17
 Date Received : 04/07/17
 Page Number : 3 of 6

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170285-05
Client ID : MW-707B
Date Sampled : 4/4/2017 3:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.701 +/- 0.631	0.707	pCi/l				
Radium-226	SM 7500 Ra B M*	0.331 +/- 0.172	0.183	pCi/l		05/01/17	05/04/17	SD
Radium-228	EPA 904*	0.370 +/- 0.459	0.524	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-06
Client ID : MW-706
Date Sampled : 4/4/2017 4:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.628 +/- 0.699	0.799	pCi/l				
Radium-226	SM 7500 Ra B M*	0.628 +/- 0.232	0.214	pCi/l		05/01/17	05/04/17	SD
Radium-228	EPA 904*	-0.275 +/- 0.467	0.585	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-07
Client ID : MW-702
Date Sampled : 4/5/2017 9:15:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.331 +/- 0.697	1.00	pCi/l				
Radium-226	SM 7500 Ra B M*	0.331 +/- 0.195	0.238	pCi/l		05/01/17	05/04/17	SD
Radium-228	EPA 904*	-0.525 +/- 0.502	0.765	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-08
Client ID : MW-7
Date Sampled : 4/5/2017 12:00:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.23 +/- 0.695	0.797	pCi/l				
Radium-226	SM 7500 Ra B M*	0.627 +/- 0.224	0.170	pCi/l		05/01/17	05/04/17	SD
Radium-228	EPA 904*	0.606 +/- 0.471	0.627	pCi/l		04/21/17	05/01/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170285
 Date Reported : 05/10/17
 Date Received : 04/07/17
 Page Number : 4 of 6

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--	--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170285-09
Client ID : MW-6
Date Sampled : 4/5/2017 1:50:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.674 +/- 0.596	0.728	pCi/l				
Radium-226	SM 7500 Ra B M*	0.274 +/- 0.172	0.202	pCi/l		05/01/17	05/04/17	SD
Radium-228	EPA 904*	0.400 +/- 0.424	0.526	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-10
Client ID : WM-903
Date Sampled : 4/4/2017 10:00:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.45 +/- 0.586	0.685	pCi/l				
Radium-226	SM 7500 Ra B M*	0.274 +/- 0.169	0.174	pCi/l		05/01/17	05/04/17	SD
Radium-228	EPA 904*	1.18 +/- 0.417	0.511	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-11
Client ID : MW-902
Date Sampled : 4/4/2017 10:15:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.23 +/- 0.792	1.09	pCi/l				
Radium-226	SM 7500 Ra B M*	0.292 +/- 0.374	0.569	pCi/l		04/20/17	05/04/17	SD
Radium-228	EPA 904*	0.942 +/- 0.418	0.517	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-12
Client ID : MW-901
Date Sampled : 4/4/2017 10:40:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.639 +/- 0.719	0.864	pCi/l				
Radium-226	SM 7500 Ra B M*	0.398 +/- 0.232	0.300	pCi/l		04/20/17	05/04/17	SD
Radium-228	EPA 904*	0.241 +/- 0.487	0.564	pCi/l		04/21/17	05/01/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170285
 Date Reported : 05/10/17
 Date Received : 04/07/17
 Page Number : 5 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170285-13
Client ID : MW-905
Date Sampled : 4/4/2017 11:05:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.953 +/- 0.667	0.779	pCi/l				
Radium-226 SM 7500 Ra B M*	0.275 +/- 0.210	0.282	pCi/l		04/20/17	05/04/17	SD
Radium-228 EPA 904*	0.678 +/- 0.457	0.497	pCi/l		04/21/17	05/01/17	JR

Lab ID : 20170285-14
Client ID : MW-802
Date Sampled : 4/5/2017 11:50:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.78 +/- 0.847	1.11	pCi/l				
Radium-226 SM 7500 Ra B M*	0.996 +/- 0.333	0.362	pCi/l		04/20/17	05/04/17	SD
Radium-228 EPA 904*	0.780 +/- 0.514	0.752	pCi/l		04/21/17	05/02/17	JR

Lab ID : 20170285-15
Client ID : MW-804
Date Sampled : 4/5/2017 1:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.825 +/- 0.759	0.775	pCi/l				
Radium-226 SM 7500 Ra B M*	0.430 +/- 0.229	0.230	pCi/l		04/20/17	05/04/17	SD
Radium-228 EPA 904*	0.395 +/- 0.530	0.545	pCi/l		04/21/17	05/02/17	JR

Lab ID : 20170285-16
Client ID : MW-805
Date Sampled : 4/5/2017 1:30:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.018 +/- 0.781	0.993	pCi/l				
Radium-226 SM 7500 Ra B M*	0.018 +/- 0.095	0.183	pCi/l		04/20/17	05/04/17	SD
Radium-228 EPA 904*	-0.030 +/- 0.686	0.810	pCi/l		04/21/17	05/02/17	JR



Client : AECOM
Client Project : 60482842
Lab Number : 20170285
Date Reported : 05/10/17
Date Received : 04/07/17
Page Number : 6 of 6

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	-0.011	106.0			NC	0.156	77.9	86.1	9.8	R1217
Radium-226	-0.008	81.5			NC	0.274	102.0	107.0	5.2	R1216RP
Radium-228	0.719	85.2			NC	0.227	110.0	98.9	10.7	R3950

Lab Approval:

Ron Eidson
Director of Radiochemistry



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

L# 901650
Table #
Account: URSKC
Template: T112863
Prelogh: P594559
TSR: 206 - Jeff Carr
PB:
Shipped Via:
Remarks

Sample ID	Matrix *	Comp/Grab	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
MW-903	NPW	Grab		4-4-17	10:00	2		
MW-902	NPW	Grab		4-4-17	10:15	2		
MW-901	NPW	Grab		4-4-17	10:40	2		
MW-905	NPW	Grab		4-4-17	11:05	2		
MW-808	NPW	Grab		4-5-17	11:50	2		
MW-804	NPW	Grab		4-5-17	13:15	2		
MW-805	NPW	Grab		4-5-17	13:30	2		
	NPW					2		
	NPW					2		
	NPW					2		

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

Analysis / Container / Preservative	Pres Chk
ORL-RA-226, RA-228-1-HDPE-ADD HNO3	

PH _____ Temp _____
Flow _____ Other _____

Trip Blank Received: Yes / No
HCL / MeOH
Bottles Received: 32
Temp: 45 °C
Date: 4/7/17

Received by: (Signature) *Jim Muller*
Received by: (Signature) *[Signature]*
Received by lab by: (Signature) *[Signature]*

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Samples returned via:
UPS FedEx Courier

Date: 4-5-17 Time: 14:45
Date: 4/6/17 Time: 17:00
Date: Time:

Relinquished by: (Signature) *Jim Muller*
Relinquished by: (Signature) *[Signature]*
Relinquished by: (Signature) *[Signature]*

Billing information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Brian Linnan

Project Description: La Cygne Generating Station

Client Project #
60482842

Site/Facility ID #
TASK 100

Collected by (print): *Jim Muller*
Terry Andrews
Daryl Harrison

Collected by (signature): *[Signature]*

City/State
Collected:

Lab Project #
URSKC-LACYGNE

P.O. #
no PO number

Quote #

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

Immediately Packed on Ice N Y X

Date Results Needed

20170285-2

SAMPLE LOGIN

Date Received: 4/7/2017 9:06:40

Lab Number: 20170285

Due: 5/5/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170285-01 B	MW-703	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-01 A	MW-703	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170285-02 A	TW-1	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-02 B	TW-1	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170285-03 A	MW-701	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-03 B	MW-701	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170285-04 B	MW-704	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-04 A	MW-704	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170285-05 A	MW-707B	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-05 B	MW-707B	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170285-06 A	MW-706	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-06 B	MW-706	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						
20170285-07 A	MW-702	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-07 B	MW-702	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*/9320*						

20170285-08 A	MW-7	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-08 B	MW-7	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-09 B	MW-6	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-09 A	MW-6	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-10 A	WM-903	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-10 B	WM-903	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-11 A	MW-902	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-11 B	MW-902	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-12 B	MW-901	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-12 A	MW-901	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-13 A	MW-905	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-13 B	MW-905	NPW	04/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-14 A	MW-802	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-14 B	MW-802	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-15 A	MW-804	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-15 B	MW-804	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170285-16 B	MW-805	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170285-16 A	MW-805	NPW	04/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

Radium-226
Radium-228

SM 7500 Ra B M*
EPA 904*/9320*

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken Temperature: Ab C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete MA

Anomalies

Inspected By: [Signature] DATE 4/7/17
QA or Designee Review: [Signature] DATE 4/26/17
Sample Custodian Review: [Signature] DATE 4/17/17

Project Notes:

Jared Morrison
December 16, 2022

ATTACHMENT 1-7
May 2017 Sampling Event Laboratory Report

Case Narrative

Lab No: 20170375

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 5/4/2017 1:42:23 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L907682



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170375
 Date Reported : 06/02/17
 Date Received : 05/04/17
 Page Number : 2 of 2

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID	: 20170375-01							
Client ID	: MW-904							
Date Sampled	: 5/3/2017 9:20:00 AM							
Matrix	: NPW							

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	0.083 +/- 0.132	0.212	pCi/l		05/22/17	05/25/17	SD
Radium-228	EPA 904*	0.479 +/- 0.522	0.857	pCi/l		05/18/17	05/24/17	JR

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	-0.020	118.0			NC	0.252	123.0	113.0	8.2	R1227
Radium-228	-0.521	105.0			NC	0.341	80.1	92.5	14.0	R3961

Lab Approval:

 Ron Eidson
 Director of Radiochemistry

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

L# 967682
 Table #
 Acctnum: **URSKC**
 Template:
 Prelogin: **206 - Jeff Carr**
 Cooler:
 Shipped Via:

Rem./Contaminant Sample # (lab only)

Analysis / Container / Preservative
<i>Copy</i>

Company Name/Address:
AECOM-Overland Park, KS
 2380 McGee Street
 Kansas City, MO. 64108

Report to: *Jim Muekler*
 Email: *Jim.Muekler@AECOM.COM*

Billing Information:
 City/State Collected: **Kansas**
 Lab Project # **URSKC-LACYGNE**
 P.O. #

Date Results Needed
 Email? No Yes
 FAX? No Yes
 No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time
MW-904	<i>Grab</i>	<i>GW</i>		<i>5/3/17</i>	<i>9:20</i>

Client Project # *60482842*
 Site/Facility ID # *La Cygne*
 Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Collected by (print): *Tejraj Andujes*
 Collected by (signature): *[Signature]*
 Immediately Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time
MW-904	<i>Grab</i>	<i>GW</i>		<i>5/3/17</i>	<i>9:20</i>

Received by: (Signature) *[Signature]* Time: *1:50*
 Received by: (Signature) *[Signature]* Time: *1700*
 Received for lab by: (Signature) *[Signature]* Time: *1700*

* Matrix: **SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other**

Remarks:

Relinquished by: (Signature) *[Signature]* Date: *5/3/17* Time: *1:50*
 Relinquished by: (Signature) *[Signature]* Date: *5/3/17* Time: *1700*
 Relinquished by: (Signature) *[Signature]* Date: *5/3/17* Time: *1700*

Temp: °C Bottles Received: 2
 Date: *5/4/17* Time: *1347*

Condition: (lab use only)
 COC Seal Intact: Y N NA
 pH Checked: NCF:

Hold #

Flow Temp
 Samples returned via: UPS FedEx Courier

20170375

SAMPLE LOGIN

Date Received: 5/4/2017 1:42:23

Lab Number: 20170375

Due: 6/2/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170375-01 B	MW-904	NPW	05/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170375-01 A	MW-904	NPW	05/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						

CONTAINER INSPECTION

Coolers 1 Custody Seals Broken 0 Temperature: Ab C Ice ✓ Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken 0 Chain of Custody Record ✓ Labels in Tact ✓ Radiation Survey Complete N/A

Anomalies

Inspected By: [Signature] DATE 5/4/17
 QA or Designee Review: [Signature] DATE 5/4/17
 Sample Custodian Review: _____ DATE _____

Project Notes:

Case Narrative

Lab No: 20170448

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 5/19/2017 9:03:20 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L910715



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170448
 Date Reported : 06/20/17
 Date Received : 05/19/17
 Page Number : 2 of 2

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170448-01							
Client ID : MW-904							
Date Sampled : 5/18/2017 11:55:00 AM							
Matrix : NPW							

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	0.332 +/- 0.166	0.165	pCi/l	06/13/17	06/16/17	SD
Radium-228	EPA 904*	-1.60 +/- 1.68	1.07	pCi/l	06/02/17	06/07/17	JR

QC Report

Parameter	Blank	LCS %REC	LCS D %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	-0.003	98.5			NC	0.545	85.9	94.3	9.3	R1240
Radium-228	0.093	84.9			NC	0.120	84.4	74.3	11.4	R3967

Lab Approval:

Ron Eidson
 Director of Radiochemistry

SAMPLE LOGIN

Date Received: 5/19/2017 9:03:20

Lab Number: 20170448

Due: 6/19/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170448-01 B	MW-904	NPW	05/18/17	Plastic	1 L	HNO ₃ , pH < 2	✓	No	No
20170448-01 A	MW-904	NPW	05/18/17	Plastic	1 L	HNO ₃ , pH < 2	✓	No	No

SM 7500 Ra B M*
EPA 904*

CONTAINER INSPECTION

Coolers 1 Custody Seals Broken 0 Temperature: 13 C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken 0 Chain of Custody Record Labels in Tact Radiation Survey Complete N/A

Anomalies

Inspected By: [Signature] DATE 5/19/17
 QA or Designee Review: Raymond Thomas DATE 05/19/17
 Sample Custodian Review: [Signature] DATE 5/19/17

Project Notes:

AECOM - Kansas City, MO

Sample Delivery Group: L906890
Samples Received: 05/04/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: LACY CYGNE
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jason Romer
Technical Service Representative

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



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SAMPLE SUMMARY



MW-904 L906890-01 GW

Collected by
Terry Andrews

Collected date/time
05/03/17 09:20

Received date/time
05/04/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG978020	1	05/10/17 16:26	05/10/17 18:25	MMF
Wet Chemistry by Method 2320 B-2011	WG976598	1	05/05/17 12:07	05/05/17 12:07	AMC
Wet Chemistry by Method 9040C	WG976646	1	05/05/17 08:09	05/05/17 08:09	MA
Wet Chemistry by Method 9056A	WG976625	1	05/05/17 19:30	05/05/17 19:30	SAM
Wet Chemistry by Method 9056A	WG977192	5	05/08/17 17:06	05/08/17 17:06	KCF
Mercury by Method 7470A	WG976674	1	05/05/17 11:40	05/06/17 09:33	TRB
Metals (ICP) by Method 6010B	WG977680	1	05/09/17 13:03	05/09/17 16:51	ST
Metals (ICPMS) by Method 6020	WG977923	1	05/09/17 20:41	05/10/17 18:49	VSS
Metals (ICPMS) by Method 6020	WG977923	1	05/09/17 20:41	05/12/17 01:48	LAT

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	704		10.0	1	05/10/2017 18:25	WG978020

1 Cp

2 Tc

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	492		20.0	1	05/05/2017 12:07	WG976598
Alkalinity,Carbonate	ND		20.0	1	05/05/2017 12:07	WG976598

3 Ss

4 Cn

5 Sr

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.48	T8	1	05/05/2017 08:09	WG976646

6 Qc

7 Gl

Sample Narrative:

9040C L906890-01 WG976646: 7.48 at 10.1c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	39.6		1.00	1	05/05/2017 19:30	WG976625
Fluoride	0.375		0.100	1	05/05/2017 19:30	WG976625
Sulfate	134		25.0	5	05/08/2017 17:06	WG977192

8 Al

9 Sc

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	05/06/2017 09:33	WG976674

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.40		0.200	1	05/09/2017 16:51	WG977680
Lithium	0.0503		0.0150	1	05/09/2017 16:51	WG977680
Molybdenum	0.0116		0.00500	1	05/09/2017 16:51	WG977680

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	05/10/2017 18:49	WG977923
Arsenic	ND		0.00200	1	05/10/2017 18:49	WG977923
Barium	0.124		0.00500	1	05/10/2017 18:49	WG977923
Beryllium	ND		0.00200	1	05/12/2017 01:48	WG977923
Cadmium	ND		0.00100	1	05/10/2017 18:49	WG977923
Calcium	82.4		1.00	1	05/10/2017 18:49	WG977923
Chromium	ND		0.00200	1	05/10/2017 18:49	WG977923
Cobalt	ND		0.00200	1	05/10/2017 18:49	WG977923
Lead	ND		0.00200	1	05/10/2017 18:49	WG977923
Selenium	ND		0.00200	1	05/10/2017 18:49	WG977923
Thallium	ND		0.00200	1	05/10/2017 18:49	WG977923



Method Blank (MB)

(MB) R3217398-1 05/10/17 18:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L906890-01 Original Sample (OS) • Duplicate (DUP)

(OS) L906890-01 05/10/17 18:25 • (DUP) R3217398-4 05/10/17 18:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	704	720	1	2.25		5

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

(LCS) R3217398-2 05/10/17 18:25 • (LCSD) R3217398-3 05/10/17 18:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8740	8530	99.3	96.9	85.0-115			2.43	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3216416-1 05/05/17 08:58

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Alkalinity,Bicarbonate	2.73	J	2.71	20.0
Alkalinity,Carbonate	U		2.71	20.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



[L906890-01](#)

L906890-01 Original Sample (OS) • Duplicate (DUP)

(OS) L906890-01 05/05/17 08:09 • (DUP) WG976646-3 05/05/17 08:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.48	7.49	1	0.134	<u>T8</u>	1

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

(LCS) WG976646-1 05/05/17 08:09 • (LCSD) WG976646-2 05/05/17 08:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	7.50	7.52	7.52	100	100	98.7-101			0.000	1

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3216041-1 05/05/17 12:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L906835-17 Original Sample (OS) • Duplicate (DUP)

(OS) L906835-17 05/05/17 15:13 • (DUP) R3216041-5 05/05/17 15:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	15.2	15.4	1	1		15
Fluoride	0.320	0.320	1	0		15

L906894-03 Original Sample (OS) • Duplicate (DUP)

(OS) L906894-03 05/05/17 17:22 • (DUP) R3216041-6 05/05/17 17:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	7.01	6.84	1	3		15
Fluoride	0.152	0.152	1	0		15

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

(LCS) R3216041-2 05/05/17 12:32 • (LCSD) R3216041-3 05/05/17 12:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.7	39.7	99	99	80-120			0	15
Fluoride	8.00	8.06	8.08	101	101	80-120			0	15

L906835-15 Original Sample (OS) • Matrix Spike (MS)

(OS) L906835-15 05/05/17 14:27 • (MS) R3216041-4 05/05/17 14:38

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	72.5	120	95	1	80-120	E
Fluoride	5.00	ND	4.86	96	1	80-120	



L906897-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L906897-01 05/05/17 19:42 • (MS) R3216041-7 05/05/17 19:53 • (MSD) R3216041-8 05/05/17 20:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits
Chloride	50.0	79.2	127	127	95	96	1	80-120	E	E	0	15
Fluoride	5.00	ND	4.96	4.38	98	86	1	80-120			12	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3216425-1 05/08/17 11:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L906847-01 Original Sample (OS) • Duplicate (DUP)

(OS) L906847-01 05/08/17 15:36 • (DUP) R3216425-4 05/08/17 15:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	0.000	1	0		15

L907023-02 Original Sample (OS) • Duplicate (DUP)

(OS) L907023-02 05/08/17 18:35 • (DUP) R3216425-6 05/08/17 19:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	U	0.000	1	0		15

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

(LCS) R3216425-2 05/08/17 12:10 • (LCSD) R3216425-3 05/08/17 12:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	39.3	39.8	98	99	80-120			1	15

L906852-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L906852-01 05/08/17 16:36 • (MS) R3216425-5 05/08/17 16:51

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	54.7	105	100	1	80-120	E

L907023-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L907023-04 05/08/17 19:50 • (MS) R3216425-7 05/08/17 20:05 • (MSD) R3216425-8 05/08/17 20:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	U	49.4	49.5	99	99	1	80-120			0	15



Method Blank (MB)

(MB) R3216031-1 05/06/17 09:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3216031-2 05/06/17 09:04 • (LCSD) R3216031-3 05/06/17 09:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00274	0.00274	91	91	80-120			0	20

L906897-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L906897-02 05/06/17 09:08 • (MS) R3216031-4 05/06/17 09:11 • (MSD) R3216031-5 05/06/17 09:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00290	0.00275	97	92	1	75-125			5	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3216735-1 05/09/17 16:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3216735-2 05/09/17 16:32 • (LCSD) R3216735-3 05/09/17 16:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.991	1.00	99	100	80-120			1	20
Lithium	1.00	1.06	1.07	106	107	80-120			1	20
Molybdenum	1.00	1.02	1.03	102	103	80-120			1	20

L907163-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L907163-04 05/09/17 16:37 • (MS) R3216735-5 05/09/17 16:43 • (MSD) R3216735-6 05/09/17 16:45

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	ND	1.05	1.05	100	101	1	75-125			0	20
Lithium	1.00	ND	1.09	1.10	109	109	1	75-125			0	20
Molybdenum	1.00	ND	1.03	1.04	103	104	1	75-125			1	20



Method Blank (MB)

(MB) R3217147-12 05/10/17 19:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	0.000801	J	0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3217524-1 05/12/17 01:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Beryllium	U		0.00012	0.00200

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

(LCS) R3217147-14 05/10/17 19:21 • (LCSD) R3217147-13 05/10/17 19:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0532	0.0549	106	110	80-120			3	20
Arsenic	0.0500	0.0476	0.0472	95	94	80-120			1	20
Barium	0.0500	0.0521	0.0521	104	104	80-120			0	20
Cadmium	0.0500	0.0499	0.0492	100	98	80-120			1	20
Calcium	5.00	5.09	5.24	102	105	80-120			3	20
Chromium	0.0500	0.0502	0.0494	100	99	80-120			2	20
Cobalt	0.0500	0.0508	0.0503	102	101	80-120			1	20
Lead	0.0500	0.0498	0.0499	100	100	80-120			0	20
Selenium	0.0500	0.0506	0.0506	101	101	80-120			0	20
Thallium	0.0500	0.0509	0.0507	102	101	80-120			0	20



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

(LCS) R3217524-2 05/12/17 01:26 • (LCSD) R3217524-3 05/12/17 01:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Beryllium	0.0500	0.0471	0.0474	94	95	80-120			1	20

L907961-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L907961-02 05/10/17 19:02 • (MS) R3217147-15 05/10/17 19:45 • (MSD) R3217147-16 05/10/17 19:49

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Antimony	0.0500	0.00248	0.0587	0.0582	112	112	1	75-125			1	20
Arsenic	0.0500	0.00309	0.0502	0.0506	94	95	1	75-125			1	20
Barium	0.0500	0.379	0.425	0.421	92	84	1	75-125			1	20
Cadmium	0.0500	U	0.0500	0.0511	100	102	1	75-125			2	20
Calcium	5.00	89.0	92.6	91.5	72	50	1	75-125	<u>V</u>	<u>V</u>	1	20
Chromium	0.0500	U	0.0479	0.0499	96	100	1	75-125			4	20
Cobalt	0.0500	0.00248	0.0506	0.0517	96	98	1	75-125			2	20
Lead	0.0500	U	0.0493	0.0503	99	101	1	75-125			2	20
Selenium	0.0500	0.00331	0.0554	0.0555	104	104	1	75-125			0	20
Thallium	0.0500	U	0.0501	0.0512	100	102	1	75-125			2	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

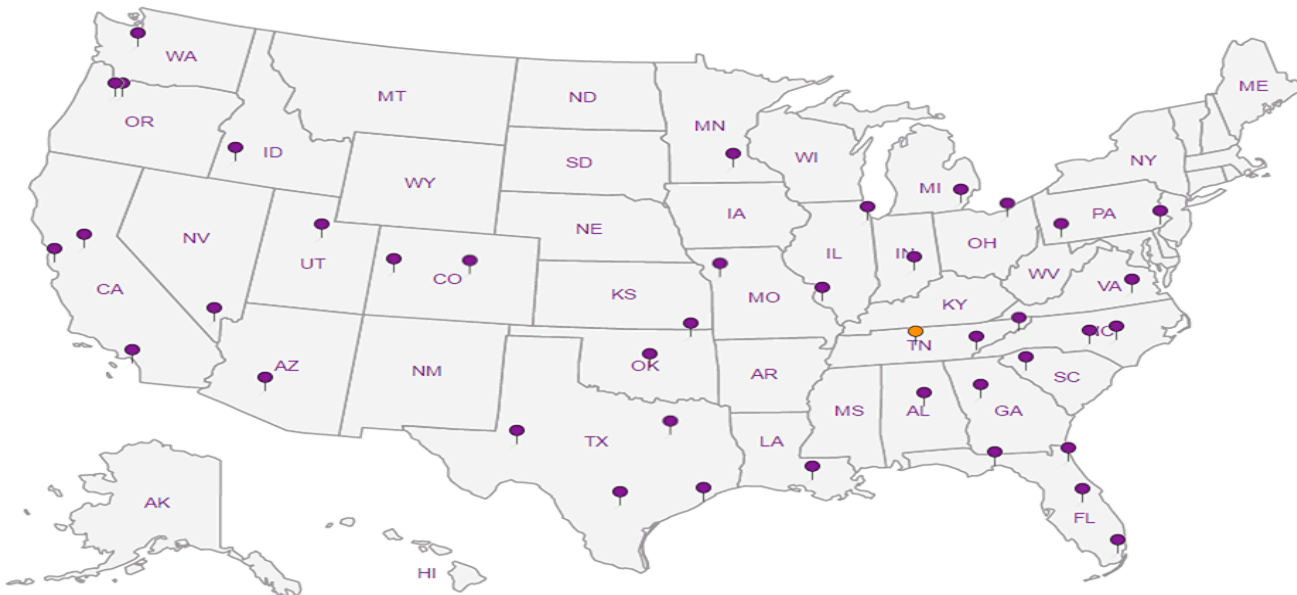
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



Matt Shacklock

**ESC Lab Sciences
Non-Conformance Form**

Login #906890	Client: URSKC	Date: 5/4	Evaluated by: Matt S
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Non-Conformance (check applicable items)

Sample Integrity	Chain of Custody Clarification	If Broken Container:
Parameter(s) past holding time <input checked="" type="checkbox"/>	Login Clarification Needed	
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 / Courier)
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: Which Metals

Client informed by:	Call	Email	Voice Mail	Date: 5/4/17	Time: 1347
TSR Initials: JC	Client Contact:				

Login Instructions: Metals: (6020) AS,BA,BE,CA,CD,CO,CR,PB,SB,SE,TL (6010B) B,MO,LI (7470) HG.

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AECOM - Kansas City, MO

Sample Delivery Group: L911749
Samples Received: 05/25/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:













Jeff Carr

Technical Service Representative

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



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SAMPLE SUMMARY



MW-904 L911749-01 GW

Collected by
Terry Andrews

Collected date/time
05/24/17 10:40

Received date/time
05/25/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG984149	1	05/31/17 08:35	05/31/17 09:16	EG
Wet Chemistry by Method 9040C	WG983105	1	05/25/17 12:40	05/25/17 12:40	MHM
Wet Chemistry by Method 9056A	WG983856	1	05/30/17 13:18	05/30/17 13:18	KCF
Wet Chemistry by Method 9056A	WG983856	5	05/30/17 19:39	05/30/17 19:39	KCF
Mercury by Method 7470A	WG983183	1	05/25/17 13:59	05/26/17 05:34	EL
Metals (ICP) by Method 6010B	WG984456	1	05/31/17 17:39	06/01/17 00:07	JDG
Metals (ICPMS) by Method 6020	WG983435	1	05/26/17 09:56	05/26/17 21:40	JDG

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	771		10.0	1	05/31/2017 09:16	WG984149

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.36	<u>T8</u>	1	05/25/2017 12:40	WG983105

3 Ss

4 Cn

Sample Narrative:

9040C L911749-01 WG983105: 7.36 at 15.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	39.1		1.00	1	05/30/2017 13:18	WG983856
Fluoride	0.411		0.100	1	05/30/2017 13:18	WG983856
Sulfate	132		25.0	5	05/30/2017 19:39	WG983856

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	05/26/2017 05:34	WG983183

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.34		0.200	1	06/01/2017 00:07	WG984456
Lithium	0.0463		0.0150	1	06/01/2017 00:07	WG984456
Molybdenum	0.0113		0.00500	1	06/01/2017 00:07	WG984456

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	05/26/2017 21:40	WG983435
Arsenic	ND		0.00200	1	05/26/2017 21:40	WG983435
Beryllium	ND		0.00200	1	05/26/2017 21:40	WG983435
Cadmium	ND		0.00100	1	05/26/2017 21:40	WG983435
Calcium	79.8		1.00	1	05/26/2017 21:40	WG983435
Chromium	0.00206		0.00200	1	05/26/2017 21:40	WG983435
Cobalt	ND		0.00200	1	05/26/2017 21:40	WG983435
Lead	ND		0.00200	1	05/26/2017 21:40	WG983435
Selenium	ND		0.00200	1	05/26/2017 21:40	WG983435
Thallium	ND		0.00200	1	05/26/2017 21:40	WG983435



Method Blank (MB)

(MB) R3222788-1 05/31/17 09:16

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L911723-05 Original Sample (OS) • Duplicate (DUP)

(OS) L911723-05 05/31/17 09:16 • (DUP) R3222788-4 05/31/17 09:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2330	2310	1	0.862		5

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

(LCS) R3222788-2 05/31/17 09:16 • (LCSD) R3222788-3 05/31/17 09:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8540	8800	97.0	100	85.0-115			3.00	5

⁷ Gl

⁸ Al

⁹ Sc



L911732-02 Original Sample (OS) • Duplicate (DUP)

(OS) L911732-02 05/25/17 12:40 • (DUP) WG983105-3 05/25/17 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.04	7.04	1	0.000	<u>T8</u>	1

1 Cp

2 Tc

3 Ss

L911772-01 Original Sample (OS) • Duplicate (DUP)

(OS) L911772-01 05/25/17 12:40 • (DUP) WG983105-4 05/25/17 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.73	7.74	1	0.129	<u>T8</u>	1

4 Cn

5 Sr

6 Qc

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

(LCS) WG983105-1 05/25/17 12:39 • (LCSD) WG983105-2 05/25/17 12:39

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.38	6.37	6.40	99.8	100	98.7-101			0.470	1

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3222032-1 05/30/17 10:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.084	J	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

L911723-04 Original Sample (OS) • Duplicate (DUP)

(OS) L911723-04 05/30/17 12:49 • (DUP) R3222032-4 05/30/17 13:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	233	236	20	1		15
Fluoride	0.429	0.249	20	53	J P1	15
Sulfate	1190	1170	20	1		15

5 Sr

6 Qc

7 Gl

L911723-05 Original Sample (OS) • Duplicate (DUP)

(OS) L911723-05 05/30/17 15:30 • (DUP) R3222032-6 05/30/17 15:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	225	229	20	2		15
Fluoride	0.490	0.264	20	60	J P1	15
Sulfate	1170	1160	20	1		15

8 Al

9 Sc

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

(LCS) R3222032-2 05/30/17 10:51 • (LCSD) R3222032-3 05/30/17 11:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.8	99	100	80-120			0	15
Fluoride	8.00	8.05	8.05	101	101	80-120			0	15
Sulfate	40.0	40.1	39.8	100	100	80-120			1	15

L911749-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L911749-01 05/30/17 13:18 • (MS) R3222032-5 05/30/17 14:02

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	39.1	88.1	98	1	80-120	
Fluoride	5.00	0.411	5.38	99	1	80-120	



[L911749-01](#)

L911750-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L911750-01 05/30/17 16:43 • (MS) R3222032-7 05/30/17 16:58 • (MSD) R3222032-8 05/30/17 17:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	36.7	85.8	99.9	98	126	1	80-120		J5	15	15
Fluoride	5.00	0.603	5.64	5.63	101	101	1	80-120			0	15
Sulfate	50.0	24.4	73.8	73.8	99	99	1	80-120			0	15

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



Method Blank (MB)

(MB) R3221151-1 05/26/17 05:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

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

(LCS) R3221151-2 05/26/17 05:30 • (LCSD) R3221151-3 05/26/17 05:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00284	0.00260	95	87	80-120			9	20

⁴ Cn

⁵ Sr

L911749-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L911749-01 05/26/17 05:34 • (MS) R3221151-4 05/26/17 05:37 • (MSD) R3221151-5 05/26/17 05:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00264	0.00268	88	89	1	75-125			1	20

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



[L911749-01](#)

Method Blank (MB)

(MB) R3222350-1 05/31/17 23:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3222350-2 05/31/17 23:20 • (LCSD) R3222350-3 05/31/17 23:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.990	0.983	99	98	80-120			1	20
Lithium	1.00	0.986	0.984	99	98	80-120			0	20
Molybdenum	1.00	1.02	1.02	102	102	80-120			0	20

L911728-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L911728-02 05/31/17 23:26 • (MS) R3222350-5 05/31/17 23:31 • (MSD) R3222350-6 05/31/17 23:34

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.594	1.58	1.56	99	97	1	75-125			1	20
Lithium	1.00	0.0629	1.06	1.06	100	100	1	75-125			0	20
Molybdenum	1.00	ND	1.04	1.03	103	102	1	75-125			1	20



Method Blank (MB)

(MB) R3221438-1 05/26/17 19:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	0.0533	J	0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3221438-2 05/26/17 19:58 • (LCSD) R3221438-3 05/26/17 20:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0579	0.0574	116	115	80-120			1	20
Arsenic	0.0500	0.0539	0.0563	108	113	80-120			4	20
Beryllium	0.0500	0.0534	0.0534	107	107	80-120			0	20
Cadmium	0.0500	0.0562	0.0573	112	115	80-120			2	20
Calcium	5.00	5.76	5.53	115	111	80-120			4	20
Chromium	0.0500	0.0565	0.0594	113	119	80-120			5	20
Cobalt	0.0500	0.0582	0.0601	116	120	80-120			3	20
Lead	0.0500	0.0557	0.0554	111	111	80-120			1	20
Selenium	0.0500	0.0575	0.0562	115	112	80-120			2	20
Thallium	0.0500	0.0558	0.0555	112	111	80-120			1	20

L910945-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L910945-01 05/26/17 20:05 • (MS) R3221438-5 05/26/17 20:12 • (MSD) R3221438-6 05/26/17 20:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Antimony	0.0500	ND	0.0579	0.0572	116	114	1	75-125			1	20
Arsenic	0.0500	0.0316	0.0836	0.0853	104	107	1	75-125			2	20
Beryllium	0.0500	ND	0.0532	0.0535	106	107	1	75-125			0	20
Cadmium	0.0500	ND	0.0557	0.0572	111	114	1	75-125			3	20
Calcium	5.00	58.7	62.7	62.3	80	73	1	75-125		V	1	20
Chromium	0.0500	ND	0.0561	0.0566	112	113	1	75-125			1	20
Cobalt	0.0500	ND	0.0563	0.0573	113	115	1	75-125			2	20



L910945-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L910945-01 05/26/17 20:05 • (MS) R3221438-5 05/26/17 20:12 • (MSD) R3221438-6 05/26/17 20:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	0.0500	ND	0.0557	0.0560	110	111	1	75-125			1	20
Selenium	0.0500	ND	0.0562	0.0573	112	115	1	75-125			2	20
Thallium	0.0500	ND	0.0553	0.0561	111	112	1	75-125			1	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

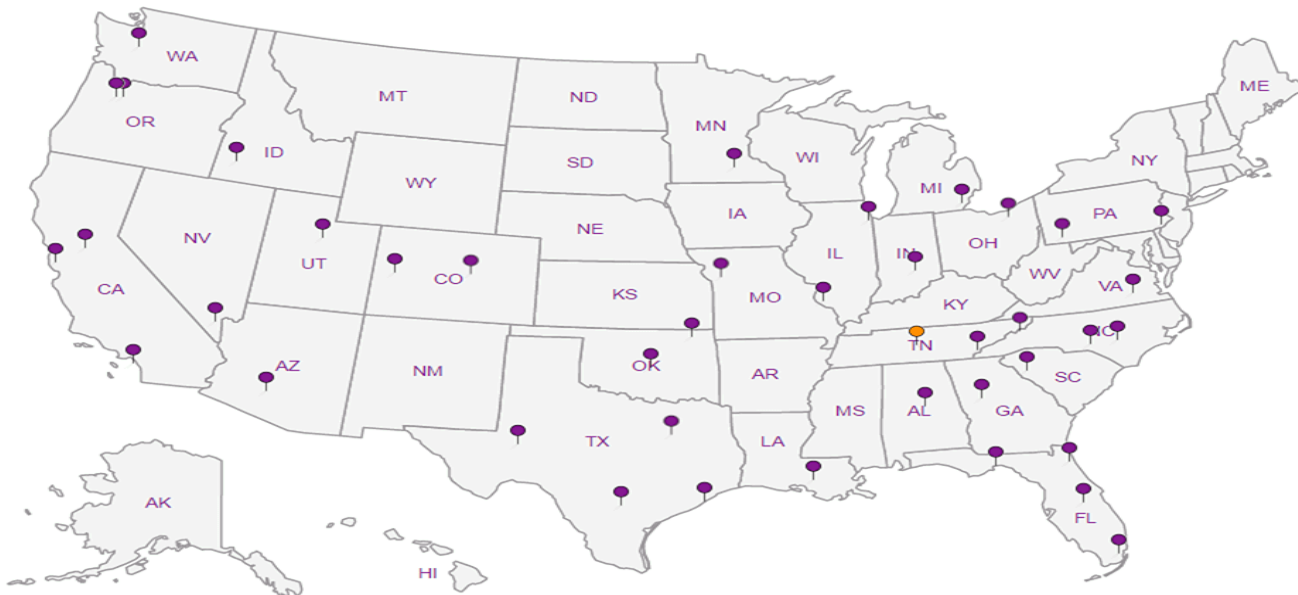
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



ESC LAB SCIENCES Cooler Receipt Form

Client: <u>VRSKC</u>	SDG#	<u>L911749</u>		
Cooler Received/Opened On: <u>5/29/17</u>	Temperature:	<u>2.1</u>		
Received by : <u>Nadiar Yakob</u>				
Signature: <u><i>Nadiar Yakob</i></u>				
Receipt Check List		<u>NP</u>	Yes	No
COC Seal Present / Intact?				
COC Signed / Accurate?				
Bottles arrive intact?				
Correct bottles used?				
Sufficient volume sent?				
If Applicable				
VOA Zero headspace?				
Preservation Correct / Checked?				

Jared Morrison
December 16, 2022

ATTACHMENT 1-8
June 2017 Sampling Event Laboratory Report

Case Narrative

Lab No: 20170615

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 7/3/2017 10:03:48 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L920180



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170615
 Date Reported : 08/02/17
 Date Received : 07/03/17
 Page Number : 2 of 2

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170615-01							
Client ID : MW-904							
Date Sampled : 6/30/2017 10:20:00 AM							
Matrix : NPW							

Radiochemical Analyses

Combined Radium		0.762 +/- 1.48	1.02	pCi/l			
Radium-226	SM 7500 Ra B M*	0.011 +/- 0.132	0.253	pCi/l	07/14/17	07/18/17	SD
Radium-228	EPA 904*	0.751 +/- 1.35	0.766	pCi/l	07/26/17	07/31/17	JR

QC Report

Parameter	Blank	LCS		LCSD		DUP RPD	RER, NAD or DER	MS		MSD		Batch ID
		%REC		%REC	RPD			%REC		%REC	RPD	
Radium-226	0.006	112.0				NC	0.145	118.0	111.0	5.8		R1255
Radium-228	-0.273	83.1				NC	0.250	79.0	73.2	7.3		R3983

Lab Approval:

Ron Eidson
 Director of Radiochemistry

SAMPLE LOGIN

Due: 8/2/2017

Lab Number: 20170615

Date Received: 7/3/2017 10:03:48

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170615-01 B	MW-904	NPW	06/30/17	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20170615-01 A	MW-904	NPW	06/30/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226									
Radium-228									

CONTAINER INSPECTION

Coolers 1 Custody Seals Broken Temperature: N/A Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete

Anomalies

Inspected By: [Signature] DATE 7/3/17

QA or Designee Review: [Signature] DATE 07/03/17

Sample Custodian Review: _____ DATE _____

Project Notes:

Case Narrative

Lab No: 20170544

This report contains the analytical results for the 17 sample(s) received under chain of custody by ESC Lab Sciences on 6/16/2017 9:40:37 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L916971



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170544
 Date Reported : 07/18/17
 Date Received : 06/16/17
 Page Number : 2 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170544-01							
Client ID : MW-904							
Date Sampled : 6/12/2017 12:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.52 +/- 0.480	0.638	pCi/l				
Radium-226 SM 7500 Ra B M*	0.089 +/- 0.099	0.144	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	1.43 +/- 0.381	0.494	pCi/l		07/03/17	07/10/17	JR
Lab ID : 20170544-02							
Client ID : MW-805							
Date Sampled : 6/13/2017 1:45:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.060 +/- 0.571	0.744	pCi/l				
Radium-226 SM 7500 Ra B M*	0.050 +/- 0.098	0.162	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	0.010 +/- 0.473	0.582	pCi/l		07/03/17	07/10/17	JR
Lab ID : 20170544-03							
Client ID : MW-803							
Date Sampled : 6/13/2017 2:40:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.10 +/- 0.646	0.824	pCi/l				
Radium-226 SM 7500 Ra B M*	0.428 +/- 0.257	0.342	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	0.667 +/- 0.389	0.482	pCi/l		07/03/17	07/10/17	JR
Lab ID : 20170544-04							
Client ID : MW-802							
Date Sampled : 6/13/2017 3:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	2.26 +/- 0.873	1.20	pCi/l				
Radium-226 SM 7500 Ra B M*	0.494 +/- 0.245	0.308	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	1.77 +/- 0.628	0.889	pCi/l		07/03/17	07/10/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170544
 Date Reported : 07/18/17
 Date Received : 06/16/17
 Page Number : 3 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170544-05							
Client ID : MW-804							
Date Sampled : 6/13/2017 4:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.61 +/- 0.712	0.883	pCi/l				
Radium-226 SM 7500 Ra B M*	0.376 +/- 0.227	0.284	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	1.23 +/- 0.485	0.599	pCi/l		07/03/17	07/10/17	JR
Lab ID : 20170544-06							
Client ID : MW-951							
Date Sampled : 6/13/2017 4:50:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.841 +/- 0.670	0.825	pCi/l				
Radium-226 SM 7500 Ra B M*	0.508 +/- 0.251	0.297	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	0.333 +/- 0.419	0.528	pCi/l		07/03/17	07/10/17	JR
Lab ID : 20170544-07							
Client ID : MW-801							
Date Sampled : 6/14/2017 10:40:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.973 +/- 0.706	0.828	pCi/l				
Radium-226 SM 7500 Ra B M*	0.526 +/- 0.244	0.273	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	0.447 +/- 0.462	0.555	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-08							
Client ID : MW-15							
Date Sampled : 6/14/2017 12:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.00 +/- 0.536	0.697	pCi/l				
Radium-226 SM 7500 Ra B M*	0.056 +/- 0.132	0.224	pCi/l		06/28/17	06/29/17	RE
Radium-228 EPA 904*	0.946 +/- 0.404	0.473	pCi/l		07/03/17	07/11/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170544
 Date Reported : 07/18/17
 Date Received : 06/16/17
 Page Number : 4 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170544-09							
Client ID : MW-950							
Date Sampled : 6/13/2017 10:00:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.36 +/- 0.533	0.623	pCi/l				
Radium-226 SM 7500 Ra B M*	0.264 +/- 0.128	0.126	pCi/l		06/28/17	06/30/17	RE
Radium-228 EPA 904*	1.10 +/- 0.405	0.497	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-10							
Client ID : MW-705							
Date Sampled : 6/13/2017 10:40:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.278 +/- 0.601	0.696	pCi/l				
Radium-226 SM 7500 Ra B M*	0.278 +/- 0.127	0.116	pCi/l		06/28/17	06/30/17	RE
Radium-228 EPA 904*	-0.182 +/- 0.474	0.580	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-11							
Client ID : MW-706							
Date Sampled : 6/13/2017 11:50:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.812 +/- 0.498	0.604	pCi/l				
Radium-226 SM 7500 Ra B M*	0.273 +/- 0.151	0.178	pCi/l		06/28/17	06/30/17	RE
Radium-228 EPA 904*	0.539 +/- 0.347	0.426	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-12							
Client ID : TW-1							
Date Sampled : 6/13/2017 1:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	2.64 +/- 0.567	0.734	pCi/l				
Radium-226 SM 7500 Ra B M*	0.185 +/- 0.122	0.146	pCi/l		06/28/17	06/30/17	RE
Radium-228 EPA 904*	2.45 +/- 0.445	0.588	pCi/l		07/03/17	07/11/17	JR

*NELAC Certified Parameter

BDL = Below Detection Limit



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170544
 Date Reported : 07/18/17
 Date Received : 06/16/17
 Page Number : 5 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170544-13							
Client ID : MW-701							
Date Sampled : 6/13/2017 2:20:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.956 +/- 0.523	0.553	pCi/l				
Radium-226 SM 7500 Ra B M*	0.206 +/- 0.107	0.090	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.750 +/- 0.416	0.463	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-14							
Client ID : MW-704							
Date Sampled : 6/13/2017 4:10:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.27 +/- 0.652	0.873	pCi/l				
Radium-226 SM 7500 Ra B M*	0.250 +/- 0.128	0.126	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	1.02 +/- 0.524	0.747	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-15							
Client ID : MW-707B							
Date Sampled : 6/13/2017 5:10:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.00 +/- 0.634	0.777	pCi/l				
Radium-226 SM 7500 Ra B M*	0.161 +/- 0.106	0.121	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.841 +/- 0.528	0.656	pCi/l		07/03/17	07/11/17	JR
Lab ID : 20170544-16							
Client ID : MW-703							
Date Sampled : 6/14/2017 11:40:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.05 +/- 0.679	0.653	pCi/l				
Radium-226 SM 7500 Ra B M*	0.971 +/- 0.219	0.074	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.080 +/- 0.460	0.579	pCi/l		07/03/17	07/11/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170544
 Date Reported : 07/18/17
 Date Received : 06/16/17
 Page Number : 6 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170544-17							
Client ID : MW-708							
Date Sampled : 6/14/2017 1:40:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.176 +/- 0.506	0.709	pCi/l				
Radium-226 SM 7500 Ra B M*	0.063 +/- 0.114	0.185	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.113 +/- 0.392	0.524	pCi/l		07/03/17	07/11/17	JR

QC Report

Parameter	Blank	LCS	LCSD		DUP RPD	RER, NAD or DER	MS	MSD		Batch ID
		%REC	%REC	RPD			%REC	%REC	RPD	
Radium-226	0.014	81.4			NC	0.133	83.5	97.0	14.9	R1249
Radium-226	-0.002	90.8			NC	0.703	92.7	101.0	8.6	R1248
Radium-228	-0.191	83.0			NC	0.024	81.8	73.6	9.6	R3977

Lab Approval:

Ron Eidson
 Director of Radiochemistry

L # 96971

Table #

Acctnum: **URSKC**

Template: **T112863**

Prelogin: **P605329**

TSR: **206 - Jeff Carr**

PB:

Shipped Via: _____

Remarks _____

Sample # (lab only) _____

Billing Information:

AECOM - Kansas City, MO
2380 McGee Suite 200
Kansas City, MO 64108

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Alla Skaskevych

Project Description: **La Cygne Generating Station**

Client Project # **60482842**

Site/Facility ID # **TASK 100**

Collected by (print): Jim Muckler + Dillon Moran

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

Immediately Packed on Ice Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	Analysis / Container / Preservative	Remarks	Sample # (lab only)	Sample Receipt Checklist	
											COC Seal Present/Accurate: <u> </u> Y <u> </u> N	COC Signed/Intact: <u> </u> Y <u> </u> N
MW-904	Grab	NPW	N/A	6-12-17	12:00	2					<input type="checkbox"/> NP	<input type="checkbox"/> Y
MW-805	Grab	NPW	N/A	6-13-17	13:45	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
MW-803	Grab	NPW	N/A	6-13-17	14:40	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
MW-802	Grab	NPW	N/A	6-13-17	15:15	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
MW-804	Grab	NPW	N/A	6-13-17	16:00	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
MW-951	Grab	NPW	N/A	6-13-17	16:50	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
MW-801	Grab	NPW	N/A	6-14-17	12:40	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
MW-15	Grab	NPW	N/A	6-14-17	12:00	2					<input type="checkbox"/> Y	<input type="checkbox"/> N
		NPW				2					<input type="checkbox"/> Y	<input type="checkbox"/> N
		NPW				2					<input type="checkbox"/> Y	<input type="checkbox"/> N

Remarks: **Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.**

Temp: _____ °C

pH _____

Flow _____ Other _____

VOA Zero Headspace: Y N

Preservation Correct/Checked: Y N

Temp: °C

Date:

Received by: (Signature) [Signature]

Received by: (Signature) [Signature]

Received by lab by: (Signature) [Signature]

Temp: °C

Date:

Hold: _____

Condition: **NCF / OK**

20170544

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Report to:

Alla Skaskevych

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

Project

Description: La Cygne Generating Station

City/State
Collected:

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):

Skaskevych/ougn

Site/Facility ID #
TASK 100

P.O. #

no PO number

Collected by (signature):

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

No. of

Entrs

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

MW-950

MW-705

MW-706

TW-1

MW-701

MW-704

MW-707B

MW-705

MW-708

Grab

NPW

NPW

NPW

NPW

NPW

NPW

NPW

NPW

NPW

NPW

NPW

NPW

6/13/17 1000

1040

1150

1300

1420

1610

1710

6/14/17 1140

6/14/17 1340

2

2

2

2

2

2

2

2

2

2

2

2

2

2

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

Shipped Via:

Remarks

Sample # (lab only)

L # **916971**

Table #

Accnum: **URSKC**

Template: **T112863**

Prelogin: **P605329**

TSR: **206 - Jeff Carr**

PB:

Analysis / Container / Preservative

Chain of Custody Page of



L.A.B S.C.E.N.E.S

YOUR LAB SCIENCE



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

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

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

pH Temp
Flow Other

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking #

Relinquished by: (Signature)

[Signature]

Date: **6/14**

Time: **1740**

Received by: (Signature)

[Signature]

Relinquished by: (Signature)

[Signature]

Date: **6/14**

Time: **1740**

Received by: (Signature)

[Signature]

Relinquished by: (Signature)

[Signature]

Date: **6/16/17**

Time: **940**

Received for lab by: (Signature)

[Signature]

If preservation required by Login: Date/Time

Hold:

Condition:
NCF / OK

20170544

SAMPLE LOGIN

Date Received: 6/16/2017 9:40:37

Lab Number: 20170544

Due: 7/17/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170544-01 B	MW-904	NPW	06/12/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-01 A	MW-904	NPW	06/12/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-02 A	MW-805	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-02 B	MW-805	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-03 A	MW-803	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-03 B	MW-803	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-04 B	MW-802	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-04 A	MW-802	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-05 A	MW-804	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-05 B	MW-804	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	Yes	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-06 A	MW-951	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-06 B	MW-951	NPW	06/13/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-07 A	MW-801	NPW	06/14/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170544-07 B	MW-801	NPW	06/14/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						



20170544-08 A	MW-15	NPW	06/14/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-08 B	MW-15	NPW	06/14/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-09 B	MW-950	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-09 A	MW-950	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-10 A	MW-705	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-10 B	MW-705	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-11 A	MW-706	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-11 B	MW-706	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-12 A	TW-1	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-12 B	TW-1	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-13 A	MW-701	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-13 B	MW-701	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-14 B	MW-704	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-14 A	MW-704	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-15 A	MW-707B	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-15 B	MW-707B	NPW	06/13/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170544-16 A	MW-703	NPW	06/14/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No
20170544-16 B	MW-703	NPW	06/14/17	Plastic	I L	HNO ₃ , pH < 2	✓	No	No

Radium-226
Radium-228

SM 7500 Ra B M*
EPA 904*

20170544-17 B	MW-708	NPW	06/14/17	Plastic	1 L	HNO ₃ , pH < 2	✓	No
20170544-17 A	MW-708	NPW	06/14/17	Plastic	1 L	HNO ₃ , pH < 2	✓	No

Radium-226
Radium-228

SM 7500 Ra B M*
EPA 904*

CONTAINER INSPECTION

Coolers 3 Custody Seals Broken 0 Temperature: 16°C Ice
 Chain of Custody Record Labels in Tact

Radiation Survey: <300 cpm
 Radiation Survey Complete N/A

SAMPLE INSPECTION

Sample Seal Broken 0
Anomalies

Inspected By: [Signature] DATE 6/16/17
 QA or Designee Review: [Signature] DATE 6/16/17
 Sample Custodian Review: [Signature] DATE 6/16/17

Project Notes:

Case Narrative

Lab No: 20170558

This report contains the analytical results for the 17 sample(s) received under chain of custody by ESC Lab Sciences on 6/19/2017 10:04:18 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L917043



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170558
 Date Reported : 07/18/17
 Date Received : 06/19/17
 Page Number : 2 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170558-01							
Client ID : MW-905							
Date Sampled : 6/14/2017 5:10:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.980 +/- 0.515	0.646	pCi/l				
Radium-226 SM 7500 Ra B M*	0.285 +/- 0.16	0.205	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.695 +/- 0.355	0.441	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-02							
Client ID : MW-902							
Date Sampled : 6/15/2017 12:05:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.05 +/- 0.659	0.908	pCi/l				
Radium-226 SM 7500 Ra B M*	0.365 +/- 0.178	0.202	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.683 +/- 0.481	0.706	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-03							
Client ID : MW-602							
Date Sampled : 6/15/2017 2:35:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.000 +/- 0.507	0.683	pCi/l				
Radium-226 SM 7500 Ra B M*	-0.008 +/- 0.091	0.184	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	-0.105 +/- 0.416	0.499	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-04							
Client ID : MW-601							
Date Sampled : 6/15/2017 3:10:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.088 +/- 0.563	0.828	pCi/l				
Radium-226 SM 7500 Ra B M*	0.088 +/- 0.098	0.143	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	-0.071 +/- 0.465	0.685	pCi/l		07/10/17	07/13/17	RE



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170558
 Date Reported : 07/18/17
 Date Received : 06/19/17
 Page Number : 3 of 6

Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170558-05								
Client ID : MW-601 MS								
Date Sampled : 6/15/2017 3:10:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	83.5		% Rec		07/03/17	07/07/17	SD
Radium-228	EPA 904*	77.4		% Rec		07/10/17	07/13/17	RE
Lab ID : 20170558-06								
Client ID : MW-601 MSD								
Date Sampled : 6/15/2017 3:10:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Radium-226	SM 7500 Ra B M*	14.9		RPD		07/03/17	07/07/17	SD
Radium-228	EPA 904*	18.1		RPD		07/10/17	07/13/17	RE
Lab ID : 20170558-07								
Client ID : MW-14R								
Date Sampled : 6/15/2017 3:50:00 PM								
Matrix : NPW								
Radiochemical Analyses								
Combined Radium		0.573 +/- 0.527	0.702	pCi/l				
Radium-226	SM 7500 Ra B M*	0.198 +/- 0.155	0.215	pCi/l		07/03/17	07/07/17	SD
Radium-228	EPA 904*	0.375 +/- 0.372	0.487	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-08								
Client ID : MW-903								
Date Sampled : 6/16/2017 10:30:00 AM								
Matrix : NPW								
Radiochemical Analyses								
Combined Radium		2.02 +/- 0.498	0.667	pCi/l				
Radium-226	SM 7500 Ra B M*	0.118 +/- 0.092	0.110	pCi/l		07/03/17	07/07/17	SD
Radium-228	EPA 904*	1.90 +/- 0.406	0.557	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-09								
Client ID : MW-901								
Date Sampled : 6/16/2017 10:50:00 AM								
Matrix : NPW								

*NELAC Certified Parameter

BDL = Below Detection Limit



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170558
 Date Reported : 07/18/17
 Date Received : 06/19/17
 Page Number : 4 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Radiochemical Analyses							
Combined Radium	1.63 +/- 0.650	0.752	pCi/l				
Radium-226 SM 7500 Ra B M*	0.780 +/- 0.192	0.153	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.845 +/- 0.458	0.599	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-10							
Client ID : MW-702							
Date Sampled : 6/15/2017 9:05:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.605 +/- 0.564	0.753	pCi/l				
Radium-226 SM 7500 Ra B M*	0.441 +/- 0.158	0.126	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	0.164 +/- 0.406	0.627	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-11							
Client ID : MW-13							
Date Sampled : 6/15/2017 10:45:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.33 +/- 0.534	0.869	pCi/l				
Radium-226 SM 7500 Ra B M*	0.082 +/- 0.094	0.139	pCi/l		07/03/17	07/07/17	SD
Radium-228 EPA 904*	1.25 +/- 0.440	0.730	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-12							
Client ID : MW-10							
Date Sampled : 6/15/2017 12:30:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.834 +/- 0.625	0.853	pCi/l				
Radium-226 SM 7500 Ra B M*	0.317 +/- 0.141	0.126	pCi/l		07/03/17	07/06/17	SD
Radium-228 EPA 904*	0.517 +/- 0.484	0.727	pCi/l		07/10/17	07/13/17	RE
Lab ID : 20170558-13							
Client ID : MW-10 MS							
Date Sampled : 6/15/2017 12:30:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	93.4		% Rec		07/03/17	07/06/17	SD

*NELAC Certified Parameter

BDL = Below Detection Limit



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170558
 Date Reported : 07/18/17
 Date Received : 06/19/17
 Page Number : 5 of 6

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Radium-228	EPA 904*	79.3	% Rec		07/10/17	07/13/17	RE

Lab ID : 20170558-14
Client ID : MW-10 MSD
Date Sampled : 6/15/2017 12:30:00 PM
Matrix : NPW

Radiochemical Analyses

Radium-226	SM 7500 Ra B M*	4.0	RPD		07/03/17	07/06/17	SD
Radium-228	EPA 904*	0.635	RPD		07/10/17	07/13/17	RE

Lab ID : 20170558-15
Client ID : MW-11
Date Sampled : 6/15/2017 3:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.317 +/- 0.564	0.745	pCi/l			
Radium-226	SM 7500 Ra B M*	0.153 +/- 0.105	0.116	pCi/l	07/03/17	07/07/17	SD
Radium-228	EPA 904*	0.164 +/- 0.459	0.629	pCi/l	07/10/17	07/14/17	RE

Lab ID : 20170558-16
Client ID : MW-7
Date Sampled : 6/15/2017 5:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.38 +/- 0.715	0.708	pCi/l			
Radium-226	SM 7500 Ra B M*	1.20 +/- 0.338	0.246	pCi/l	07/03/17	07/07/17	SD
Radium-228	EPA 904*	0.182 +/- 0.377	0.462	pCi/l	07/10/17	07/14/17	RE

Lab ID : 20170558-17
Client ID : MW-6
Date Sampled : 6/15/2017 6:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.53 +/- 0.574	0.804	pCi/l			
Radium-226	SM 7500 Ra B M*	0.224 +/- 0.169	0.229	pCi/l	07/03/17	07/07/17	SD
Radium-228	EPA 904*	1.31 +/- 0.405	0.575	pCi/l	07/10/17	07/14/17	RE



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170558
 Date Reported : 07/18/17
 Date Received : 06/19/17
 Page Number : 6 of 6

QC Report

Parameter	Blank	LCS %REC	LCSD %REC RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC RPD	Batch ID
Radium-226	0.000	95.6		NC	0.558	93.4	97.3 4.0	R1250
Radium-226	0.014	81.4		NC	0.133	83.5	97.0 14.9	R1249
Radium-228						79.3	79.8 0.6	R3979
Radium-228	0.879	84.6		NC	0.431	77.4	92.6 18.1	R3979

Lab Approval:

 Ron Eidson
 Director of Radiochemistry

AECOM - Kansas City, MO
 2380 McGee Suite 200
 Kansas City, MO 64108

Billing Information:
 Dana Monroe - 1334927
 2380 McGee Suite 200
 Kansas City, MO 64108

Report to:
Brian Linnan
 Email To: brian.linnan@aecom.com;
 robert.exceen@aecom.com;

Project Description: **La Cygne Generating Station**
 Client Project # **60482842**
 Lab Project # **URSKC-LACYGNE**
 Site/Facility ID # **TASK 100**
 P.O. # **no PO number**
 Quote #
 Date Results Needed
 Rush? (Lab MUST Be Notified)
 Same Day ___ Five Day ___
 Next Day ___ 5 Day (Rad Only) ___
 Two Day ___ 10 Day (Rad Only) ___
 Three Day ___
 Collected by (print): **Jim Muckler + Dillon Moran**
 Collected by (signature): *Jim Muckler*
 Immediately Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Nc. of Cntrs
MW-905	Grab	NPW	N/A	6-14-17	17:10	2
MW-902	Grab	NPW	N/A	6-15-17	12:05	2
MW-602	Grab	NPW	N/A	6-15-17	14:35	2
MW-601	Grab	NPW	N/A	6-15-17	15:10	2
MW-601 MS	Grab	NPW	N/A	6-15-17	15:10	2
MW-601 MSD	Grab	NPW	N/A	6-15-17	15:10	2
MW-14R	Grab	NPW	N/A	6-15-17	15:50	2
MW-903	Grab	NPW	N/A	6-16-17	10:30	2
MW-901	Grab	NPW	N/A	6-16-17	10:50	2
		NPW				2

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Relinquished by: (Signature)	Date:	Time:	Tracking #	Received by: (Signature)
<i>Jim Muckler</i>	6-16-17	14:00		<i>[Signature]</i>
<i>[Signature]</i>	6/16/17	17:00		<i>[Signature]</i>
<i>[Signature]</i>				<i>[Signature]</i>

Chain of Custody Page ___ of ___



L.A.B. S-C-I-E-N-C-E-S

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

L# **917043**
 Table #
 Acctnum: **URSKC**
 Template: **T112863**
 Prelogin: **P594559**
 TSR: **206 - Jeff Carr**
 PB:
 Shipped Via:
 Remarks
 Sample # (lab only)

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

PH ___ Temp ___
 Flow ___ Other ___
 Trip Blank Received: Yes/No
 HCL/MeOH
 TBR
 Bottles Received: **34**
 Temp: **hbs** °C
 Date: **6/15/17** Time: **0004**
 Hold: Condition: NCF / OK

20170558

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

L # 917043
 Table #
 Acctnum: URSKC
 Template: T112863
 Prelogin: P605329
 TSR: 206 - Jeff Carr
 PB:

Shipped Via:
 Remarks
 Sample # (lab only)

Billing Information:
 Dana Monroe - 1334927
 2380 McGee Suite 200
 Kansas City, MO 64108

Email To: robert.exceen@aecom.com;
 alla.skaskevych@aecom.com;

City/State Collected:
 Lab Project #
URSKC-LACYGNE

P.O. #
no PO number
 Quote #

Date Results Needed
 No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-702	Grab	NPW		6/15/17	0905	2
MW-13		NPW			1045	2
MW-10		NPW			1230	2
MW-10-MS		NPW			1230	2
MW-10-HSD		NPW			1230	2
MW-11		NPW			1540	2
MW-7		NPW			1725	2
MW-6		NPW			1840	2
		NPW				2
		NPW				2

Project Description: La Cygne Generating Station

Client Project #
60482842


Site/Facility ID #
TASK 100

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

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD. MW-10 for MS/MSD

Report to:
 Alla Skaskevych

Collected by (print):
Skaskevych/lyg

Collected by (signature):


Immediately Packed on Ice Y N

Tracking #:
 Received by: (Signature)
 Received by: (Signature)
 Received by: (Signature)

Analysis / Container / Preservative

PH Temp
 Flow Other

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

Sample returned via:
 UPS FedEx Courier

Date: 6-16-17 Time: 14:00

Date: 6/16/17 Time: 1400

Date: 6/19/17 Time: 1204

Relinquished by: (Signature)


Relinquished by: (Signature)


Relinquished by: (Signature)


Hold: Condition:

Temp: 40.6 °C Bottles Received: 34

Date: 6/19/17 Time: 1204

Date: 20170528

Sample returned via:
 UPS FedEx Courier

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD. MW-10 for MS/MSD

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Relinquished by: (Signature)


Relinquished by: (Signature)


Relinquished by: (Signature)


Hold: Condition:

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Sample returned via:
 UPS FedEx Courier

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD. MW-10 for MS/MSD

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Relinquished by: (Signature)


Relinquished by: (Signature)


Relinquished by: (Signature)


Hold: Condition:

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Sample returned via:
 UPS FedEx Courier

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD. MW-10 for MS/MSD

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Relinquished by: (Signature)


Relinquished by: (Signature)


Relinquished by: (Signature)


Hold: Condition:

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Sample returned via:
 UPS FedEx Courier

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD. MW-10 for MS/MSD

Temp: °C Bottles Received:

Date: Time:

Date: Time:

Relinquished by: (Signature)

Relinquished by: (Signature)

Relinquished by: (Signature)

Hold: Condition:

SAMPLE LOGIN

Date Received: 6/19/2017 10:04:1

Lab Number: 20170558

Due: 7/18/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170558-01 B	MW-905	NPW	06/14/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-01 A	MW-905	NPW	06/14/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170558-02 A	MW-902	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-02 B	MW-902	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170558-03 A	MW-602	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-03 B	MW-602	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170558-04 B	MW-601	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-04 A	MW-601	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170558-05 A	MW-601 MS	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-05 B	MW-601 MS	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	Yes	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170558-06 A	MW-601 MSD	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-06 B	MW-601 MSD	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170558-07 A	MW-14R	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170558-07 B	MW-14R	NPW	06/15/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						



20170558-08 A	MW-903	NPW	06/16/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-08 B	MW-903	NPW	06/16/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-09 B	MW-901	NPW	06/16/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-09 A	MW-901	NPW	06/16/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-10 A	MW-702	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-10 B	MW-702	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-11 A	MW-13	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-11 B	MW-13	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-12 A	MW-10	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-12 B	MW-10	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-13 A	MW-10 MS	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-13 B	MW-10 MS	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-14 B	MW-10 MSD	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-14 A	MW-10 MSD	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-15 A	MW-11	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-15 B	MW-11	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					
20170558-16 A	MW-7	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
20170558-16 B	MW-7	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No	No
	Radium-226		SM 7500 Ra B M*					
	Radium-228		EPA 904*					

Radium-226
Radium-228

SM 7500 Ra B M*
EPA 904*

20170558-17 B	MW-6	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No
20170558-17 A	MW-6	NPW	06/15/17	Plastic	I L	HNO3, pH < 2	No

Radium-226
Radium-228

SM 7500 Ra B M*
EPA 904*

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken X Temperature: 40 C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken X Chain of Custody Record ✓ Labels in Tact ✓ Radiation Survey Complete NA

Anomalies Sample 07 has a fine of 1550 on Coe but 1550 on label

Inspected By: [Signature] DATE 6/19/17

QA or Designee Review: [Signature] DATE 06/19/17

Sample Custodian Review: [Signature] DATE 6/19/17

Project Notes:

Case Narrative

Lab No: 20170615

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 7/3/2017 10:03:48 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L920180



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170615
 Date Reported : 08/02/17
 Date Received : 07/03/17
 Page Number : 2 of 2

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170615-01							
Client ID : MW-904							
Date Sampled : 6/30/2017 10:20:00 AM							
Matrix : NPW							

Radiochemical Analyses

Combined Radium		0.762 +/- 1.48	1.02	pCi/l			
Radium-226	SM 7500 Ra B M*	0.011 +/- 0.132	0.253	pCi/l	07/14/17	07/18/17	SD
Radium-228	EPA 904*	0.751 +/- 1.35	0.766	pCi/l	07/26/17	07/31/17	JR

QC Report

Parameter	Blank	LCS		LCSD		DUP RPD	RER, NAD or DER	MS		MSD		Batch ID
		%REC		%REC	RPD			%REC		%REC	RPD	
Radium-226	0.006	112.0				NC	0.145	118.0	111.0	5.8		R1255
Radium-228	-0.273	83.1				NC	0.250	79.0	73.2	7.3		R3983

Lab Approval:

Ron Eidson
 Director of Radiochemistry



12055 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L.# C920180
Table # 2170615
Acctnum: **URSKC**
Template: **T125201**
Prelogin: **P607633**
TSR: **206 - Jeff Carr**
PB:

Shipped Via:
Remarks
Sample # (lab only)

Analysis / Container / Preservative	Pres Crk
ORL-RA-226, RA-228 1L-HDPE-Add HNO3	X

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

City/State Collected:
Lab Project # **URSKC-LACYGNE**
P.O. # **no PO number**
Quote #

Date Results Needed
No. of Cntrs

Date
Time

AECOM - Kansas City, MO
2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Alla Skaskevych
Project Description: **La Cygne Generating Station**

Client Project # **60482842**
Site/Facility ID # **TASK 100**
Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Comp/Grab Matrix * Depth
Grab NPW GW

Sample ID
MW-904

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-904	Grab	NPW	GW	6/30/17	10:20	2

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

Relinquished by: (Signature) [Signature]
Relinquished by: (Signature) [Signature]
Relinquished by: (Signature) [Signature]

Remarks: **Report Radium 226 and 228 Combined.**
Samples returned via: ___ UPS ___ FedEx ___ Courier ___
Date: 6/30/17 Time: 1443
Date: 6/30/17 Time: 1700
Date: 7/3 Time: 8:45

Tracking # 6529 1898 0517
pH _____ Temp _____
Flow _____ Other _____
Trip Blank Received: Yes [initials] HCL/Mech TBR
Temp: Ambient °C Bottles Received: 2
Date: 7/3 Time: 8:45
Received for lab by: (Signature) [Signature]
Hold: _____ Condition: **NCF / OK**

SAMPLE LOGIN

Due: 8/2/2017

Lab Number: 20170615

Date Received: 7/3/2017 10:03:48

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170615-01 B	MW-904	NPW	06/30/17	Plastic	1 L	HNO ₃ , pH < 2	<input type="checkbox"/>	No	No
20170615-01 A	MW-904	NPW	06/30/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226 Radium-228 SM 7500 Ra B M* EPA 904*									

CONTAINER INSPECTION

Coolers 1 Custody Seals Broken Temperature: N/A Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete

Anomalies

Inspected By: [Signature] DATE 7/3/17
 QA or Designee Review: [Signature] DATE 07/03/17
 Sample Custodian Review: _____ DATE _____

Project Notes:

June 26, 2017

AECOM - Kansas City, MO

Sample Delivery Group: L916561
Samples Received: 06/16/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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



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SAMPLE SUMMARY



MW-950 L916561-01 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990372	1	06/20/17 13:37	06/20/17 14:09	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990192	1	06/19/17 19:23	06/19/17 19:23	DR
Wet Chemistry by Method 9056A	WG990192	5	06/19/17 20:28	06/19/17 20:28	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:35	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 21:42	ST
Metals (ICPMS) by Method 6020	WG992375	1	06/23/17 13:50	06/24/17 13:38	JPD

Collected by SK Collected date/time 06/13/17 10:00 Received date/time 06/16/17 08:45

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

MW-705 L916561-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990372	1	06/20/17 13:37	06/20/17 14:09	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990192	1	06/19/17 20:41	06/19/17 20:41	DR
Wet Chemistry by Method 9056A	WG990192	5	06/19/17 20:54	06/19/17 20:54	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:42	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 21:56	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:20	VSS

Collected by SK Collected date/time 06/13/17 10:40 Received date/time 06/16/17 08:45

MW-706 L916561-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990372	1	06/20/17 13:37	06/20/17 14:09	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990192	1	06/19/17 21:07	06/19/17 21:07	DR
Wet Chemistry by Method 9056A	WG990192	5	06/19/17 21:20	06/19/17 21:20	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:44	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 21:59	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:23	VSS

Collected by SK Collected date/time 06/13/17 11:50 Received date/time 06/16/17 08:45

TW-1 L916561-04 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990825	1	06/22/17 19:14	06/22/17 19:14	DR
Wet Chemistry by Method 9056A	WG992228	1	06/23/17 13:46	06/23/17 13:46	CSU
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:47	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:08	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:41	VSS

Collected by SK Collected date/time 06/13/17 13:00 Received date/time 06/16/17 08:45

MW-701 L916561-05 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990825	1	06/22/17 19:34	06/22/17 19:34	DR

Collected by SK Collected date/time 06/13/17 14:20 Received date/time 06/16/17 08:45

SAMPLE SUMMARY



MW-701 L916561-05 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG992228	1	06/23/17 14:11	06/23/17 14:11	CSU
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:49	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:11	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:45	VSS

Collected by SK
 Collected date/time 06/13/17 14:20
 Received date/time 06/16/17 08:45

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

MW-704 L916561-06 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990825	1	06/22/17 19:54	06/22/17 19:54	DR
Wet Chemistry by Method 9056A	WG992228	10	06/23/17 14:37	06/23/17 14:37	CSU
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:56	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:14	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:48	VSS

Collected by SK
 Collected date/time 06/13/17 16:10
 Received date/time 06/16/17 08:45

MW-707B L916561-07 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990194	100	06/19/17 19:18	06/19/17 19:18	DR
Wet Chemistry by Method 9056A	WG990194	5	06/19/17 19:03	06/19/17 19:03	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 12:58	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:17	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:52	VSS

Collected by SK
 Collected date/time 06/13/17 17:10
 Received date/time 06/16/17 08:45

MW-703 L916561-08 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991197	1	06/21/17 16:21	06/21/17 16:57	EG
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990196	1	06/20/17 15:45	06/20/17 15:45	DR
Wet Chemistry by Method 9056A	WG990196	10	06/20/17 15:59	06/20/17 15:59	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:00	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:20	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:55	VSS

Collected by SK
 Collected date/time 06/14/17 11:40
 Received date/time 06/16/17 08:45

MW-708 L916561-09 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991197	1	06/21/17 16:21	06/21/17 16:57	EG
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990196	1	06/20/17 16:14	06/20/17 16:14	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:03	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:23	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 22:59	VSS

Collected by SK
 Collected date/time 06/14/17 13:40
 Received date/time 06/16/17 08:45

SAMPLE SUMMARY



MW-904 L916561-10 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990368	1	06/19/17 15:51	06/19/17 16:23	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990825	1	06/22/17 20:04	06/22/17 20:04	DR
Wet Chemistry by Method 9056A	WG992228	10	06/23/17 14:50	06/23/17 14:50	CSU
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:05	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:26	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:02	VSS

Collected by SK
 Collected date/time 06/12/17 12:00
 Received date/time 06/16/17 08:45

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

MW-805 L916561-11 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990194	1	06/19/17 19:32	06/19/17 19:32	DR
Wet Chemistry by Method 9056A	WG990194	10	06/19/17 19:46	06/19/17 19:46	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:07	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:29	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:06	VSS

Collected by SK
 Collected date/time 06/13/17 13:45
 Received date/time 06/16/17 08:45

MW-803 L916561-12 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990194	1	06/19/17 20:01	06/19/17 20:01	DR
Mercury by Method 7470A	WG991019	1	06/21/17 12:00	06/22/17 06:04	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:32	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:09	VSS

Collected by SK
 Collected date/time 06/13/17 14:40
 Received date/time 06/16/17 08:45

MW-802 L916561-13 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990194	1	06/19/17 20:15	06/19/17 20:15	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:09	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:35	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:13	VSS

Collected by SK
 Collected date/time 06/13/17 15:15
 Received date/time 06/16/17 08:45

MW-804 L916561-14 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990194	1	06/19/17 20:59	06/19/17 20:59	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:12	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:43	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:28	VSS

Collected by SK
 Collected date/time 06/13/17 16:00
 Received date/time 06/16/17 08:45

SAMPLE SUMMARY



MW-951 L916561-15 GW

Collected by SK
Collected date/time 06/13/17 16:50
Received date/time 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG990373	1	06/20/17 14:11	06/20/17 15:56	MMF
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990194	1	06/19/17 21:13	06/19/17 21:13	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:14	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:46	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:31	VSS

1
Cp

2
Tc

3
Ss

4
Cn

MW-801 L916561-16 GW

Collected by SK
Collected date/time 06/14/17 10:40
Received date/time 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991199	1	06/21/17 22:23	06/21/17 22:35	EG
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990196	1	06/20/17 16:43	06/20/17 16:43	DR
Wet Chemistry by Method 9056A	WG990196	10	06/20/17 17:26	06/20/17 17:26	DR
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:16	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:49	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:35	VSS

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-15 L916561-17 GW

Collected by SK
Collected date/time 06/14/17 12:00
Received date/time 06/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991199	1	06/21/17 22:23	06/21/17 22:35	EG
Wet Chemistry by Method 9040C	WG990163	1	06/16/17 15:51	06/16/17 15:51	MA
Wet Chemistry by Method 9056A	WG990196	1	06/20/17 17:40	06/20/17 17:40	DR
Wet Chemistry by Method 9056A	WG992228	10	06/23/17 15:03	06/23/17 15:03	CSU
Mercury by Method 7470A	WG990239	1	06/19/17 15:32	06/20/17 13:31	EL
Metals (ICP) by Method 6010B	WG991096	1	06/20/17 17:39	06/20/17 22:52	ST
Metals (ICPMS) by Method 6020	WG991105	1	06/21/17 10:23	06/21/17 23:38	VSS



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1050		10.0	1	06/20/2017 14:09	WG990372

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.65	<u>T8</u>	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-01 WG990163: 7.65 at 11.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	136		5.00	5	06/19/2017 20:28	WG990192
Fluoride	0.913		0.100	1	06/19/2017 19:23	WG990192
Sulfate	42.1		5.00	1	06/19/2017 19:23	WG990192

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:35	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.10		0.200	1	06/20/2017 21:42	WG991096
Lithium	0.129		0.0150	1	06/20/2017 21:42	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 21:42	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/24/2017 13:38	WG992375
Arsenic	ND		0.00200	1	06/24/2017 13:38	WG992375
Barium	0.0872		0.00500	1	06/24/2017 13:38	WG992375
Beryllium	ND		0.00200	1	06/24/2017 13:38	WG992375
Cadmium	ND		0.00100	1	06/24/2017 13:38	WG992375
Calcium	33.4		1.00	1	06/24/2017 13:38	WG992375
Chromium	ND		0.00200	1	06/24/2017 13:38	WG992375
Cobalt	ND		0.00200	1	06/24/2017 13:38	WG992375
Lead	ND		0.00200	1	06/24/2017 13:38	WG992375
Selenium	ND		0.00200	1	06/24/2017 13:38	WG992375
Thallium	ND		0.00200	1	06/24/2017 13:38	WG992375



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1020		10.0	1	06/20/2017 14:09	WG990372

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.57	T8		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-02 WG990163: 7.57 at 11.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	136		5.00	5	06/19/2017 20:54	WG990192
Fluoride	0.924		0.100	1	06/19/2017 20:41	WG990192
Sulfate	42.2		5.00	1	06/19/2017 20:41	WG990192

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:42	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.09		0.200	1	06/20/2017 21:56	WG991096
Lithium	0.129		0.0150	1	06/20/2017 21:56	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 21:56	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:20	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:20	WG991105
Barium	0.0837		0.00500	1	06/21/2017 22:20	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:20	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:20	WG991105
Calcium	35.4		1.00	1	06/21/2017 22:20	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:20	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:20	WG991105
Lead	ND		0.00200	1	06/21/2017 22:20	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:20	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:20	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1300		10.0	1	06/20/2017 14:09	WG990372

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.62	<u>T8</u>		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-03 WG990163: 7.62 at 11.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	274		5.00	5	06/19/2017 21:20	WG990192
Fluoride	1.09		0.100	1	06/19/2017 21:07	WG990192
Sulfate	ND		5.00	1	06/19/2017 21:07	WG990192

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:44	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.05		0.200	1	06/20/2017 21:59	WG991096
Lithium	0.146		0.0150	1	06/20/2017 21:59	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 21:59	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:23	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:23	WG991105
Barium	0.245		0.00500	1	06/21/2017 22:23	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:23	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:23	WG991105
Calcium	28.0		1.00	1	06/21/2017 22:23	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:23	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:23	WG991105
Lead	ND		0.00200	1	06/21/2017 22:23	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:23	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:23	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1030		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.65	T8		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-04 WG990163: 7.65 at 11.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	44.3		1.00	1	06/22/2017 19:14	WG990825
Fluoride	0.384		0.100	1	06/22/2017 19:14	WG990825
Sulfate	62.7		5.00	1	06/23/2017 13:46	WG992228

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:47	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.53		0.200	1	06/20/2017 22:08	WG991096
Lithium	0.151		0.0150	1	06/20/2017 22:08	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:08	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:41	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:41	WG991105
Barium	0.0711		0.00500	1	06/21/2017 22:41	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:41	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:41	WG991105
Calcium	29.6		1.00	1	06/21/2017 22:41	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:41	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:41	WG991105
Lead	ND		0.00200	1	06/21/2017 22:41	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:41	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:41	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	612		10.0	1	06/20/2017 15:56	WG990373

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.79	<u>T8</u>	1	06/16/2017 15:51	WG990163

Sample Narrative:

9040C L916561-05 WG990163: 7.79 at 11.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	54.1		1.00	1	06/22/2017 19:34	WG990825
Fluoride	0.692		0.100	1	06/22/2017 19:34	WG990825
Sulfate	80.6	<u>J6</u>	5.00	1	06/23/2017 14:11	WG992228

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:49	WG990239

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.01		0.200	1	06/20/2017 22:11	WG991096
Lithium	0.0403		0.0150	1	06/20/2017 22:11	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:11	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:45	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:45	WG991105
Barium	0.172		0.00500	1	06/21/2017 22:45	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:45	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:45	WG991105
Calcium	36.1		1.00	1	06/21/2017 22:45	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:45	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:45	WG991105
Lead	ND		0.00200	1	06/21/2017 22:45	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:45	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:45	WG991105

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1310		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.76	<u>T8</u>		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-06 WG990163: 7.76 at 12.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	81.8		1.00	1	06/22/2017 19:54	WG990825
Fluoride	0.740		0.100	1	06/22/2017 19:54	WG990825
Sulfate	151		50.0	10	06/23/2017 14:37	WG992228

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:56	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.04		0.200	1	06/20/2017 22:14	WG991096
Lithium	0.106		0.0150	1	06/20/2017 22:14	WG991096
Molybdenum	0.00858		0.00500	1	06/20/2017 22:14	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	0.00488		0.00200	1	06/21/2017 22:48	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:48	WG991105
Barium	0.0774		0.00500	1	06/21/2017 22:48	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:48	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:48	WG991105
Calcium	26.6		1.00	1	06/21/2017 22:48	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:48	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:48	WG991105
Lead	ND		0.00200	1	06/21/2017 22:48	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:48	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:48	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	6910		10.0	1	06/20/2017 15:56	WG990373

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.91	<u>T8</u>	1	06/16/2017 15:51	WG990163

Sample Narrative:

9040C L916561-07 WG990163: 6.91 at 12.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	209		5.00	5	06/19/2017 19:03	WG990194
Fluoride	0.613		0.500	5	06/19/2017 19:03	WG990194
Sulfate	4600		500	100	06/19/2017 19:18	WG990194

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 12:58	WG990239

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.95		0.200	1	06/20/2017 22:17	WG991096
Lithium	0.976		0.0150	1	06/20/2017 22:17	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:17	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:52	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:52	WG991105
Barium	0.0143		0.00500	1	06/21/2017 22:52	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:52	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:52	WG991105
Calcium	374		1.00	1	06/21/2017 22:52	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:52	WG991105
Cobalt	0.00542		0.00200	1	06/21/2017 22:52	WG991105
Lead	ND		0.00200	1	06/21/2017 22:52	WG991105
Selenium	0.00218		0.00200	1	06/21/2017 22:52	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:52	WG991105

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	908		10.0	1	06/21/2017 16:57	WG991197

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.84	<u>T8</u>		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-08 WG990163: 7.84 at 13.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	102		10.0	10	06/20/2017 15:59	WG990196
Fluoride	1.45		0.100	1	06/20/2017 15:45	WG990196
Sulfate	ND		5.00	1	06/20/2017 15:45	WG990196

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:00	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.81		0.200	1	06/20/2017 22:20	WG991096
Lithium	0.0742		0.0150	1	06/20/2017 22:20	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:20	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:55	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:55	WG991105
Barium	0.255		0.00500	1	06/21/2017 22:55	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:55	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:55	WG991105
Calcium	17.4		1.00	1	06/21/2017 22:55	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:55	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:55	WG991105
Lead	ND		0.00200	1	06/21/2017 22:55	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:55	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:55	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	653		10.0	1	06/21/2017 16:57	WG991197

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.61	T8		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-09 WG990163: 7.61 at 13.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	46.0		1.00	1	06/20/2017 16:14	WG990196
Fluoride	0.624		0.100	1	06/20/2017 16:14	WG990196
Sulfate	9.38		5.00	1	06/20/2017 16:14	WG990196

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:03	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.36		0.200	1	06/20/2017 22:23	WG991096
Lithium	0.0792		0.0150	1	06/20/2017 22:23	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:23	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 22:59	WG991105
Arsenic	ND		0.00200	1	06/21/2017 22:59	WG991105
Barium	0.222		0.00500	1	06/21/2017 22:59	WG991105
Beryllium	ND		0.00200	1	06/21/2017 22:59	WG991105
Cadmium	ND		0.00100	1	06/21/2017 22:59	WG991105
Calcium	30.2		1.00	1	06/21/2017 22:59	WG991105
Chromium	ND		0.00200	1	06/21/2017 22:59	WG991105
Cobalt	ND		0.00200	1	06/21/2017 22:59	WG991105
Lead	ND		0.00200	1	06/21/2017 22:59	WG991105
Selenium	ND		0.00200	1	06/21/2017 22:59	WG991105
Thallium	ND		0.00200	1	06/21/2017 22:59	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	571		10.0	1	06/19/2017 16:23	WG990368

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45	<u>T8</u>	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-10 WG990163: 7.45 at 13.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	39.5		1.00	1	06/22/2017 20:04	WG990825
Fluoride	0.366		0.100	1	06/22/2017 20:04	WG990825
Sulfate	113		50.0	10	06/23/2017 14:50	WG992228

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:05	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.37		0.200	1	06/20/2017 22:26	WG991096
Lithium	0.0744		0.0150	1	06/20/2017 22:26	WG991096
Molybdenum	0.0119		0.00500	1	06/20/2017 22:26	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:02	WG991105
Arsenic	0.00508		0.00200	1	06/21/2017 23:02	WG991105
Barium	0.191		0.00500	1	06/21/2017 23:02	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:02	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:02	WG991105
Calcium	86.2		1.00	1	06/21/2017 23:02	WG991105
Chromium	0.0159		0.00200	1	06/21/2017 23:02	WG991105
Cobalt	0.00960		0.00200	1	06/21/2017 23:02	WG991105
Lead	0.00451		0.00200	1	06/21/2017 23:02	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:02	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:02	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2420		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.00	<u>T8</u>		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-11 WG990163: 7 at 19.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	459		10.0	10	06/19/2017 19:46	WG990194
Fluoride	0.214		0.100	1	06/19/2017 19:32	WG990194
Sulfate	742		50.0	10	06/19/2017 19:46	WG990194

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:07	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.468		0.200	1	06/20/2017 22:29	WG991096
Lithium	ND		0.0150	1	06/20/2017 22:29	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:29	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:06	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:06	WG991105
Barium	0.0337		0.00500	1	06/21/2017 23:06	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:06	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:06	WG991105
Calcium	430		1.00	1	06/21/2017 23:06	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:06	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:06	WG991105
Lead	ND		0.00200	1	06/21/2017 23:06	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:06	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:06	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	627		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.52	<u>T8</u>	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-12 WG990163: 6.52 at 15.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	49.2		1.00	1	06/19/2017 20:01	WG990194
Fluoride	0.665		0.100	1	06/19/2017 20:01	WG990194
Sulfate	21.2		5.00	1	06/19/2017 20:01	WG990194

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/22/2017 06:04	WG991019

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.97		0.200	1	06/20/2017 22:32	WG991096
Lithium	0.0968		0.0150	1	06/20/2017 22:32	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:32	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:09	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:09	WG991105
Barium	0.234		0.00500	1	06/21/2017 23:09	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:09	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:09	WG991105
Calcium	44.1		1.00	1	06/21/2017 23:09	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:09	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:09	WG991105
Lead	ND		0.00200	1	06/21/2017 23:09	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:09	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:09	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	709		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.62	<u>T8</u>	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-13 WG990163: 7.62 at 14.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	36.4		1.00	1	06/19/2017 20:15	WG990194
Fluoride	0.995		0.100	1	06/19/2017 20:15	WG990194
Sulfate	ND		5.00	1	06/19/2017 20:15	WG990194

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:09	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.41		0.200	1	06/20/2017 22:35	WG991096
Lithium	0.0971		0.0150	1	06/20/2017 22:35	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:35	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:13	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:13	WG991105
Barium	0.860		0.00500	1	06/21/2017 23:13	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:13	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:13	WG991105
Calcium	31.6		1.00	1	06/21/2017 23:13	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:13	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:13	WG991105
Lead	ND		0.00200	1	06/21/2017 23:13	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:13	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:13	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	575		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.26	<u>T8</u>	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-14 WG990163: 7.26 at 14.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.0		1.00	1	06/19/2017 20:59	WG990194
Fluoride	0.474		0.100	1	06/19/2017 20:59	WG990194
Sulfate	21.5		5.00	1	06/19/2017 20:59	WG990194

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:12	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.57		0.200	1	06/20/2017 22:43	WG991096
Lithium	0.0422		0.0150	1	06/20/2017 22:43	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:43	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:28	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:28	WG991105
Barium	0.150		0.00500	1	06/21/2017 23:28	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:28	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:28	WG991105
Calcium	63.2		1.00	1	06/21/2017 23:28	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:28	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:28	WG991105
Lead	ND		0.00200	1	06/21/2017 23:28	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:28	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:28	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	579		10.0	1	06/20/2017 15:56	WG990373

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.28	<u>T8</u>	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-15 WG990163: 7.28 at 14.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.1		1.00	1	06/19/2017 21:13	WG990194
Fluoride	0.476		0.100	1	06/19/2017 21:13	WG990194
Sulfate	21.5		5.00	1	06/19/2017 21:13	WG990194

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:14	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.58		0.200	1	06/20/2017 22:46	WG991096
Lithium	0.0405		0.0150	1	06/20/2017 22:46	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:46	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:31	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:31	WG991105
Barium	0.146		0.00500	1	06/21/2017 23:31	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:31	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:31	WG991105
Calcium	64.6		1.00	1	06/21/2017 23:31	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:31	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:31	WG991105
Lead	ND		0.00200	1	06/21/2017 23:31	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:31	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:31	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	862		10.0	1	06/21/2017 22:35	WG991199

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.52	T8	1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-16 WG990163: 7.52 at 13.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	103		10.0	10	06/20/2017 17:26	WG990196
Fluoride	1.12		0.100	1	06/20/2017 16:43	WG990196
Sulfate	ND		5.00	1	06/20/2017 16:43	WG990196

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:16	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.27		0.200	1	06/20/2017 22:49	WG991096
Lithium	0.114		0.0150	1	06/20/2017 22:49	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:49	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:35	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:35	WG991105
Barium	0.565		0.00500	1	06/21/2017 23:35	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:35	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:35	WG991105
Calcium	28.8		1.00	1	06/21/2017 23:35	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:35	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:35	WG991105
Lead	0.00212		0.00200	1	06/21/2017 23:35	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:35	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:35	WG991105



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	808		10.0	1	06/21/2017 22:35	WG991199

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.27	<u>T8</u>		1	06/16/2017 15:51	WG990163

3 Ss

4 Cn

Sample Narrative:

9040C L916561-17 WG990163: 7.27 at 15.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	18.5		1.00	1	06/20/2017 17:40	WG990196
Fluoride	0.304		0.100	1	06/20/2017 17:40	WG990196
Sulfate	212		50.0	10	06/23/2017 15:03	WG992228

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/20/2017 13:31	WG990239

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.240		0.200	1	06/20/2017 22:52	WG991096
Lithium	0.0211		0.0150	1	06/20/2017 22:52	WG991096
Molybdenum	ND		0.00500	1	06/20/2017 22:52	WG991096

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/21/2017 23:38	WG991105
Arsenic	ND		0.00200	1	06/21/2017 23:38	WG991105
Barium	0.0546		0.00500	1	06/21/2017 23:38	WG991105
Beryllium	ND		0.00200	1	06/21/2017 23:38	WG991105
Cadmium	ND		0.00100	1	06/21/2017 23:38	WG991105
Calcium	105		1.00	1	06/21/2017 23:38	WG991105
Chromium	ND		0.00200	1	06/21/2017 23:38	WG991105
Cobalt	ND		0.00200	1	06/21/2017 23:38	WG991105
Lead	ND		0.00200	1	06/21/2017 23:38	WG991105
Selenium	ND		0.00200	1	06/21/2017 23:38	WG991105
Thallium	ND		0.00200	1	06/21/2017 23:38	WG991105



Method Blank (MB)

(MB) R3227237-1 06/19/17 16:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L915728-02 Original Sample (OS) • Duplicate (DUP)

(OS) L915728-02 06/19/17 16:23 • (DUP) R3227237-4 06/19/17 16:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	697	683	1	2.13		5

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

(LCS) R3227237-2 06/19/17 16:23 • (LCSD) R3227237-3 06/19/17 16:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8580	8620	97.5	98.0	85.0-115			0.465	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3227587-1 06/20/17 14:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L916384-04 Original Sample (OS) • Duplicate (DUP)

(OS) L916384-04 06/20/17 14:09 • (DUP) R3227587-4 06/20/17 14:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	90.0	92.0	1	2.20		5

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

(LCS) R3227587-2 06/20/17 14:09 • (LCSD) R3227587-3 06/20/17 14:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8720	8610	99.1	97.8	85.0-115			1.27	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3227584-1 06/20/17 15:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

L916561-04 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-04 06/20/17 15:56 • (DUP) R3227584-4 06/20/17 15:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1030	1040	1	1.35		5

² Tc

³ Ss

⁴ Cn

⁵ Sr

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

(LCS) R3227584-2 06/20/17 15:56 • (LCSD) R3227584-3 06/20/17 15:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8780	8690	99.8	98.8	85.0-115			1.03	5

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3228005-1 06/21/17 16:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

L916561-08 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-08 06/21/17 16:57 • (DUP) R3228005-4 06/21/17 16:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	908	910	1	0.220		5

⁶ Qc

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

(LCS) R3228005-2 06/21/17 16:57 • (LCSD) R3228005-3 06/21/17 16:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8350	7990	94.9	90.8	85.0-115			4.41	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3228038-1 06/21/17 22:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

L916561-16 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-16 06/21/17 22:35 • (DUP) R3228038-4 06/21/17 22:35

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	862	900	1	4.31		5

⁴ Cn

⁵ Sr

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

(LCS) R3228038-2 06/21/17 22:35 • (LCSD) R3228038-3 06/21/17 22:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8400	8440	95.5	95.9	85.0-115			0.475	5

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



L916517-01 Original Sample (OS) • Duplicate (DUP)

(OS) L916517-01 06/16/17 15:51 • (DUP) WG990163-3 06/16/17 15:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.68	7.68	1	0.000	<u>T8</u>	1

¹ Cp

² Tc

³ Ss

L916561-17 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-17 06/16/17 15:51 • (DUP) WG990163-4 06/16/17 15:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.27	7.27	1	0.000	<u>T8</u>	1

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) WG990163-1 06/16/17 15:51 • (LCSD) WG990163-2 06/16/17 15:51

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.38	6.36	6.37	99.7	99.8	98.7-101			0.157	1

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3226922-1 06/19/17 12:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L916272-01 Original Sample (OS) • Duplicate (DUP)

(OS) L916272-01 06/19/17 18:32 • (DUP) R3226922-5 06/19/17 18:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	14.9	14.7	1	1		15
Fluoride	0.532	0.534	1	0		15
Sulfate	12.7	12.7	1	0		15

L915778-15 Original Sample (OS) • Duplicate (DUP)

(OS) L915778-15 06/19/17 20:02 • (DUP) R3226922-8 06/19/17 20:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	24.9	25.0	10	0		15
Fluoride	0.964	0.969	10	1	J	15
Sulfate	334	338	10	1		15

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

(LCS) R3226922-2 06/19/17 12:18 • (LCSD) R3226922-3 06/19/17 12:31

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.4	39.4	98	98	80-120			0	15
Fluoride	8.00	8.09	8.07	101	101	80-120			0	15
Sulfate	40.0	39.3	39.3	98	98	80-120			0	15

L915691-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L915691-02 06/19/17 16:35 • (MS) R3226922-4 06/19/17 16:48

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	77.7	125	95	1	80-120	E
Fluoride	5.00	0.290	5.21	98	1	80-120	



L915691-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L915691-02 06/19/17 16:35 • (MS) R3226922-4 06/19/17 16:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	ND	50.9	99	1	80-120	

L916272-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916272-01 06/19/17 18:32 • (MS) R3226922-6 06/19/17 18:57 • (MSD) R3226922-7 06/19/17 19:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	14.9	65.0	64.5	100	99	1	80-120			1	15
Fluoride	5.00	0.532	5.62	5.55	102	100	1	80-120			1	15
Sulfate	50.0	12.7	62.8	62.4	100	99	1	80-120			1	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3226911-1 06/19/17 12:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.0814	J	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L916231-12 Original Sample (OS) • Duplicate (DUP)

(OS) L916231-12 06/19/17 14:58 • (DUP) R3226911-4 06/19/17 15:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	80.2	80.5	1	0		15
Fluoride	0.447	0.441	1	1		15
Sulfate	89.2	89.1	1	0		15

L916355-01 Original Sample (OS) • Duplicate (DUP)

(OS) L916355-01 06/19/17 17:08 • (DUP) R3226911-6 06/19/17 17:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	11.9	11.7	1	2		15
Fluoride	0.179	0.227	1	24	P1	15
Sulfate	6.39	6.37	1	0		15

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

(LCS) R3226911-2 06/19/17 12:26 • (LCSD) R3226911-3 06/19/17 12:41

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.5	39.5	99	99	80-120			0	15
Fluoride	8.00	7.51	7.51	94	94	80-120			0	15
Sulfate	40.0	41.4	41.5	104	104	80-120			0	15

L916231-15 Original Sample (OS) • Matrix Spike (MS)

(OS) L916231-15 06/19/17 16:25 • (MS) R3226911-5 06/19/17 16:39

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Fluoride	5.00	0.0557	4.80	95	1	80-120	
Sulfate	50.0	0.422	52.8	105	1	80-120	



L916561-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916561-13 06/19/17 20:15 • (MS) R3226911-7 06/19/17 20:30 • (MSD) R3226911-8 06/19/17 20:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	36.4	85.3	85.6	98	98	1	80-120			0	15
Fluoride	5.00	0.995	5.64	5.66	93	93	1	80-120			0	15
Sulfate	50.0	ND	50.3	50.5	101	101	1	80-120			0	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3227282-1 06/20/17 06:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.0693	J	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

L916364-04 Original Sample (OS) • Duplicate (DUP)

(OS) L916364-04 06/20/17 10:42 • (DUP) R3227282-4 06/20/17 10:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	56.6	56.4	1	0		15
Fluoride	0.667	0.674	1	1		15

5 Sr

6 Qc

L916561-17 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-17 06/20/17 17:40 • (DUP) R3227282-6 06/20/17 17:55

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	18.5	18.4	1	0		15
Fluoride	0.304	0.303	1	0		15

7 Gl

8 Al

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

(LCS) R3227282-2 06/20/17 06:34 • (LCSD) R3227282-3 06/20/17 06:48

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.7	99	99	80-120			0	15
Fluoride	8.00	7.60	7.61	95	95	80-120			0	15
Sulfate	40.0	41.8	41.8	104	104	80-120			0	15

9 Sc

L916364-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L916364-07 06/20/17 12:09 • (MS) R3227282-5 06/20/17 12:23

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	4.96	53.5	97	1	80-120	
Fluoride	5.00	0.273	4.82	91	1	80-120	
Sulfate	50.0	7.68	57.8	100	1	80-120	



L916593-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916593-02 06/20/17 18:23 • (MS) R3227282-7 06/20/17 18:38 • (MSD) R3227282-8 06/20/17 18:52

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	2.72	52.4	52.5	99	100	1	80-120			0	15
Fluoride	5.00	0.571	3.90	3.92	67	67	1	80-120	J6	J6	0	15
Sulfate	50.0	ND	50.9	50.9	102	102	1	80-120			0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3228150-1 06/22/17 12:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L916561-05 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-05 06/22/17 19:34 • (DUP) R3228150-6 06/22/17 19:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	54.1	53.8	1	1		15
Fluoride	0.692	0.705	1	2		15

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

(LCS) R3228150-2 06/22/17 12:28 • (LCSD) R3228150-3 06/22/17 12:38

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.2	39.3	98	98	80-120			0	15
Fluoride	8.00	8.03	8.01	100	100	80-120			0	15

L916561-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L916561-04 06/22/17 19:14 • (MS) R3228150-5 06/22/17 19:24

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	44.3	93.1	98	1	80-120	
Fluoride	5.00	0.384	5.48	102	1	80-120	

L916561-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916561-10 06/22/17 20:04 • (MS) R3228150-7 06/22/17 20:15 • (MSD) R3228150-8 06/22/17 20:25

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50.0	39.5	85.1	84.8	91	91	1	80-120			0	15
Fluoride	5.00	0.366	5.12	5.10	95	95	1	80-120			1	15



Method Blank (MB)

(MB) R3228442-1 06/23/17 06:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L918050-01 Original Sample (OS) • Duplicate (DUP)

(OS) L918050-01 06/23/17 15:42 • (DUP) R3228442-5 06/23/17 15:55

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	0.000	1	0		15

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

(LCS) R3228442-2 06/23/17 06:43 • (LCSD) R3228442-3 06/23/17 06:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	38.8	38.8	97	97	80-120			0	15

⁷ Gl

⁸ Al

L916561-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L916561-05 06/23/17 14:11 • (MS) R3228442-4 06/23/17 14:24

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	80.6	117	74	1	80-120	<u>E J6</u>

⁹ Sc

L918119-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L918119-02 06/23/17 18:56 • (MS) R3228442-6 06/23/17 19:09 • (MSD) R3228442-7 06/23/17 19:22

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	27.3	71.8	71.4	89	88	1	80-120			1	15



Method Blank (MB)

(MB) R3227094-1 06/20/17 12:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3227094-2 06/20/17 12:31 • (LCSD) R3227094-3 06/20/17 12:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00334	0.00324	111	108	80-120			3	20

L916561-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916561-01 06/20/17 12:35 • (MS) R3227094-4 06/20/17 12:38 • (MSD) R3227094-5 06/20/17 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
Mercury	0.00300	ND	0.00337	0.00351	112	117	1	75-125			4	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3227699-1 06/22/17 05:44

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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

(LCS) R3227699-2 06/22/17 05:46 • (LCSD) R3227699-3 06/22/17 05:53

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00303	0.00292	101	97	80-120			4	20

6 Qc

L917069-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L917069-10 06/22/17 05:55 • (MS) R3227699-4 06/22/17 05:58 • (MSD) R3227699-5 06/22/17 06:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	U	0.00191	0.00190	64	63	1	75-125	<u>J6</u>	<u>J6</u>	0	20

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3227240-1 06/20/17 21:34

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3227240-2 06/20/17 21:36 • (LCSD) R3227240-3 06/20/17 21:39

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.961	0.954	96	95	80-120			1	20
Lithium	1.00	1.09	1.06	109	106	80-120			2	20
Molybdenum	1.00	1.02	1.01	102	101	80-120			1	20

L916561-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916561-01 06/20/17 21:42 • (MS) R3227240-5 06/20/17 21:48 • (MSD) R3227240-6 06/20/17 21:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	2.10	3.02	3.05	93	95	1	75-125			1	20
Lithium	1.00	0.129	1.25	1.25	112	113	1	75-125			1	20
Molybdenum	1.00	ND	1.00	1.00	100	100	1	75-125			0	20



Method Blank (MB)

(MB) R3227649-1 06/21/17 21:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3227649-2 06/21/17 21:55 • (LCSD) R3227649-3 06/21/17 21:59

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0525	0.0519	105	104	80-120			1	20
Arsenic	0.0500	0.0488	0.0477	98	95	80-120			2	20
Barium	0.0500	0.0463	0.0477	93	95	80-120			3	20
Beryllium	0.0500	0.0447	0.0448	89	90	80-120			0	20
Cadmium	0.0500	0.0508	0.0496	102	99	80-120			2	20
Calcium	5.00	4.94	4.88	99	98	80-120			1	20
Chromium	0.0500	0.0497	0.0493	99	99	80-120			1	20
Cobalt	0.0500	0.0508	0.0507	102	101	80-120			0	20
Lead	0.0500	0.0487	0.0487	97	97	80-120			0	20
Selenium	0.0500	0.0509	0.0487	102	97	80-120			4	20
Thallium	0.0500	0.0487	0.0485	97	97	80-120			0	20

L916699-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916699-02 06/21/17 22:02 • (MS) R3227649-5 06/21/17 22:09 • (MSD) R3227649-6 06/21/17 22:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Antimony	0.0500	U	0.0528	0.0520	106	104	1	75-125			1	20
Arsenic	0.0500	U	0.0467	0.0478	93	96	1	75-125			2	20
Barium	0.0500	U	0.0471	0.0472	94	94	1	75-125			0	20
Beryllium	0.0500	U	0.0450	0.0453	90	91	1	75-125			1	20
Cadmium	0.0500	U	0.0498	0.0498	100	100	1	75-125			0	20



L916699-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916699-02 06/21/17 22:02 • (MS) R3227649-5 06/21/17 22:09 • (MSD) R3227649-6 06/21/17 22:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	U	4.85	4.88	97	98	1	75-125			1	20
Chromium	0.0500	U	0.0490	0.0495	98	99	1	75-125			1	20
Cobalt	0.0500	U	0.0503	0.0506	101	101	1	75-125			0	20
Lead	0.0500	U	0.0490	0.0494	98	99	1	75-125			1	20
Selenium	0.0500	U	0.0506	0.0500	101	100	1	75-125			1	20
Thallium	0.0500	U	0.0485	0.0487	97	97	1	75-125			0	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3228479-1 06/24/17 13:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3228479-2 06/24/17 13:06 • (LCSD) R3228479-3 06/24/17 13:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0500	0.0486	100	97	80-120			3	20
Arsenic	0.0500	0.0477	0.0460	95	92	80-120			4	20
Barium	0.0500	0.0474	0.0472	95	94	80-120			0	20
Beryllium	0.0500	0.0503	0.0492	101	98	80-120			2	20
Cadmium	0.0500	0.0473	0.0463	95	93	80-120			2	20
Calcium	5.00	4.83	4.74	97	95	80-120			2	20
Chromium	0.0500	0.0483	0.0475	97	95	80-120			2	20
Cobalt	0.0500	0.0492	0.0487	98	97	80-120			1	20
Lead	0.0500	0.0516	0.0503	103	101	80-120			3	20
Selenium	0.0500	0.0476	0.0481	95	96	80-120			1	20
Thallium	0.0500	0.0521	0.0513	104	103	80-120			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

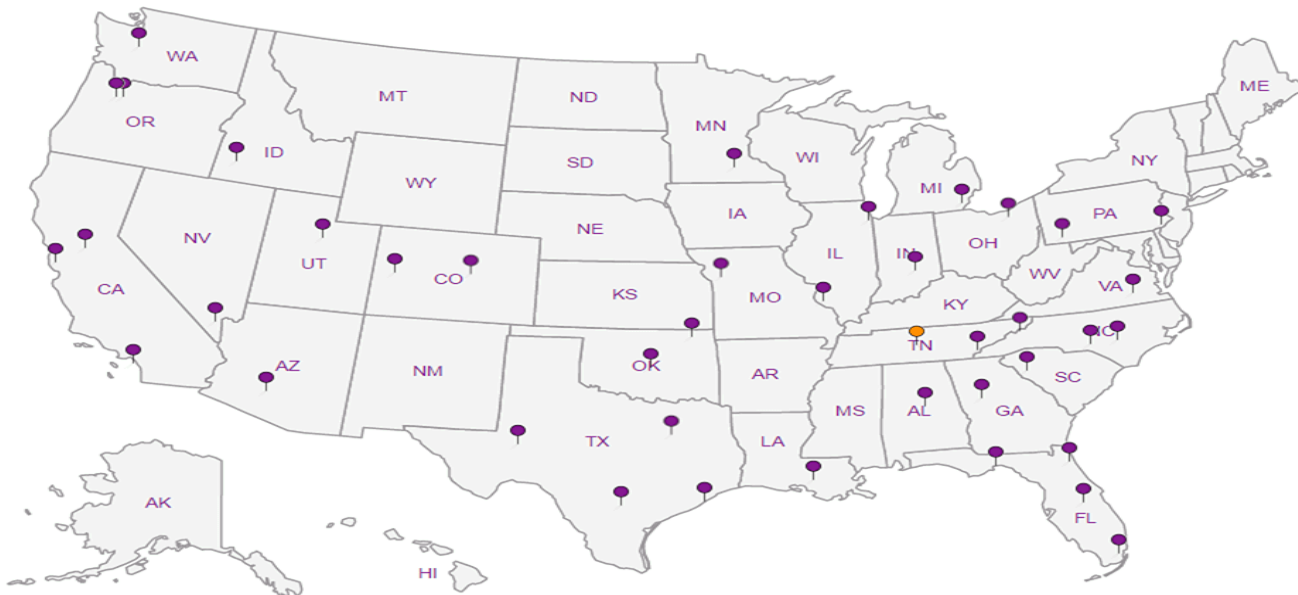
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE

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



Report to:
Alla Skaskevych

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

Project
Description: La Cygne Generating Station

City/State
Collected:

Phone: 913-344-1000
Fax: 913-344-1011

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Skaskevych/Guyon

Site/Facility ID #
Task 100
La Cygne

P.O. #
no PO number

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

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

Date Results Needed

Immediately
Packed on Ice N ___ Y

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions - Cl, F, SO4 250mlHDPE-NoPres	TDS, pH 250mlHDPE-NoPres	Total Metals 250mlHDPE-HNO3													
MW-950	Grab	GW		6/13/17	1000	3	X	X	X													
MW-705		GW			1040	3	X	X	X												02	
MW-706		GW			1150	3	X	X	X													03
TW-1		GW			1300	3	X	X	X													04
MW-701		GW			1420	3	X	X	X													05
MW-704		GW			1610	3	X	X	X													06
MW-707B		GW			1710	3	X	X	X													07
MW-703		GW		6/14/17	1140	3	X	X	X													08
MW-708		GW		6/14/17	1340	3	X	X	X													09
		GW				3	X	X	X													

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

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

Please indicate sample ID for the MS/MSD.

Samples returned via:
UPS ___ FedEx ___ Courier ___

Tracking #

pH ___ Temp ___
Flow ___ Other ___

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

Relinquished by: (Signature) 	Date: 6/14/17	Time: 1740	Received by: (Signature) 	Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> HCL / MeOH TBR
Relinquished by: (Signature) 	Date: 6/15/17	Time: 1700	Received by: (Signature) 	Temp: 21°C Bottles Received: 51
Relinquished by: (Signature) 	Date: 6/16/17	Time: 845	Received for lab by: (Signature) 	Hold: <input type="checkbox"/> Condition: NCF <input checked="" type="checkbox"/> OK

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceed@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: 913-344-1000
Fax: 913-344-1011

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Dillon Moran

Site/Facility ID #
TASK 100

P.O. #
no PO number

Collected by (signature):
Jim Muckler

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

Immediately
Packed on ice N Y

Analysis / Container / Preservative									
Pres	Ch								
		CLD, F, SO4	125mIHDPE-NoPres						
		Metals	250mIHDPE-HNO3						
		TDS, pH	500mIHDPE-NoPres						

Chain of Custody Page of



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



YOUR LAB OF CHOICE

L #
Table #
Acctnum: **URSKC**
Template: **T112860**
Prelogin: **P594561**
TSR: **206 - Jeff Carr**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Nu. of Cntrs									
MW-904	Grab	GW	N/A	6-12-17	12:00	3	X	X	X						
MW-805	Grab	GW	N/A	6-13-17	13:45	3	X	X	X						
MW-803	Grab	GW	N/A	6-13-17	14:40	3	X	X	X						
MW-802	Grab	GW	N/A	6-13-17	15:15	3	X	X	X						
MW-804	Grab	GW	N/A	6-13-17	16:00	3	X	X	X						
MW-951	Grab	GW	N/A	6-13-17	16:50	3	X	X	X						
MW-801	Grab	GW	N/A	6-14-17	10:40	3	X	X	X						
MW-15	Grab	GW	N/A	6-14-17	12:00	3	X	X	X						
		GW				3	X	X	X						
		GW				3	X	X	X						

Remarks	Sample # (lab only)
	- 10
	11
	12
	13
	14
	15
	16
	17

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

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

pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Samples returned via:
 UPS FedEx Courier

Tracking #

Relinquished by: (Signature)
Jim Muckler

Date: 6-14-17
Time: 15:45

Received by: (Signature)
Jim Anzell

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

Relinquished by: (Signature)
[Signature]

Date: 6/15/17
Time: 1700

Received by: (Signature)
[Signature]

Temp: 2.1°C
Bottles Received: 51

If preservation required by Login: Date/Time

Relinquished by: (Signature)
[Signature]

Date: 6-16-17
Time: 845

Received for lab by: (Signature)
[Signature]

Date: 6-16-17
Time: 845

Hold:
Condition: NCF 10

AECOM - Kansas City, MO

Sample Delivery Group: L916923
Samples Received: 06/17/2017
Project Number: 60482842
Description: La Cygne Generating Station

Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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SAMPLE SUMMARY



MW-905 L916923-01 GW

			Collected by JM/DM	Collected date/time 06/14/17 17:10	Received date/time 06/17/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991199	1	06/21/17 22:23	06/21/17 22:35	EG
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992492	1	06/24/17 13:22	06/24/17 13:22	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 12:52	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 13:12	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/23/17 01:13	LAT

1
Cp

2
Tc

3
Ss

4
Cn

MW-902 L916923-02 GW

			Collected by JM/DM	Collected date/time 06/15/17 12:05	Received date/time 06/17/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991637	1	06/22/17 21:01	06/22/17 21:29	MMF
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992494	1	06/24/17 18:58	06/24/17 18:58	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 12:54	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 13:14	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/23/17 01:17	LAT

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-602 L916923-03 GW

			Collected by JM/DM	Collected date/time 06/15/17 14:35	Received date/time 06/17/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991637	1	06/22/17 21:01	06/22/17 21:29	MMF
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992494	1	06/24/17 19:11	06/24/17 19:11	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 12:57	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 13:17	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/23/17 01:21	LAT

MW-601 L916923-04 GW

			Collected by JM/DM	Collected date/time 06/15/17 15:10	Received date/time 06/17/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991639	1	06/22/17 21:15	06/22/17 21:29	EG
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992494	1	06/24/17 19:24	06/24/17 19:24	DR
Wet Chemistry by Method 9056A	WG992494	5	06/24/17 20:16	06/24/17 20:16	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 12:13	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 12:36	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/22/17 21:09	VSS

MW-14R L916923-05 GW

			Collected by JM/DM	Collected date/time 06/15/17 15:50	Received date/time 06/17/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG991639	1	06/22/17 21:15	06/22/17 21:29	EG
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992494	1	06/24/17 20:03	06/24/17 20:03	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 13:07	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 13:20	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/23/17 01:24	LAT

SAMPLE SUMMARY



MW-903 L916923-06 GW

Collected by JM/DM
Collected date/time 06/16/17 10:30
Received date/time 06/17/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG992052	1	06/23/17 14:22	06/23/17 15:01	MMF
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992494	1	06/24/17 21:33	06/24/17 21:33	DR
Wet Chemistry by Method 9056A	WG993234	20	06/27/17 15:23	06/27/17 15:23	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 13:09	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 13:23	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/23/17 01:35	LAT

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-901 L916923-07 GW

Collected by JM/DM
Collected date/time 06/16/17 10:50
Received date/time 06/17/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG992052	1	06/23/17 14:22	06/23/17 15:01	MMF
Wet Chemistry by Method 9040C	WG990802	1	06/20/17 11:05	06/20/17 11:05	MHM
Wet Chemistry by Method 9056A	WG992494	1	06/24/17 20:28	06/24/17 20:28	DR
Mercury by Method 7470A	WG990484	1	06/20/17 12:52	06/21/17 13:12	EL
Metals (ICP) by Method 6010B	WG991317	1	06/21/17 09:26	06/21/17 13:26	NJB
Metals (ICPMS) by Method 6020	WG991763	1	06/22/17 09:07	06/23/17 01:38	LAT

6
Qc

7
Gl

8
Al

9
Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	536		10.0	1	06/21/2017 22:35	WG991199

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.38	T8		1	06/20/2017 11:05	WG990802

3 Ss

4 Cn

Sample Narrative:

9040C L916923-01 WG990802: 7.38 at 10.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	52.7		1.00	1	06/24/2017 13:22	WG992492
Fluoride	0.567		0.100	1	06/24/2017 13:22	WG992492
Sulfate	27.6		5.00	1	06/24/2017 13:22	WG992492

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 12:52	WG990484

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.85		0.200	1	06/21/2017 13:12	WG991317
Lithium	0.0706		0.0150	1	06/21/2017 13:12	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 13:12	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/23/2017 01:13	WG991763
Arsenic	ND		0.00200	1	06/23/2017 01:13	WG991763
Barium	0.115		0.00500	1	06/23/2017 01:13	WG991763
Beryllium	ND		0.00200	1	06/23/2017 01:13	WG991763
Cadmium	ND		0.00100	1	06/23/2017 01:13	WG991763
Calcium	49.6		1.00	1	06/23/2017 01:13	WG991763
Chromium	ND		0.00200	1	06/23/2017 01:13	WG991763
Cobalt	ND		0.00200	1	06/23/2017 01:13	WG991763
Lead	ND		0.00200	1	06/23/2017 01:13	WG991763
Selenium	ND		0.00200	1	06/23/2017 01:13	WG991763
Thallium	ND		0.00200	1	06/23/2017 01:13	WG991763



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	533		10.0	1	06/22/2017 21:29	WG991637

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.37	T8		1	06/20/2017 11:05	WG990802

3 Ss

4 Cn

Sample Narrative:

9040C L916923-02 WG990802: 7.37 at 9.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	33.0		1.00	1	06/24/2017 18:58	WG992494
Fluoride	0.467		0.100	1	06/24/2017 18:58	WG992494
Sulfate	30.4		5.00	1	06/24/2017 18:58	WG992494

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 12:54	WG990484

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.25		0.200	1	06/21/2017 13:14	WG991317
Lithium	0.0397		0.0150	1	06/21/2017 13:14	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 13:14	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/23/2017 01:17	WG991763
Arsenic	ND		0.00200	1	06/23/2017 01:17	WG991763
Barium	0.112		0.00500	1	06/23/2017 01:17	WG991763
Beryllium	ND		0.00200	1	06/23/2017 01:17	WG991763
Cadmium	ND		0.00100	1	06/23/2017 01:17	WG991763
Calcium	65.4		1.00	1	06/23/2017 01:17	WG991763
Chromium	ND		0.00200	1	06/23/2017 01:17	WG991763
Cobalt	ND		0.00200	1	06/23/2017 01:17	WG991763
Lead	ND		0.00200	1	06/23/2017 01:17	WG991763
Selenium	ND		0.00200	1	06/23/2017 01:17	WG991763
Thallium	ND		0.00200	1	06/23/2017 01:17	WG991763



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	607		10.0	1	06/22/2017 21:29	WG991637

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.65	T8		1	06/20/2017 11:05	WG990802

3 Ss

4 Cn

Sample Narrative:

9040C L916923-03 WG990802: 7.65 at 10.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.2		1.00	1	06/24/2017 19:11	WG992494
Fluoride	1.20		0.100	1	06/24/2017 19:11	WG992494
Sulfate	24.4		5.00	1	06/24/2017 19:11	WG992494

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 12:57	WG990484

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.41		0.200	1	06/21/2017 13:17	WG991317
Lithium	0.0652		0.0150	1	06/21/2017 13:17	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 13:17	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/23/2017 01:21	WG991763
Arsenic	ND		0.00200	1	06/23/2017 01:21	WG991763
Barium	0.0940		0.00500	1	06/23/2017 01:21	WG991763
Beryllium	ND		0.00200	1	06/23/2017 01:21	WG991763
Cadmium	ND		0.00100	1	06/23/2017 01:21	WG991763
Calcium	23.2		1.00	1	06/23/2017 01:21	WG991763
Chromium	ND		0.00200	1	06/23/2017 01:21	WG991763
Cobalt	ND		0.00200	1	06/23/2017 01:21	WG991763
Lead	ND		0.00200	1	06/23/2017 01:21	WG991763
Selenium	ND		0.00200	1	06/23/2017 01:21	WG991763
Thallium	ND		0.00200	1	06/23/2017 01:21	WG991763



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	916		10.0	1	06/22/2017 21:29	WG991639

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.71	<u>T8</u>	1	06/20/2017 11:05	WG990802

Sample Narrative:

9040C L916923-04 WG990802: 7.71 at 10.9c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	167		5.00	5	06/24/2017 20:16	WG992494
Fluoride	1.63		0.100	1	06/24/2017 19:24	WG992494
Sulfate	ND		5.00	1	06/24/2017 19:24	WG992494

Mercury by Method 7470A

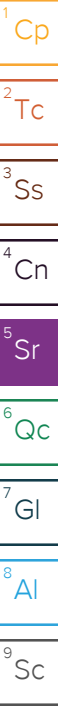
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 12:13	WG990484

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.85		0.200	1	06/21/2017 12:36	WG991317
Lithium	0.0778		0.0150	1	06/21/2017 12:36	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 12:36	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/22/2017 21:09	WG991763
Arsenic	ND		0.00200	1	06/22/2017 21:09	WG991763
Barium	0.123		0.00500	1	06/22/2017 21:09	WG991763
Beryllium	ND		0.00200	1	06/22/2017 21:09	WG991763
Cadmium	ND		0.00100	1	06/22/2017 21:09	WG991763
Calcium	22.0	<u>V</u>	1.00	1	06/22/2017 21:09	WG991763
Chromium	ND		0.00200	1	06/22/2017 21:09	WG991763
Cobalt	ND		0.00200	1	06/22/2017 21:09	WG991763
Lead	ND		0.00200	1	06/22/2017 21:09	WG991763
Selenium	ND		0.00200	1	06/22/2017 21:09	WG991763
Thallium	ND		0.00200	1	06/22/2017 21:09	WG991763





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	499		10.0	1	06/22/2017 21:29	WG991639

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.33	<u>T8</u>		1	06/20/2017 11:05	WG990802

Sample Narrative:

9040C L916923-05 WG990802: 7.33 at 11.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4.25		1.00	1	06/24/2017 20:03	WG992494
Fluoride	0.237		0.100	1	06/24/2017 20:03	WG992494
Sulfate	44.2		5.00	1	06/24/2017 20:03	WG992494

Mercury by Method 7470A

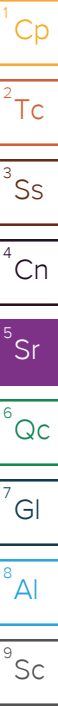
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 13:07	WG990484

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.488		0.200	1	06/21/2017 13:20	WG991317
Lithium	0.0401		0.0150	1	06/21/2017 13:20	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 13:20	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/23/2017 01:24	WG991763
Arsenic	ND		0.00200	1	06/23/2017 01:24	WG991763
Barium	0.0411		0.00500	1	06/23/2017 01:24	WG991763
Beryllium	ND		0.00200	1	06/23/2017 01:24	WG991763
Cadmium	ND		0.00100	1	06/23/2017 01:24	WG991763
Calcium	57.0		1.00	1	06/23/2017 01:24	WG991763
Chromium	ND		0.00200	1	06/23/2017 01:24	WG991763
Cobalt	ND		0.00200	1	06/23/2017 01:24	WG991763
Lead	ND		0.00200	1	06/23/2017 01:24	WG991763
Selenium	ND		0.00200	1	06/23/2017 01:24	WG991763
Thallium	ND		0.00200	1	06/23/2017 01:24	WG991763





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2020		10.0	1	06/23/2017 15:01	WG992052

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	6.77	T8		1	06/20/2017 11:05	WG990802

3 Ss

4 Cn

Sample Narrative:

9040C L916923-06 WG990802: 6.77 at 11.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	25.7		1.00	1	06/24/2017 21:33	WG992494
Fluoride	0.132		0.100	1	06/24/2017 21:33	WG992494
Sulfate	913		100	20	06/27/2017 15:23	WG993234

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 13:09	WG990484

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.404		0.200	1	06/21/2017 13:23	WG991317
Lithium	0.0539		0.0150	1	06/21/2017 13:23	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 13:23	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/23/2017 01:35	WG991763
Arsenic	ND		0.00200	1	06/23/2017 01:35	WG991763
Barium	0.0148		0.00500	1	06/23/2017 01:35	WG991763
Beryllium	ND		0.00200	1	06/23/2017 01:35	WG991763
Cadmium	ND		0.00100	1	06/23/2017 01:35	WG991763
Calcium	331		1.00	1	06/23/2017 01:35	WG991763
Chromium	ND		0.00200	1	06/23/2017 01:35	WG991763
Cobalt	0.00207		0.00200	1	06/23/2017 01:35	WG991763
Lead	ND		0.00200	1	06/23/2017 01:35	WG991763
Selenium	ND		0.00200	1	06/23/2017 01:35	WG991763
Thallium	ND		0.00200	1	06/23/2017 01:35	WG991763



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	536		10.0	1	06/23/2017 15:01	WG992052

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.35	T8		1	06/20/2017 11:05	WG990802

3 Ss

4 Cn

Sample Narrative:

9040C L916923-07 WG990802: 7.35 at 11.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	22.6		1.00	1	06/24/2017 20:28	WG992494
Fluoride	0.489		0.100	1	06/24/2017 20:28	WG992494
Sulfate	15.6		5.00	1	06/24/2017 20:28	WG992494

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/21/2017 13:12	WG990484

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.20		0.200	1	06/21/2017 13:26	WG991317
Lithium	0.0586		0.0150	1	06/21/2017 13:26	WG991317
Molybdenum	ND		0.00500	1	06/21/2017 13:26	WG991317

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	06/23/2017 01:38	WG991763
Arsenic	ND		0.00200	1	06/23/2017 01:38	WG991763
Barium	0.193		0.00500	1	06/23/2017 01:38	WG991763
Beryllium	ND		0.00200	1	06/23/2017 01:38	WG991763
Cadmium	ND		0.00100	1	06/23/2017 01:38	WG991763
Calcium	56.7		1.00	1	06/23/2017 01:38	WG991763
Chromium	ND		0.00200	1	06/23/2017 01:38	WG991763
Cobalt	ND		0.00200	1	06/23/2017 01:38	WG991763
Lead	ND		0.00200	1	06/23/2017 01:38	WG991763
Selenium	ND		0.00200	1	06/23/2017 01:38	WG991763
Thallium	ND		0.00200	1	06/23/2017 01:38	WG991763



Method Blank (MB)

(MB) R3228038-1 06/21/17 22:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L916561-16 Original Sample (OS) • Duplicate (DUP)

(OS) L916561-16 06/21/17 22:35 • (DUP) R3228038-4 06/21/17 22:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	862	900	1	4.31		5

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

(LCS) R3228038-2 06/21/17 22:35 • (LCSD) R3228038-3 06/21/17 22:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8400	8440	95.5	95.9	85.0-115			0.475	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3228417-1 06/22/17 21:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	4.00	J	2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L916923-03 Original Sample (OS) • Duplicate (DUP)

(OS) L916923-03 06/22/17 21:29 • (DUP) R3228417-4 06/22/17 21:29

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	607	620	1	2.17		5

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

(LCS) R3228417-2 06/22/17 21:29 • (LCSD) R3228417-3 06/22/17 21:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8410	8460	95.6	96.1	85.0-115			0.593	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3228422-1 06/22/17 21:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L916925-02 Original Sample (OS) • Duplicate (DUP)

(OS) L916925-02 06/22/17 21:29 • (DUP) R3228422-4 06/22/17 21:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2350	2310	1	1.72		5

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

(LCS) R3228422-2 06/22/17 21:29 • (LCSD) R3228422-3 06/22/17 21:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8280	8660	94.1	98.4	85.0-115			4.49	5



Method Blank (MB)

(MB) R3228485-1 06/23/17 15:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	4.00	J	2.82	10.0

¹ Cp

² Tc

³ Ss

L916923-07 Original Sample (OS) • Duplicate (DUP)

(OS) L916923-07 06/23/17 15:01 • (DUP) R3228485-4 06/23/17 15:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	536	540	1	0.743		5

⁴ Cn

⁵ Sr

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

(LCS) R3228485-2 06/23/17 15:01 • (LCSD) R3228485-3 06/23/17 15:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8500	8610	96.6	97.8	85.0-115			1.29	5

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



L916861-07 Original Sample (OS) • Duplicate (DUP)

(OS) L916861-07 06/20/17 11:05 • (DUP) WG990802-3 06/20/17 11:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.92	6.94	1	0.289	T8	1

L916943-16 Original Sample (OS) • Duplicate (DUP)

(OS) L916943-16 06/20/17 11:05 • (DUP) WG990802-4 06/20/17 11:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	5.36	5.37	1	0.186	T8	1

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

(LCS) WG990802-1 06/20/17 11:05 • (LCSD) WG990802-2 06/20/17 11:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.38	6.44	6.45	101	101	98.7-101			0.155	1

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3228629-1 06/24/17 06:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	0.0744	J	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

L916829-03 Original Sample (OS) • Duplicate (DUP)

(OS) L916829-03 06/24/17 12:11 • (DUP) R3228629-4 06/24/17 12:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	81.9	82.8	1	1		15
Fluoride	0.546	0.540	1	1		15

⁵ Sr

⁶ Qc

L916829-03 Original Sample (OS) • Duplicate (DUP)

(OS) L916829-03 06/24/17 15:34 • (DUP) R3228629-6 06/24/17 15:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	530	526	10	1		15

⁷ Gl

⁸ Al

L916942-07 Original Sample (OS) • Duplicate (DUP)

(OS) L916942-07 06/24/17 18:27 • (DUP) R3228629-7 06/24/17 18:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	6.97	6.64	1	5		15

⁹ Sc

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

(LCS) R3228629-2 06/24/17 06:17 • (LCSD) R3228629-3 06/24/17 06:31

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.4	39.5	98	99	80-120			0	15
Fluoride	8.00	7.53	7.57	94	95	80-120			1	15
Sulfate	40.0	41.0	41.3	103	103	80-120			1	15



L916923-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L916923-01 06/24/17 13:22 • (MS) R3228629-5 06/24/17 13:37

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	52.7	100	95	1	80-120	E
Fluoride	5.00	0.567	5.11	91	1	80-120	
Sulfate	50.0	27.6	77.2	99	1	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3228642-1 06/24/17 05:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L916829-23 Original Sample (OS) • Duplicate (DUP)

(OS) L916829-23 06/24/17 12:46 • (DUP) R3228642-4 06/24/17 12:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	63.1	62.8	1	0		15
Fluoride	0.259	0.262	1	1		15
Sulfate	93.4	93.4	1	0		15

L916923-07 Original Sample (OS) • Duplicate (DUP)

(OS) L916923-07 06/24/17 20:28 • (DUP) R3228642-8 06/24/17 20:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	22.6	22.3	1	1		15
Fluoride	0.489	0.495	1	1		15
Sulfate	15.6	15.5	1	0		15

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

(LCS) R3228642-2 06/24/17 06:10 • (LCSD) R3228642-3 06/24/17 06:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.5	39.6	99	99	80-120			0	15
Fluoride	8.00	8.13	8.12	102	102	80-120			0	15
Sulfate	40.0	38.8	38.8	97	97	80-120			0	15

L916829-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L916829-08 06/24/17 17:15 • (MS) R3228642-5 06/24/17 17:27

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Fluoride	5.00	0.635	5.52	98	1	80-120	
Sulfate	50.0	0.556	46.4	92	1	80-120	



L916923-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916923-04 06/24/17 19:24 • (MS) R3228642-6 06/24/17 19:37 • (MSD) R3228642-7 06/24/17 19:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits
Fluoride	5.00	1.63	6.74	6.62	102	100	1	80-120			2	15
Sulfate	50.0	ND	51.4	50.4	96	94	1	80-120			2	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3229401-1 06/27/17 12:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L916901-07 Original Sample (OS) • Duplicate (DUP)

(OS) L916901-07 06/27/17 14:53 • (DUP) R3229401-4 06/27/17 15:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	309	307	10	1		15

L917179-01 Original Sample (OS) • Duplicate (DUP)

(OS) L917179-01 06/27/17 18:22 • (DUP) R3229401-7 06/27/17 18:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	23.7	23.7	1	0		15

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

(LCS) R3229401-2 06/27/17 12:54 • (LCSD) R3229401-3 06/27/17 13:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	39.0	39.0	97	97	80-120			0	15

L916925-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916925-03 06/27/17 15:38 • (MS) R3229401-5 06/27/17 15:53 • (MSD) R3229401-6 06/27/17 16:07

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	31.1	81.4	81.4	101	101	1	80-120			0	15

L917410-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L917410-01 06/27/17 20:51 • (MS) R3229401-8 06/27/17 21:06

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	ND	52.4	101	1	80-120	



Method Blank (MB)

(MB) R3227477-1 06/21/17 12:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3227477-2 06/21/17 12:09 • (LCSD) R3227477-3 06/21/17 12:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00308	0.00310	103	103	80-120			0	20

L916923-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916923-04 06/21/17 12:13 • (MS) R3227477-4 06/21/17 12:16 • (MSD) R3227477-5 06/21/17 12:18

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00332	0.00313	111	104	1	75-125			6	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3227461-1 06/21/17 12:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3227461-2 06/21/17 12:30 • (LCSD) R3227461-3 06/21/17 12:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.961	0.960	96	96	80-120			0	20
Lithium	1.00	1.00	1.00	100	100	80-120			0	20
Molybdenum	1.00	1.00	1.01	100	101	80-120			1	20

L916923-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916923-04 06/21/17 12:36 • (MS) R3227461-5 06/21/17 12:41 • (MSD) R3227461-6 06/21/17 12:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	1.85	2.79	2.78	95	93	1	75-125			0	20
Lithium	1.00	0.0778	1.11	1.10	103	103	1	75-125			1	20
Molybdenum	1.00	ND	1.02	1.01	102	101	1	75-125			1	20

L916925-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916925-03 06/21/17 13:39 • (MS) R3227461-7 06/21/17 13:42 • (MSD) R3227461-8 06/21/17 13:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.942	1.92	1.90	98	96	1	75-125			1	20
Lithium	1.00	0.0409	1.08	1.08	104	104	1	75-125			0	20
Molybdenum	1.00	ND	1.04	1.04	104	104	1	75-125			0	20



Method Blank (MB)

(MB) R3228037-1 06/22/17 20:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	0.0737	J	0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3228037-2 06/22/17 21:02 • (LCSD) R3228037-3 06/22/17 21:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0524	0.0513	105	103	80-120			2	20
Arsenic	0.0500	0.0488	0.0476	98	95	80-120			2	20
Barium	0.0500	0.0480	0.0459	96	92	80-120			4	20
Beryllium	0.0500	0.0486	0.0463	97	93	80-120			5	20
Cadmium	0.0500	0.0549	0.0531	110	106	80-120			3	20
Calcium	5.00	5.03	4.77	101	95	80-120			5	20
Chromium	0.0500	0.0518	0.0506	104	101	80-120			2	20
Cobalt	0.0500	0.0527	0.0519	105	104	80-120			2	20
Lead	0.0500	0.0511	0.0489	102	98	80-120			4	20
Selenium	0.0500	0.0510	0.0508	102	102	80-120			0	20
Thallium	0.0500	0.0505	0.0486	101	97	80-120			4	20

L916923-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916923-04 06/22/17 21:09 • (MS) R3228037-5 06/22/17 21:16 • (MSD) R3228037-6 06/22/17 21:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0551	0.0559	110	112	1	75-125			1	20
Arsenic	0.0500	ND	0.0491	0.0478	97	95	1	75-125			3	20
Barium	0.0500	0.123	0.171	0.169	96	92	1	75-125			1	20
Beryllium	0.0500	ND	0.0481	0.0480	96	96	1	75-125			0	20
Cadmium	0.0500	ND	0.0540	0.0546	108	109	1	75-125			1	20



[L916923-01,02,03,04,05,06,07](#)

L916923-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916923-04 06/22/17 21:09 • (MS) R3228037-5 06/22/17 21:16 • (MSD) R3228037-6 06/22/17 21:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	22.0	26.2	24.7	85	55	1	75-125		V	6	20
Chromium	0.0500	ND	0.0519	0.0496	104	99	1	75-125			4	20
Cobalt	0.0500	ND	0.0520	0.0501	104	100	1	75-125			4	20
Lead	0.0500	ND	0.0500	0.0500	100	100	1	75-125			0	20
Selenium	0.0500	ND	0.0525	0.0505	105	101	1	75-125			4	20
Thallium	0.0500	ND	0.0499	0.0492	100	98	1	75-125			1	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L916925-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L916925-03 06/23/17 01:59 • (MS) R3228037-7 06/23/17 02:03 • (MSD) R3228037-8 06/23/17 02:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0556	0.0565	111	113	1	75-125			2	20
Arsenic	0.0500	0.00528	0.0535	0.0527	96	95	1	75-125			1	20
Barium	0.0500	0.306	0.355	0.356	98	99	1	75-125			0	20
Beryllium	0.0500	ND	0.0476	0.0485	95	97	1	75-125			2	20
Cadmium	0.0500	ND	0.0490	0.0503	98	101	1	75-125			3	20
Calcium	5.00	55.5	59.5	58.3	81	57	1	75-125		V	2	20
Chromium	0.0500	ND	0.0493	0.0489	99	98	1	75-125			1	20
Cobalt	0.0500	ND	0.0500	0.0492	99	97	1	75-125			2	20
Lead	0.0500	ND	0.0490	0.0494	97	98	1	75-125			1	20
Selenium	0.0500	ND	0.0501	0.0500	100	100	1	75-125			0	20
Thallium	0.0500	ND	0.0485	0.0493	97	99	1	75-125			2	20

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

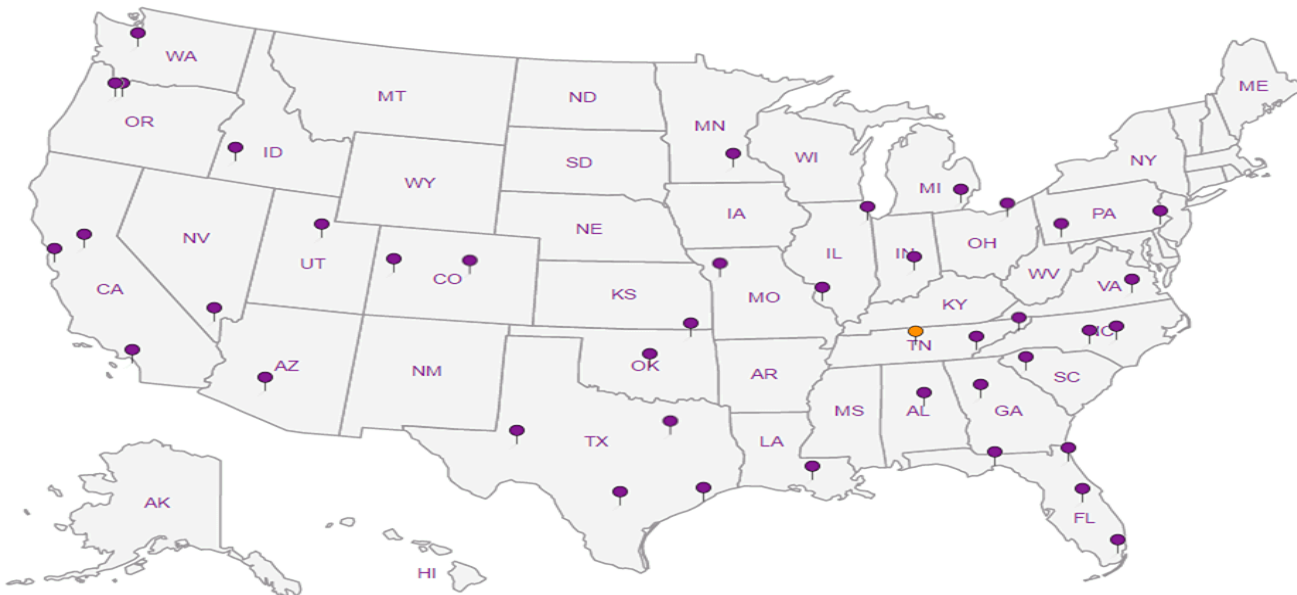
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE

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



L# **L916 923**
B028

Acctnum: **URSKC**

Template: **T112860**

Prelogin: **P594561**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Remarks Sample # (lab only)

Report to:
Brian Linnan

Email To: **brian.linnan@aecom.com;**
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Dillon Moran

Site/Facility ID #

P.O. #
no PO number

Collected by (signature):
Jim Muckler

Rush? (Lab MUST Be Notified)

Quote #

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

Date Results Needed

Immediately
Packed on Ice N ___ Y **X**

No. of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	CLD, F, SO4 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres													
MW-905	Grab	GW	N/A	6-14-17	17:10	3	X	X	X												-01	
MW-902	Grab	GW	N/A	6-15-17	12:05	3	X	X	X													-02
MW-602	Grab	GW	N/A	6-15-17	14:35	3	X	X	X													-03
MW-601	Grab	GW	N/A	6-15-17	15:10	3	X	X	X													-04
MW-601 MS	Grab	GW	N/A	6-15-17	15:10	3	X	X	X													-04
MW-601 MSD	Grab	GW	N/A	6-15-17	15:10	3	X	X	X													-04
MW-14R	Grab	GW	N/A	6-15-17	15:50	3	X	X	X													-05
MW-903	Grab	GW	N/A	6-16-17	10:30	3	X	X	X													-06
MW-901	Grab	GW	N/A	6-16-17	10:50	3	X	X	X													-07

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

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

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking #

Sample Receipt Checklist

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

Relinquished by: (Signature)
Jim Muckler

Date: **6-16-17** Time: **14:00**

Received by: (Signature)
[Signature]

Trip Blank Received: Yes/No
HCL/MeOH
TBR

Relinquished by: (Signature)
[Signature]

Date: **6/16/17** Time: **11:00**

Received by: (Signature)
[Signature]

Temp: **2.1°C** Bottles Received: **27**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____ Time: _____

Received for lab by: (Signature)
[Signature]

Date: **6-17-17** Time: **0845**

Hold:

Condition:
NCF **OK**

July 12, 2017

AECOM - Kansas City, MO

Sample Delivery Group: L919948
Samples Received: 07/01/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:














Jeff Carr

Technical Service Representative

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



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SAMPLE SUMMARY



MW-904 L919948-01 GW

Collected by
Collected date/time
06/30/17 10:20
Received date/time
07/01/17 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG995873	1	07/06/17 20:01	07/06/17 20:45	MZ
Wet Chemistry by Method 9040C	WG996404	1	07/08/17 09:20	07/08/17 09:20	MA
Wet Chemistry by Method 9056A	WG996981	1	07/11/17 00:18	07/11/17 00:18	DR
Wet Chemistry by Method 9056A	WG996981	5	07/11/17 11:53	07/11/17 11:53	DR
Mercury by Method 7470A	WG995281	1	07/04/17 07:35	07/05/17 11:20	EL
Metals (ICP) by Method 6010B	WG995184	1	07/02/17 18:48	07/03/17 00:11	CCE
Metals (ICPMS) by Method 6020	WG995969	1	07/06/17 08:47	07/11/17 21:16	VSS

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



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	732		10.0	1	07/06/2017 20:45	WG995873

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45	<u>T8</u>	1	07/08/2017 09:20	WG996404

3 Ss

4 Cn

Sample Narrative:

L919948-01 WG996404: 7.45 at 20.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	38.0		1.00	1	07/11/2017 00:18	WG996981
Fluoride	0.385		0.100	1	07/11/2017 00:18	WG996981
Sulfate	119		25.0	5	07/11/2017 11:53	WG996981

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/05/2017 11:20	WG995281

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.28		0.200	1	07/03/2017 00:11	WG995184
Lithium	0.0525		0.0150	1	07/03/2017 00:11	WG995184
Molybdenum	0.0102		0.00500	1	07/03/2017 00:11	WG995184

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	07/11/2017 21:16	WG995969
Arsenic	ND		0.00200	1	07/11/2017 21:16	WG995969
Barium	0.130		0.00500	1	07/11/2017 21:16	WG995969
Beryllium	ND		0.00200	1	07/11/2017 21:16	WG995969
Cadmium	ND		0.00100	1	07/11/2017 21:16	WG995969
Calcium	82.3		1.00	1	07/11/2017 21:16	WG995969
Chromium	ND		0.00200	1	07/11/2017 21:16	WG995969
Cobalt	ND		0.00200	1	07/11/2017 21:16	WG995969
Lead	ND		0.00200	1	07/11/2017 21:16	WG995969
Selenium	ND		0.00200	1	07/11/2017 21:16	WG995969
Thallium	ND		0.00200	1	07/11/2017 21:16	WG995969



Method Blank (MB)

(MB) R3231751-1 07/06/17 20:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	3.00		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L920263-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920263-01 07/06/17 20:45 • (DUP) R3231751-4 07/06/17 20:45

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1520	1480	1	2.67		5

7 Gl

8 Al

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

(LCS) R3231751-2 07/06/17 20:45 • (LCSD) R3231751-3 07/06/17 20:45

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8360	8460	95.0	96.1	85.0-115			1.19	5

9 Sc



L919586-01 Original Sample (OS) • Duplicate (DUP)

(OS) L919586-01 07/08/17 09:20 • (DUP) WG996404-3 07/08/17 09:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.60	6.59	1	0.152	T8	1

Sample Narrative:

OS: 6.60 at 20.7c
 DUP: 6.59 at 20.7c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L920847-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920847-01 07/08/17 09:20 • (DUP) WG996404-4 07/08/17 09:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	5.47	5.46	1	0.183	T8	1

Sample Narrative:

OS: 5.47 at 19.5c
 DUP: 5.46 at 19.5c

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) WG996404-1 07/08/17 09:20 • (LCSD) WG996404-2 07/08/17 09:20

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.38	6.33	6.32	99.2	99.1	98.4-102			0.158	1

Sample Narrative:

LCS: 6.33 at 21.2c
 LCSD: 6.32 at 21.2c



Method Blank (MB)

(MB) R3232146-1 07/10/17 14:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L919946-01 Original Sample (OS) • Duplicate (DUP)

(OS) L919946-01 07/10/17 16:06 • (DUP) R3232146-4 07/10/17 16:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	1.61	1.61	1	0		15
Fluoride	ND	0.0772	1	0		15
Sulfate	5.81	5.76	1	1		15

L919904-08 Original Sample (OS) • Duplicate (DUP)

(OS) L919904-08 07/10/17 18:50 • (DUP) R3232146-5 07/10/17 19:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	56.9	56.7	1	0		15
Fluoride	0.637	0.636	1	0		15

L919904-08 Original Sample (OS) • Duplicate (DUP)

(OS) L919904-08 07/11/17 10:53 • (DUP) R3232146-9 07/11/17 11:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Sulfate	310	310	5	0		15

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

(LCS) R3232146-2 07/10/17 15:06 • (LCSD) R3232146-3 07/10/17 15:21

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.8	39.7	99	99	80-120			0	15
Fluoride	8.00	8.02	8.01	100	100	80-120			0	15
Sulfate	40.0	40.0	39.8	100	100	80-120			0	15



L919904-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L919904-09 07/10/17 19:19 • (MS) R3232146-6 07/10/17 20:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	12.5	56.9	89	1	80-120	
Fluoride	5.00	0.106	4.62	90	1	80-120	
Sulfate	50.0	85.2	126	82	1	80-120	E

¹ Cp

² Tc

³ Ss

⁴ Cn

L919919-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L919919-01 07/10/17 22:18 • (MS) R3232146-7 07/10/17 23:03 • (MSD) R3232146-8 07/10/17 23:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	5.43	52.5	52.6	94	94	1	80-120			0	15
Fluoride	5.00	ND	4.76	4.77	95	95	1	80-120			0	15
Sulfate	50.0	14.0	60.9	60.8	94	94	1	80-120			0	15

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3231014-1 07/05/17 10:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3231014-2 07/05/17 10:48 • (LCSD) R3231014-3 07/05/17 10:50

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00282	0.00278	94	93	80-120			2	20

L920051-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920051-01 07/05/17 10:53 • (MS) R3231014-4 07/05/17 10:55 • (MSD) R3231014-5 07/05/17 10:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00169	0.00255	56	85	1	75-125	<u>J6</u>	<u>J3</u>	41	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3230564-1 07/02/17 22:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

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

(LCS) R3230564-2 07/02/17 23:02 • (LCSD) R3230564-3 07/02/17 23:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.948	0.952	95	95	80-120			0	20
Lithium	1.00	0.989	0.995	99	100	80-120			1	20
Molybdenum	1.00	0.987	0.987	99	99	80-120			0	20

⁵ Sr

⁶ Qc

⁷ Gl

L919862-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L919862-07 07/02/17 23:07 • (MS) R3230564-5 07/02/17 23:13 • (MSD) R3230564-6 07/02/17 23:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	U	0.988	0.986	94	94	1	75-125			0	20
Lithium	1.00	U	0.993	1.00	98	99	1	75-125			1	20
Molybdenum	1.00	U	0.990	0.984	99	98	1	75-125			1	20

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3232522-1 07/11/17 20:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

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

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

(LCS) R3232522-2 07/11/17 20:55 • (LCSD) R3232522-3 07/11/17 20:59

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0562	0.0545	112	109	80-120			3	20
Arsenic	0.0500	0.0525	0.0503	105	101	80-120			4	20
Barium	0.0500	0.0514	0.0494	103	99	80-120			4	20
Beryllium	0.0500	0.0483	0.0473	97	95	80-120			2	20
Cadmium	0.0500	0.0498	0.0507	100	101	80-120			2	20
Calcium	5.00	4.97	4.88	99	98	80-120			2	20
Chromium	0.0500	0.0506	0.0489	101	98	80-120			3	20
Cobalt	0.0500	0.0519	0.0500	104	100	80-120			4	20
Lead	0.0500	0.0492	0.0487	98	97	80-120			1	20
Selenium	0.0500	0.0588	0.0570	118	114	80-120			3	20
Thallium	0.0500	0.0491	0.0485	98	97	80-120			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.
T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

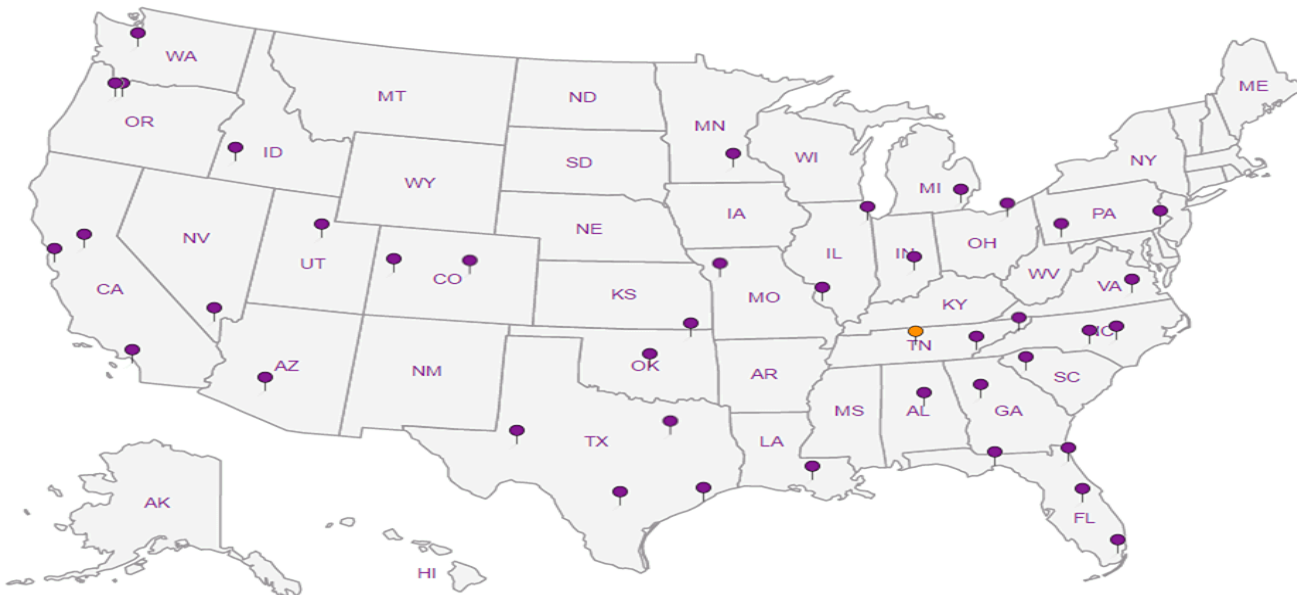
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Jared Morrison
December 16, 2022

ATTACHMENT 1-9
July 2017 Sampling Event Laboratory Report



Case Narrative

Lab No: 20170678

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 7/24/2017 2:33:15 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L924426



Client : AECOM - Kansas City, MO
 Client Project : 60482842
 Lab Number : 20170678
 Date Reported : 08/17/17
 Date Received : 07/24/17
 Page Number : 2 of 2

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170678-01							
Client ID : MW-904							
Date Sampled : 7/21/2017 9:50:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	3.78 +/- 2.67	3.85	pCi/l				
Radium-226 SM 7500 Ra B M*	0.039 +/- 0.221	0.358	pCi/l		08/02/17	08/04/17	RE
Radium-228 EPA 904*	3.74 +/- 2.45	3.49	pCi/l		08/03/17	08/08/17	JR

QC Report

Parameter	Blank	LCS %REC	LCS %REC	LCS RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	MSD RPD	Batch ID
Radium-226	0.005	117.0			NC	0.379	124.0	114.0	7.8	R1261
Radium-228	0.074	93.6			NC	0.497	77.8	77.2	0.8	R3988

Lab Approval:

Ron Eidson
 Director of Radiochemistry

SAMPLE LOGIN

Date Received: 7/24/2017 2:33:15

Lab Number: 20170678

Due: 8/21/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170678-01 B	MW-904	NPW	07/21/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170678-01 A	MW-904	NPW	07/21/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No

SM 7500 Ra B M*
EPA 904*

CONTAINER INSPECTION

Coolers 1 Custody Seals Broken Temperature: 16 C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete *NSA*

Anomalies

Inspected By: *[Signature]* DATE 7/24/17
 QA or Designee Review: *[Signature]* DATE 07/24/17
 Sample Custodian Review: *[Signature]* DATE 7/24/17

Project Notes:

AECOM - Kansas City, MO

Sample Delivery Group: L924312
Samples Received: 07/22/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:












Jeff Carr

Technical Service Representative

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



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Sc: Chain of Custody	16	

SAMPLE SUMMARY



MW-904 L924312-01 GW

Collected by: Terry Andrews
 Collected date/time: 07/21/17 09:50
 Received date/time: 07/22/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1003419	1	07/27/17 20:13	07/27/17 20:33	EG
Wet Chemistry by Method 9040C	WG1001740	1	07/24/17 13:16	07/24/17 13:16	TH
Wet Chemistry by Method 9056A	WG1002426	1	07/26/17 18:24	07/26/17 18:24	DR
Wet Chemistry by Method 9056A	WG1003320	5	07/29/17 11:05	07/29/17 11:05	CSU
Mercury by Method 7470A	WG1002270	1	07/25/17 08:53	07/26/17 00:12	EL
Metals (ICP) by Method 6010B	WG1002177	1	07/28/17 19:51	07/30/17 21:51	ST
Metals (ICPMS) by Method 6020	WG1003530	1	07/28/17 08:19	08/02/17 16:47	JPD

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



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	697		10.0	1	07/27/2017 20:33	WG1003419

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	7.46	T8		1	07/24/2017 13:16	WG1001740

3 Ss

4 Cn

Sample Narrative:

L924312-01 WG1001740: 7.46 at 17.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	36.7		1.00	1	07/26/2017 18:24	WG1002426
Fluoride	0.430		0.100	1	07/26/2017 18:24	WG1002426
Sulfate	121		25.0	5	07/29/2017 11:05	WG1003320

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/26/2017 00:12	WG1002270

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.26		0.200	1	07/30/2017 21:51	WG1002177
Lithium	0.0446		0.0150	1	07/30/2017 21:51	WG1002177
Molybdenum	0.00948		0.00500	1	07/30/2017 21:51	WG1002177

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/02/2017 16:47	WG1003530
Arsenic	ND		0.00200	1	08/02/2017 16:47	WG1003530
Barium	0.108		0.00500	1	08/02/2017 16:47	WG1003530
Beryllium	ND		0.00200	1	08/02/2017 16:47	WG1003530
Cadmium	ND		0.00100	1	08/02/2017 16:47	WG1003530
Calcium	76.5		1.00	1	08/02/2017 16:47	WG1003530
Chromium	ND		0.00200	1	08/02/2017 16:47	WG1003530
Cobalt	ND		0.00200	1	08/02/2017 16:47	WG1003530
Lead	ND		0.00200	1	08/02/2017 16:47	WG1003530
Selenium	ND		0.00200	1	08/02/2017 16:47	WG1003530
Thallium	ND		0.00200	1	08/02/2017 16:47	WG1003530



Method Blank (MB)

(MB) R3237085-1 07/27/17 20:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L924596-03 Original Sample (OS) • Duplicate (DUP)

(OS) L924596-03 07/27/17 20:33 • (DUP) R3237085-4 07/27/17 20:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	760	761	1	0.175		5

⁷ Gl

⁸ Al

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

(LCS) R3237085-2 07/27/17 20:33 • (LCSD) R3237085-3 07/27/17 20:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8500	8610	96.6	97.8	85.0-115			1.29	5

⁹ Sc



L924348-01 Original Sample (OS) • Duplicate (DUP)

(OS) L924348-01 07/24/17 13:16 • (DUP) WG1001740-3 07/24/17 13:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.78	7.77	1	0.129	<u>T8</u>	1

Sample Narrative:

OS: 7.78 at 19.0c

DUP: 7.77 at 19.1c

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

(LCS) WG1001740-1 07/24/17 13:16 • (LCSD) WG1001740-2 07/24/17 13:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
pH	6.38	6.41	6.40	100	100	98.4-102			0.156	1

Sample Narrative:

LCS: 6.41 at 23.4c

LCSD: 6.40 at 23.5c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3236557-1 07/26/17 06:31

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	0.0806	J	0.0519	1.00
Fluoride	U		0.0099	0.100

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L923686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L923686-01 07/26/17 12:34 • (DUP) R3236557-4 07/26/17 12:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	11.6	12.1	1	4		15
Fluoride	0.266	0.262	1	2		15

L923885-01 Original Sample (OS) • Duplicate (DUP)

(OS) L923885-01 07/26/17 15:45 • (DUP) R3236557-6 07/26/17 16:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4.21	4.35	1	3		15
Fluoride	0.576	0.599	1	4		15

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

(LCS) R3236557-2 07/26/17 06:47 • (LCSD) R3236557-3 07/26/17 07:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.9	39.9	100	100	80-120			0	15
Fluoride	8.00	8.06	8.07	101	101	80-120			0	15

L923686-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L923686-01 07/26/17 12:34 • (MS) R3236557-5 07/26/17 13:06

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	11.6	57.6	92	1	80-120	
Fluoride	5.00	0.266	4.88	92	1	80-120	



L923885-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L923885-01 07/26/17 15:45 • (MS) R3236557-7 07/26/17 16:17 • (MSD) R3236557-8 07/26/17 16:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits
Chloride	50.0	4.21	52.0	52.4	96	96	1	80-120			1	15
Fluoride	5.00	0.576	5.44	5.45	97	97	1	80-120			0	15

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



Method Blank (MB)

(MB) R3237375-1 07/29/17 06:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L924406-01 Original Sample (OS) • Duplicate (DUP)

(OS) L924406-01 07/29/17 11:17 • (DUP) R3237375-4 07/29/17 11:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	8.17	8.19	1	0		15

L925142-06 Original Sample (OS) • Duplicate (DUP)

(OS) L925142-06 07/29/17 14:05 • (DUP) R3237375-6 07/29/17 14:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	64.6	64.6	1	0		15

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

(LCS) R3237375-2 07/29/17 06:16 • (LCSD) R3237375-3 07/29/17 06:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	40.3	40.1	101	100	80-120			1	15

L924406-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L924406-01 07/29/17 11:17 • (MS) R3237375-5 07/29/17 11:43

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	8.17	53.1	90	1	80-120	

L925142-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L925142-06 07/29/17 14:05 • (MS) R3237375-7 07/29/17 14:31 • (MSD) R3237375-8 07/29/17 14:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	64.6	110	110	90	90	1	80-120	<u>E</u>	<u>E</u>	0	15



Method Blank (MB)

(MB) R3236119-7 07/25/17 23:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3236119-8 07/25/17 23:41 • (LCSD) R3236119-9 07/25/17 23:43

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00272	0.00272	91	91	80-120			0	20

L924361-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L924361-01 07/25/17 23:45 • (MS) R3236119-10 07/25/17 23:47 • (MSD) R3236119-11 07/25/17 23:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	U	0.00278	0.00273	93	91	1	75-125			2	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3237220-1 07/30/17 20:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

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

(LCS) R3237220-2 07/30/17 20:42 • (LCSD) R3237220-3 07/30/17 20:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.979	0.998	98	100	80-120			2	20
Lithium	1.00	1.01	1.02	101	102	80-120			1	20
Molybdenum	1.00	1.02	1.03	102	103	80-120			1	20

L924327-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L924327-15 07/30/17 20:47 • (MS) R3237220-5 07/30/17 20:51 • (MSD) R3237220-6 07/30/17 20:54

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	3.50	4.41	4.41	91	91	1	75-125			0	20
Lithium	1.00	ND	0.998	0.992	99	98	1	75-125			1	20
Molybdenum	1.00	0.0147	1.03	1.03	102	101	1	75-125			1	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3238101-1 08/02/17 15:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3238101-2 08/02/17 15:14 • (LCSD) R3238101-3 08/02/17 15:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0542	0.0528	108	106	80-120			3	20
Arsenic	0.0500	0.0490	0.0484	98	97	80-120			1	20
Barium	0.0500	0.0491	0.0480	98	96	80-120			2	20
Beryllium	0.0500	0.0468	0.0461	94	92	80-120			1	20
Cadmium	0.0500	0.0498	0.0504	100	101	80-120			1	20
Calcium	5.00	5.01	4.87	100	97	80-120			3	20
Chromium	0.0500	0.0492	0.0491	98	98	80-120			0	20
Cobalt	0.0500	0.0503	0.0509	101	102	80-120			1	20
Lead	0.0500	0.0485	0.0482	97	96	80-120			1	20
Selenium	0.0500	0.0493	0.0477	99	95	80-120			3	20
Thallium	0.0500	0.0487	0.0490	97	98	80-120			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

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.
T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

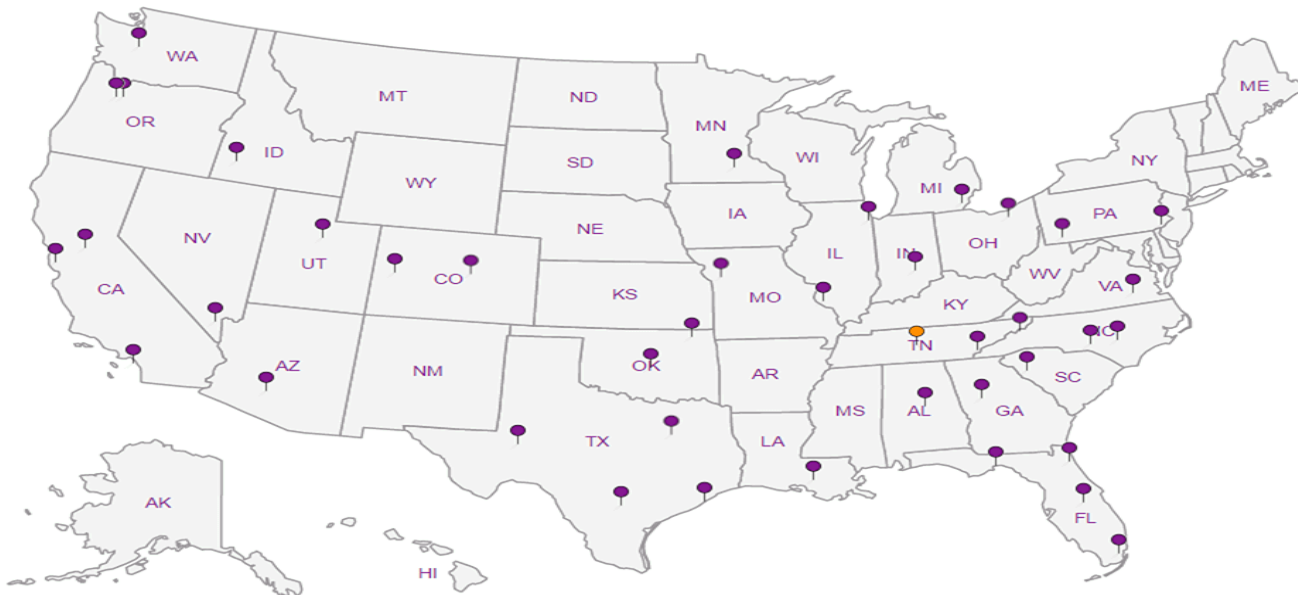
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



Jared Morrison
December 16, 2022

ATTACHMENT 1-10
August 2017 Sampling Event Laboratory Report

AECOM - Kansas City, MO

Sample Delivery Group: L928843
Samples Received: 08/11/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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



Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	2 Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	3 Ss
MW-801 L928843-01	6	
MW-904 L928843-02	7	4 Cn
MW-951 L928843-03	8	5 Sr
MW-802 L928843-04	9	
MW-805 L928843-05	10	6 Qc
MW-804 L928843-06	11	
MW-803 L928843-07	12	7 Gl
MW-601 L928843-08	13	8 Al
Qc: Quality Control Summary	14	9 Sc
Gravimetric Analysis by Method 2540 C-2011	14	
Wet Chemistry by Method 9040C	16	
Wet Chemistry by Method 9056A	17	
Mercury by Method 7470A	26	
Metals (ICP) by Method 6010B	27	
Metals (ICPMS) by Method 6020	28	
Gl: Glossary of Terms	30	
Al: Accreditations & Locations	31	
Sc: Chain of Custody	32	

SAMPLE SUMMARY



MW-801 L928843-01 GW

Collected by
Jim Dillion
Collected date/time
08/09/17 10:40
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008926	1	08/15/17 13:22	08/15/17 15:14	MMF
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1009574	1	08/16/17 05:18	08/16/17 05:18	SAM
Wet Chemistry by Method 9056A	WG1009574	5	08/16/17 05:31	08/16/17 05:31	SAM
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:05	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 13:46	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:07	LAT

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-904 L928843-02 GW

Collected by
Jim Dillion
Collected date/time
08/07/17 14:00
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008831	1	08/12/17 10:21	08/12/17 10:49	EG
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1008934	1	08/15/17 08:15	08/15/17 08:15	SAM
Wet Chemistry by Method 9056A	WG1010028	5	08/16/17 21:24	08/16/17 21:24	DR
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:14	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 15:26	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:11	LAT

6
Qc

7
Gl

8
Al

9
Sc

MW-951 L928843-03 GW

Collected by
Jim Dillion
Collected date/time
08/08/17 16:50
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008831	1	08/12/17 10:21	08/12/17 10:49	EG
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1008934	1	08/15/17 08:30	08/15/17 08:30	SAM
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:17	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 15:29	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:22	LAT
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/21/17 16:22	LAT

MW-802 L928843-04 GW

Collected by
Jim Dillion
Collected date/time
08/07/17 16:20
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008831	1	08/12/17 10:21	08/12/17 10:49	EG
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1008934	1	08/15/17 08:45	08/15/17 08:45	SAM
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:19	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 15:31	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:25	LAT
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/21/17 16:26	LAT

MW-805 L928843-05 GW

Collected by
Jim Dillion
Collected date/time
08/08/17 12:20
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008831	1	08/12/17 10:21	08/12/17 10:49	EG
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1008934	1	08/15/17 10:14	08/15/17 10:14	SAM
Wet Chemistry by Method 9056A	WG1008934	10	08/15/17 10:29	08/15/17 10:29	SAM

SAMPLE SUMMARY



MW-805 L928843-05 GW

Collected by
Jim Dillion
Collected date/time
08/08/17 12:20
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:21	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 15:34	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:29	LAT
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/21/17 16:41	LAT

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

MW-804 L928843-06 GW

Collected by
Jim Dillion
Collected date/time
08/08/17 16:26
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008831	1	08/12/17 10:21	08/12/17 10:49	EG
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1008936	1	08/15/17 13:06	08/15/17 13:06	DR
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:23	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 15:37	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:32	LAT
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/21/17 16:47	LAT

MW-803 L928843-07 GW

Collected by
Jim Dillion
Collected date/time
08/09/17 16:05
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008926	1	08/15/17 13:22	08/15/17 15:14	MMF
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1009575	1	08/15/17 23:52	08/15/17 23:52	SAM
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 15:26	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 15:39	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 18:36	LAT
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/21/17 16:51	LAT

MW-601 L928843-08 GW

Collected by
Jim Dillion
Collected date/time
08/09/17 13:15
Received date/time
08/11/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1008926	1	08/15/17 13:22	08/15/17 15:14	MMF
Wet Chemistry by Method 9040C	WG1008763	1	08/11/17 16:36	08/11/17 16:36	GB
Wet Chemistry by Method 9056A	WG1009575	1	08/16/17 00:21	08/16/17 00:21	SAM
Wet Chemistry by Method 9056A	WG1009575	5	08/16/17 00:36	08/16/17 00:36	SAM
Mercury by Method 7470A	WG1009306	1	08/14/17 00:33	08/14/17 14:26	ABL
Metals (ICP) by Method 6010B	WG1008963	1	08/16/17 09:31	08/16/17 12:57	CCE
Metals (ICPMS) by Method 6020	WG1010647	1	08/18/17 07:21	08/19/17 17:15	LAT



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1050		10.0	1	08/15/2017 15:14	WG1008926

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.57	T8	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-01 WG1008763: 7.57 at 16.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	116		5.00	5	08/16/2017 05:31	WG1009574
Fluoride	1.05		0.100	1	08/16/2017 05:18	WG1009574
Sulfate	ND		5.00	1	08/16/2017 05:18	WG1009574

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:05	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.34		0.200	1	08/16/2017 13:46	WG1008963
Lithium	0.114		0.0150	1	08/16/2017 13:46	WG1008963
Molybdenum	ND		0.00500	1	08/16/2017 13:46	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:07	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:07	WG1010647
Barium	0.562		0.00500	1	08/19/2017 18:07	WG1010647
Beryllium	ND		0.00200	1	08/19/2017 18:07	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:07	WG1010647
Calcium	30.9		1.00	1	08/19/2017 18:07	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:07	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:07	WG1010647
Lead	0.00326		0.00200	1	08/19/2017 18:07	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:07	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:07	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	728		10.0	1	08/12/2017 10:49	WG1008831

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.43	<u>T8</u>	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-02 WG1008763: 7.43 at 16.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	36.0		1.00	1	08/15/2017 08:15	WG1008934
Fluoride	0.432		0.100	1	08/15/2017 08:15	WG1008934
Sulfate	115		25.0	5	08/16/2017 21:24	WG1010028

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:14	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.21		0.200	1	08/16/2017 15:26	WG1008963
Lithium	0.0521		0.0150	1	08/16/2017 15:26	WG1008963
Molybdenum	0.00962		0.00500	1	08/16/2017 15:26	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:11	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:11	WG1010647
Barium	0.0951		0.00500	1	08/19/2017 18:11	WG1010647
Beryllium	ND		0.00200	1	08/19/2017 18:11	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:11	WG1010647
Calcium	74.1		1.00	1	08/19/2017 18:11	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:11	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:11	WG1010647
Lead	ND		0.00200	1	08/19/2017 18:11	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:11	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:11	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	527		10.0	1	08/12/2017 10:49	WG1008831

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.24	<u>T8</u>	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-03 WG1008763: 7.24 at 15.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.2		1.00	1	08/15/2017 08:30	WG1008934
Fluoride	0.481		0.100	1	08/15/2017 08:30	WG1008934
Sulfate	21.2		5.00	1	08/15/2017 08:30	WG1008934

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:17	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.61		0.200	1	08/16/2017 15:29	WG1008963
Lithium	0.0444		0.0150	1	08/16/2017 15:29	WG1008963
Molybdenum	ND		0.00500	1	08/16/2017 15:29	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:22	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:22	WG1010647
Barium	0.140		0.00500	1	08/19/2017 18:22	WG1010647
Beryllium	ND		0.00200	1	08/21/2017 16:22	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:22	WG1010647
Calcium	61.8		1.00	1	08/19/2017 18:22	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:22	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:22	WG1010647
Lead	ND		0.00200	1	08/19/2017 18:22	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:22	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:22	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	653		10.0	1	08/12/2017 10:49	WG1008831

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.51	<u>T8</u>	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-04 WG1008763: 7.51 at 16.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	35.6		1.00	1	08/15/2017 08:45	WG1008934
Fluoride	1.09		0.100	1	08/15/2017 08:45	WG1008934
Sulfate	ND		5.00	1	08/15/2017 08:45	WG1008934

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:19	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.50		0.200	1	08/16/2017 15:31	WG1008963
Lithium	0.0999		0.0150	1	08/16/2017 15:31	WG1008963
Molybdenum	ND		0.00500	1	08/16/2017 15:31	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:25	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:25	WG1010647
Barium	0.855		0.00500	1	08/19/2017 18:25	WG1010647
Beryllium	ND		0.00200	1	08/21/2017 16:26	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:25	WG1010647
Calcium	32.4		1.00	1	08/19/2017 18:25	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:25	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:25	WG1010647
Lead	ND		0.00200	1	08/19/2017 18:25	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:25	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:25	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2150		10.0	1	08/12/2017 10:49	WG1008831

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.55	<u>T8</u>	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-05 WG1008763: 6.55 at 16.3c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	470		10.0	10	08/15/2017 10:29	WG1008934
Fluoride	0.143		0.100	1	08/15/2017 10:14	WG1008934
Sulfate	737		50.0	10	08/15/2017 10:29	WG1008934

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:21	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.518		0.200	1	08/16/2017 15:34	WG1008963
Lithium	0.0272		0.0150	1	08/16/2017 15:34	WG1008963
Molybdenum	ND		0.00500	1	08/16/2017 15:34	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:29	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:29	WG1010647
Barium	0.0327		0.00500	1	08/19/2017 18:29	WG1010647
Beryllium	ND		0.00200	1	08/21/2017 16:41	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:29	WG1010647
Calcium	414		1.00	1	08/19/2017 18:29	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:29	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:29	WG1010647
Lead	ND		0.00200	1	08/19/2017 18:29	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:29	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:29	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	548		10.0	1	08/12/2017 10:49	WG1008831

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.21	<u>T8</u>	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-06 WG1008763: 7.21 at 16.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.3		1.00	1	08/15/2017 13:06	WG1008936
Fluoride	0.476		0.100	1	08/15/2017 13:06	WG1008936
Sulfate	20.7		5.00	1	08/15/2017 13:06	WG1008936

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:23	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.61		0.200	1	08/16/2017 15:37	WG1008963
Lithium	0.0444		0.0150	1	08/16/2017 15:37	WG1008963
Molybdenum	ND		0.00500	1	08/16/2017 15:37	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:32	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:32	WG1010647
Barium	0.143		0.00500	1	08/19/2017 18:32	WG1010647
Beryllium	ND		0.00200	1	08/21/2017 16:47	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:32	WG1010647
Calcium	63.8		1.00	1	08/19/2017 18:32	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:32	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:32	WG1010647
Lead	ND		0.00200	1	08/19/2017 18:32	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:32	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:32	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	709		10.0	1	08/15/2017 15:14	WG1008926

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.56	T8	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-07 WG1008763: 7.56 at 16.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	49.5		1.00	1	08/15/2017 23:52	WG1009575
Fluoride	0.693		0.100	1	08/15/2017 23:52	WG1009575
Sulfate	23.2		5.00	1	08/15/2017 23:52	WG1009575

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 15:26	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.12		0.200	1	08/16/2017 15:39	WG1008963
Lithium	0.0898		0.0150	1	08/16/2017 15:39	WG1008963
Molybdenum	0.00521		0.00500	1	08/16/2017 15:39	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 18:36	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 18:36	WG1010647
Barium	0.234		0.00500	1	08/19/2017 18:36	WG1010647
Beryllium	ND		0.00200	1	08/21/2017 16:51	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 18:36	WG1010647
Calcium	46.1		1.00	1	08/19/2017 18:36	WG1010647
Chromium	ND		0.00200	1	08/19/2017 18:36	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 18:36	WG1010647
Lead	ND		0.00200	1	08/19/2017 18:36	WG1010647
Selenium	ND		0.00200	1	08/19/2017 18:36	WG1010647
Thallium	ND		0.00200	1	08/19/2017 18:36	WG1010647



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1040		10.0	1	08/15/2017 15:14	WG1008926

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.77	T8	1	08/11/2017 16:36	WG1008763

3 Ss

4 Cn

Sample Narrative:

L928843-08 WG1008763: 7.77 at 16.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	168		5.00	5	08/16/2017 00:36	WG1009575
Fluoride	1.80		0.100	1	08/16/2017 00:21	WG1009575
Sulfate	ND		5.00	1	08/16/2017 00:21	WG1009575

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 14:26	WG1009306

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.90		0.200	1	08/16/2017 12:57	WG1008963
Lithium	0.0830		0.0150	1	08/16/2017 12:57	WG1008963
Molybdenum	ND		0.00500	1	08/16/2017 12:57	WG1008963

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/19/2017 17:15	WG1010647
Arsenic	ND		0.00200	1	08/19/2017 17:15	WG1010647
Barium	0.125		0.00500	1	08/19/2017 17:15	WG1010647
Beryllium	ND		0.00200	1	08/19/2017 17:15	WG1010647
Cadmium	ND		0.00100	1	08/19/2017 17:15	WG1010647
Calcium	20.9		1.00	1	08/19/2017 17:15	WG1010647
Chromium	ND		0.00200	1	08/19/2017 17:15	WG1010647
Cobalt	ND		0.00200	1	08/19/2017 17:15	WG1010647
Lead	ND		0.00200	1	08/19/2017 17:15	WG1010647
Selenium	ND		0.00200	1	08/19/2017 17:15	WG1010647
Thallium	ND		0.00200	1	08/19/2017 17:15	WG1010647



Method Blank (MB)

(MB) R3241732-1 08/12/17 10:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L928818-03 Original Sample (OS) • Duplicate (DUP)

(OS) L928818-03 08/12/17 10:49 • (DUP) R3241732-4 08/12/17 10:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	7640	7590	1	0.657		5

L928843-05 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-05 08/12/17 10:49 • (DUP) R3241732-5 08/12/17 10:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2150	2130	1	0.935		5

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

(LCS) R3241732-2 08/12/17 10:49 • (LCSD) R3241732-3 08/12/17 10:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8440	8500	95.9	96.6	85.0-115			0.708	5



Method Blank (MB)

(MB) R3242446-1 08/15/17 15:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	4.00	J	2.82	10.0

1 Cp

2 Tc

3 Ss

L928793-08 Original Sample (OS) • Duplicate (DUP)

(OS) L928793-08 08/15/17 15:14 • (DUP) R3242446-4 08/15/17 15:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	509	513	1	0.783		5

4 Cn

5 Sr

6 Qc

L928877-04 Original Sample (OS) • Duplicate (DUP)

(OS) L928877-04 08/15/17 15:14 • (DUP) R3242446-5 08/15/17 15:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	4.00	0.000	1	0.000	E	5

7 Gl

8 Al

9 Sc

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

(LCS) R3242446-2 08/15/17 15:14 • (LCSD) R3242446-3 08/15/17 15:14

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8570	8700	97.4	98.9	85.0-115			1.51	5



L928818-01 Original Sample (OS) • Duplicate (DUP)

(OS) L928818-01 08/11/17 16:36 • (DUP) WG1008763-3 08/11/17 16:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.43	7.43	1	0.000	T8	1

Sample Narrative:

OS: 7.43 at 15.1c
DUP: 7.43 at 15.1c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L928843-08 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-08 08/11/17 16:36 • (DUP) WG1008763-4 08/11/17 16:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.77	7.77	1	0.000	T8	1

Sample Narrative:

OS: 7.77 at 16.9c
DUP: 7.77 at 17.1c

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) WG1008763-1 08/11/17 16:36 • (LCSD) WG1008763-2 08/11/17 16:36

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
pH	9.19	9.17	9.17	99.8	99.8	98.4-102			0.000	1

Sample Narrative:

LCS: 9.17 at 20.2c
LCSD: 9.17 at 20.1c



Method Blank (MB)

(MB) R3241342-1 08/14/17 23:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

L928740-01 Original Sample (OS) • Duplicate (DUP)

(OS) L928740-01 08/15/17 02:32 • (DUP) R3241342-4 08/15/17 02:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	21.6	21.7	1	1		15
Fluoride	0.556	0.625	1	12		15
Sulfate	13.6	13.6	1	0		15

L928843-04 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-04 08/15/17 08:45 • (DUP) R3241342-6 08/15/17 09:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	35.6	35.5	1	0		15
Fluoride	1.09	1.09	1	0		15
Sulfate	ND	0.000	1	0		15

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

(LCS) R3241342-2 08/15/17 00:10 • (LCSD) R3241342-3 08/15/17 00:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.5	39.4	99	99	80-120			0	15
Fluoride	8.00	7.96	7.97	100	100	80-120			0	15
Sulfate	40.0	39.8	39.8	100	100	80-120			0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



L928740-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L928740-01 08/15/17 02:32 • (MS) R3241342-5 08/15/17 03:02

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	21.6	63.4	84	1	80-120	
Fluoride	5.00	0.556	4.92	87	1	80-120	
Sulfate	50.0	13.6	55.5	84	1	80-120	

L928843-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-04 08/15/17 08:45 • (MS) R3241342-7 08/15/17 09:45 • (MSD) R3241342-8 08/15/17 09:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50.0	35.6	81.6	81.6	92	92	1	80-120			0	15
Fluoride	5.00	1.09	5.77	5.78	94	94	1	80-120			0	15
Sulfate	50.0	ND	45.6	45.6	91	91	1	80-120			0	15

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



Method Blank (MB)

(MB) R3241509-1 08/15/17 10:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.121	↓	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L928614-06 Original Sample (OS) • Duplicate (DUP)

(OS) L928614-06 08/15/17 12:26 • (DUP) R3241509-4 08/15/17 12:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	20.4	20.5	1	0		15
Fluoride	0.745	0.747	1	0		15
Sulfate	19.4	19.5	1	0		15

L928933-05 Original Sample (OS) • Duplicate (DUP)

(OS) L928933-05 08/15/17 14:06 • (DUP) R3241509-6 08/15/17 14:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	3.85	3.80	1	1		15
Fluoride	0.0507	0.0547	1	8	↓	15
Sulfate	0.757	0.774	1	2	↓	15

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

(LCS) R3241509-2 08/15/17 10:48 • (LCSD) R3241509-3 08/15/17 10:58

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.8	39.8	99	99	80-120			0	15
Fluoride	8.00	8.00	8.00	100	100	80-120			0	15
Sulfate	40.0	40.1	40.2	100	100	80-120			0	15



L928781-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-03 08/15/17 12:46 • (MS) R3241509-5 08/15/17 12:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	56.3	105	97	1	80-120	E
Fluoride	5.00	ND	4.99	100	1	80-120	
Sulfate	50.0	12.2	62.0	100	1	80-120	

L928991-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928991-07 08/15/17 17:34 • (MS) R3241509-7 08/15/17 17:44 • (MSD) R3241509-8 08/15/17 17:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	45.5	94.0	93.7	97	96	1	80-120			0	15
Fluoride	5.00	0.171	5.25	5.24	102	101	1	80-120			0	15
Sulfate	50.0	35.8	84.0	83.9	96	96	1	80-120			0	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3241562-1 08/15/17 06:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L928781-06 Original Sample (OS) • Duplicate (DUP)

(OS) L928781-06 08/15/17 22:26 • (DUP) R3241562-4 08/15/17 22:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Fluoride	ND	0.0698	1	0		15
Sulfate	16.0	15.9	1	1		15

L928781-27 Original Sample (OS) • Duplicate (DUP)

(OS) L928781-27 08/16/17 00:21 • (DUP) R3241562-6 08/16/17 01:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	19.8	20.2	1	2		15
Fluoride	ND	0.0938	1	0		15
Sulfate	18.5	18.7	1	1		15

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

(LCS) R3241562-2 08/15/17 06:53 • (LCSD) R3241562-3 08/15/17 07:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.5	39.7	99	99	80-120			0	15
Fluoride	8.00	8.22	8.28	103	103	80-120			1	15
Sulfate	40.0	39.1	39.8	98	100	80-120			2	15

L928781-14 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-14 08/15/17 23:17 • (MS) R3241562-5 08/15/17 23:30

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	20.2	63.3	86	1	80-120	
Fluoride	5.00	ND	4.43	87	1	80-120	



L928781-14 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-14 08/15/17 23:17 • (MS) R3241562-5 08/15/17 23:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	12.4	56.4	88	1	80-120	

L928781-27 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928781-27 08/16/17 00:21 • (MS) R3241562-7 08/16/17 01:13 • (MSD) R3241562-8 08/16/17 01:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	19.8	67.9	68.2	96	97	1	80-120			0	15
Fluoride	5.00	ND	4.96	5.07	98	100	1	80-120			2	15
Sulfate	50.0	18.5	67.0	67.0	97	97	1	80-120			0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3241597-1 08/15/17 21:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L928843-07 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-07 08/15/17 23:52 • (DUP) R3241597-4 08/16/17 00:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	49.5	49.6	1	0		15
Fluoride	0.693	0.674	1	3		15
Sulfate	23.2	23.1	1	0		15

L929212-01 Original Sample (OS) • Duplicate (DUP)

(OS) L929212-01 08/16/17 07:04 • (DUP) R3241597-7 08/16/17 07:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	12.2	12.3	1	0		15
Fluoride	0.660	0.784	1	17	J3	15
Sulfate	11.5	11.5	1	0		15

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

(LCS) R3241597-2 08/15/17 22:10 • (LCSD) R3241597-3 08/15/17 22:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.7	99	99	80-120			0	15
Fluoride	8.00	8.02	8.01	100	100	80-120			0	15
Sulfate	40.0	39.9	39.9	100	100	80-120			0	15



L928843-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-08 08/16/17 00:21 • (MS) R3241597-5 08/16/17 00:51 • (MSD) R3241597-6 08/16/17 01:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	5.00	1.80	6.42	6.40	92	92	1	80-120			0	15
Sulfate	50.0	ND	49.3	49.0	92	91	1	80-120			1	15

L929212-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L929212-01 08/16/17 07:04 • (MS) R3241597-8 08/16/17 08:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	12.2	56.1	88	1	80-120	
Fluoride	5.00	0.660	5.22	91	1	80-120	
Sulfate	50.0	11.5	54.9	87	1	80-120	

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



Method Blank (MB)

(MB) R3241918-1 08/16/17 18:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L928781-02 Original Sample (OS) • Duplicate (DUP)

(OS) L928781-02 08/16/17 19:15 • (DUP) R3241918-4 08/16/17 19:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	43.4	44.1	1	2		15

L928843-02 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-02 08/16/17 21:24 • (DUP) R3241918-6 08/16/17 21:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	115	111	5	3		15

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

(LCS) R3241918-2 08/16/17 18:25 • (LCSD) R3241918-3 08/16/17 18:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	40.2	40.2	100	100	80-120			0	15

L928781-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-04 08/16/17 19:35 • (MS) R3241918-5 08/16/17 19:45

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	6.36	57.6	102	1	80-120	

L929091-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929091-06 08/16/17 23:24 • (MS) R3241918-7 08/16/17 23:34 • (MSD) R3241918-8 08/16/17 23:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	33.3	81.6	81.7	97	97	1	80-120			0	15



Method Blank (MB)

(MB) R3241076-1 08/14/17 14:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3241076-2 08/14/17 14:22 • (LCSD) R3241076-3 08/14/17 14:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00286	0.00276	95	92	80-120			3	20

L928843-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-08 08/14/17 14:26 • (MS) R3241076-4 08/14/17 14:29 • (MSD) R3241076-5 08/14/17 14:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00286	0.00272	95	91	1	75-125			5	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3241739-1 08/16/17 12:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3241739-2 08/16/17 12:51 • (LCSD) R3241739-3 08/16/17 12:54

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.991	0.968	99	97	80-120			2	20
Lithium	1.00	1.07	1.05	107	105	80-120			2	20
Molybdenum	1.00	0.992	0.991	99	99	80-120			0	20

L928843-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-08 08/16/17 12:57 • (MS) R3241739-5 08/16/17 13:02 • (MSD) R3241739-6 08/16/17 13:04

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	1.90	2.84	2.84	93	93	1	75-125			0	20
Lithium	1.00	0.0830	1.17	1.15	109	107	1	75-125			2	20
Molybdenum	1.00	ND	0.989	0.976	99	98	1	75-125			1	20



Method Blank (MB)

(MB) R3242865-1 08/19/17 17:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3242865-2 08/19/17 17:08 • (LCSD) R3242865-3 08/19/17 17:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0507	0.0500	101	100	80-120			1	20
Arsenic	0.0500	0.0491	0.0487	98	97	80-120			1	20
Barium	0.0500	0.0472	0.0472	94	94	80-120			0	20
Beryllium	0.0500	0.0469	0.0454	94	91	80-120			3	20
Cadmium	0.0500	0.0513	0.0513	103	103	80-120			0	20
Calcium	5.00	4.96	4.82	99	96	80-120			3	20
Chromium	0.0500	0.0497	0.0492	99	98	80-120			1	20
Cobalt	0.0500	0.0513	0.0505	103	101	80-120			2	20
Lead	0.0500	0.0499	0.0488	100	98	80-120			2	20
Selenium	0.0500	0.0526	0.0496	105	99	80-120			6	20
Thallium	0.0500	0.0503	0.0497	101	99	80-120			1	20

L928843-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-08 08/19/17 17:15 • (MS) R3242865-5 08/19/17 17:22 • (MSD) R3242865-6 08/19/17 17:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0517	0.0516	103	103	1	75-125			0	20
Arsenic	0.0500	ND	0.0481	0.0475	96	95	1	75-125			1	20
Barium	0.0500	0.125	0.171	0.173	92	95	1	75-125			1	20
Beryllium	0.0500	ND	0.0441	0.0433	88	87	1	75-125			2	20
Cadmium	0.0500	ND	0.0507	0.0505	101	101	1	75-125			0	20



L928843-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-08 08/19/17 17:15 • (MS) R3242865-5 08/19/17 17:22 • (MSD) R3242865-6 08/19/17 17:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	20.9	25.0	24.8	83	77	1	75-125			1	20
Chromium	0.0500	ND	0.0490	0.0481	96	95	1	75-125			2	20
Cobalt	0.0500	ND	0.0489	0.0485	98	97	1	75-125			1	20
Lead	0.0500	ND	0.0486	0.0481	97	96	1	75-125			1	20
Selenium	0.0500	ND	0.0529	0.0531	106	106	1	75-125			1	20
Thallium	0.0500	ND	0.0489	0.0485	98	97	1	75-125			1	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
T8	Sample(s) received past/too close to holding time expiration.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

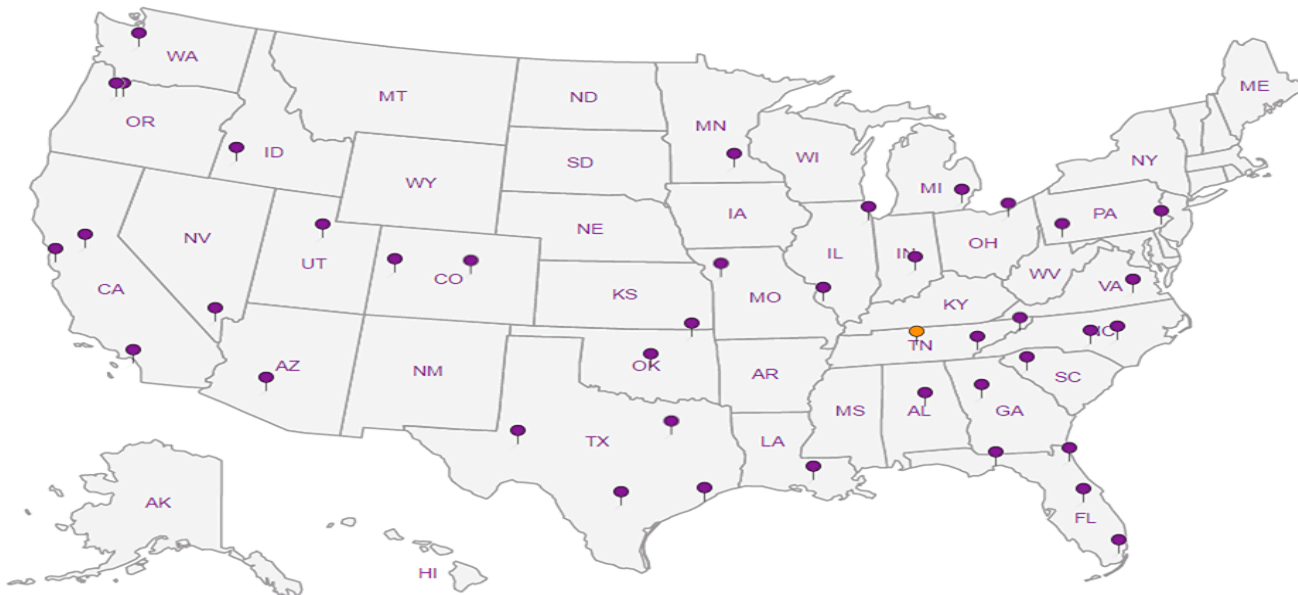
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

AECOM - Kansas City, MO

2386 McGee Suite 200
Kansas City, MO 64108

Report to:
Brian Linnan

Project Description: **La Cygne Generating Station**

Phone: **913-344-1000**
Fax: **913-344-1011**

Collected by (print):
Jim Mueckler + Dillon Moran

Collected by (signature):
Jim Mueckler

Immediately Packed on Ice N Y X

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Email To: **brian.linnan@aecom.com;**
robert.exceed@aecom.com;

City/State Collected:

Lab Project #
URSKC-LACYGNE

P.O. #
no PO number

Quote #
Date Results Needed

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

Pres Chk

Analysis / Container / Preservative

CLD, F, SO4 125mlHDPE-NoPres

Metals 250mlHDPE-HNO3

TDS, pH 500mlHDPE-NoPres

Chain of Custody Page 1 of 2



L-A-B S-C-I-E-N-C-E-S

YOUR LAB OF CHOICE

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



L# **9288303**

A082

L928843

Acctnum: **URSKC**

Template: **T112860**

Prelogin: **P594561**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Remarks Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CLD, F, SO4 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres													
MW-801	Grab	GW	N/A	8-9-17	10:40	3	X	X	X												-01	
MW-904	Grab	GW		8-7-17	14:00	3	X	X	X													-02
MW-951	Grab	GW		8-8-17	16:50	3	X	X	X													-03
MW-802	Grab	GW		8-7-17	16:20	3	X	X	X													-04
MW-805	Grab	GW		8-8-17	16:40	3	X	X	X	12:20												-05
MW-804	Grab	GW		8-8-17	16:26	3	X	X	X													-06
MW-803	Grab	GW		8-8-17	16:05	3	X	X	X													-07
MW-802	Grab	GW		8-7-17	16:20	3	X	X	X													ym
MW-601	Grab	GW		8-9-17	13:15	3	X	X	X													-08
MW-601 MS	Grab	GW	↓	8-9-17	13:15	3	X	X	X													-08

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

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

ESCKC

Samples returned via:
 UPS FedEx Courier

Tracking #

pH _____ Temp _____

Flow _____ Other _____

Sample Receipt Checklist

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

Relinquished by: (Signature)

Date: **8-9-17** Time: **15:00**

Received by: (Signature) *Jim Mueckler*

Trip Blank Received: Yes/No
 HCL / MeOH
 TBR

Relinquished by: (Signature)

Date: **8/10/17** Time: **1700**

Received by: (Signature) *[Signature]*

Temp: **2.1°C** Bottles Received: **70 to 30**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____ Time: _____

Received for lab by: (Signature) *[Signature]*

Date: **8/14/17** Time: **8:45**

Hold: _____ Condition: **NCF / OK**

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



L.A.B. S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

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



L# L928033 L928043

Table #

Acctnum: **URSKC**

Template: **T112860**

Prelogin: **P594561**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Remarks Sample # (lab only)

Report to:
Brian Linnan

Email To: brian.linnan@aecom.com;
robert.exceen@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler + Dillon Moran

Site/Facility ID #

P.O. #
no PO number

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

Immediately
Packed on Ice N Y X

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	CLD, F, SO4 125mlHDPE-NoPres	Metals 250mlHDPE-HNO3	TDS, pH 500mlHDPE-NoPres									
MW-001 MSD	Grab	GW	N/A	8-9-17	13:15	3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									

-09

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

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

ESCKC

Samples returned via:
UPS FedEx Courier

Tracking #

pH _____ Temp _____

Flow _____ Other _____

Sample Receipt Checklist

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

Relinquished by: (Signature)
[Signature]

Date: 8-9-17
Time: 15:00

Received by: (Signature)
[Signature]

Trip Blank Received: HCL / MeOH
TBR

Relinquished by: (Signature)
[Signature]

Date: 8/10/17
Time: 1700

Received by: (Signature)

Temp: *71°C* Bottles Received: *7050 30*

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: *8-11-17*
Time: *845*

Received for lab by: (Signature)
[Signature]

Date: *8-11-17* Time: *845*

Hold: Condition: NCF OK

AECOM - Kansas City, MO

Sample Delivery Group: L929091
Samples Received: 08/12/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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



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SAMPLE SUMMARY



MW-905 L929091-01 GW

						Collected by	Collected date/time	Received date/time
						JM / DM	08/09/17 17:15	08/12/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1009789	1	08/15/17 17:14	08/15/17 17:36	EG			
Wet Chemistry by Method 9040C	WG1009197	1	08/14/17 09:18	08/14/17 09:18	TH			
Wet Chemistry by Method 9056A	WG1009575	1	08/16/17 05:49	08/16/17 05:49	SAM			
Mercury by Method 7470A	WG1009309	1	08/14/17 08:46	08/14/17 22:15	EL			
Metals (ICP) by Method 6010B	WG1008646	1	08/14/17 17:54	08/15/17 03:12	CCE			
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 06:39	LAT			

1
Cp

2
Tc

3
Ss

4
Cn

MW-15 L929091-02 GW

						Collected by	Collected date/time	Received date/time
						JM / DM	08/10/17 13:50	08/12/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1009798	1	08/16/17 20:16	08/16/17 20:28	EG			
Wet Chemistry by Method 9040C	WG1009197	1	08/14/17 09:18	08/14/17 09:18	TH			
Wet Chemistry by Method 9056A	WG1009577	1	08/16/17 15:46	08/16/17 15:46	DR			
Wet Chemistry by Method 9056A	WG1010526	5	08/17/17 14:26	08/17/17 14:26	SAM			
Mercury by Method 7470A	WG1009309	1	08/14/17 08:46	08/14/17 22:17	EL			
Metals (ICP) by Method 6010B	WG1008646	1	08/14/17 17:54	08/15/17 03:21	CCE			
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 06:42	LAT			

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-602 L929091-03 GW

						Collected by	Collected date/time	Received date/time
						JM / DM	08/10/17 14:20	08/12/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1009798	1	08/16/17 20:16	08/16/17 20:28	EG			
Wet Chemistry by Method 9040C	WG1009197	1	08/14/17 09:18	08/14/17 09:18	TH			
Wet Chemistry by Method 9056A	WG1009577	1	08/16/17 15:56	08/16/17 15:56	DR			
Mercury by Method 7470A	WG1009309	1	08/14/17 08:46	08/14/17 22:20	EL			
Metals (ICP) by Method 6010B	WG1008646	1	08/14/17 17:54	08/15/17 03:25	CCE			
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 06:46	LAT			

MW-14R L929091-04 GW

						Collected by	Collected date/time	Received date/time
						JM / DM	08/10/17 14:50	08/12/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1009798	1	08/16/17 20:16	08/16/17 20:28	EG			
Wet Chemistry by Method 9040C	WG1009198	1	08/14/17 08:33	08/14/17 08:33	TH			
Wet Chemistry by Method 9056A	WG1009577	1	08/16/17 16:06	08/16/17 16:06	DR			
Mercury by Method 7470A	WG1009309	1	08/14/17 08:46	08/14/17 22:41	EL			
Metals (ICP) by Method 6010B	WG1008646	1	08/14/17 17:54	08/15/17 03:28	CCE			
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 07:04	LAT			

MW-903 L929091-05 GW

						Collected by	Collected date/time	Received date/time
						JM / DM	08/10/17 15:45	08/12/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1009798	1	08/16/17 20:16	08/16/17 20:28	EG			
Wet Chemistry by Method 9040C	WG1009198	1	08/14/17 08:33	08/14/17 08:33	TH			
Wet Chemistry by Method 9056A	WG1009577	1	08/16/17 16:26	08/16/17 16:26	DR			
Wet Chemistry by Method 9056A	WG1009577	10	08/16/17 16:36	08/16/17 16:36	DR			
Mercury by Method 7470A	WG1012159	1	08/22/17 08:26	08/22/17 12:22	TRB			
Metals (ICP) by Method 6010B	WG1012182	1	08/23/17 10:18	08/23/17 15:54	ST			
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 07:08	LAT			

SAMPLE SUMMARY



MW-902 L929091-06 GW

Collected by JM / DM Collected date/time 08/11/17 10:35 Received date/time 08/12/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1010261	1	08/16/17 16:19	08/16/17 16:35	EG
Wet Chemistry by Method 9040C	WG1009198	1	08/14/17 08:33	08/14/17 08:33	TH
Wet Chemistry by Method 9056A	WG1010028	1	08/16/17 23:24	08/16/17 23:24	DR
Mercury by Method 7470A	WG1009309	1	08/14/17 08:46	08/14/17 22:43	EL
Metals (ICP) by Method 6010B	WG1008646	1	08/14/17 17:54	08/15/17 03:31	CCE
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 07:11	LAT

- 1
Cp
- 2
Tc
- 3
Ss
- 4
Cn

MW-901 L929091-07 GW

Collected by JM / DM Collected date/time 08/11/17 10:55 Received date/time 08/12/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1010261	1	08/16/17 16:19	08/16/17 16:35	EG
Wet Chemistry by Method 9040C	WG1009198	1	08/14/17 08:33	08/14/17 08:33	TH
Wet Chemistry by Method 9056A	WG1010029	1	08/16/17 23:09	08/16/17 23:09	SAM
Mercury by Method 7470A	WG1009309	1	08/14/17 08:46	08/14/17 22:45	EL
Metals (ICP) by Method 6010B	WG1008646	1	08/14/17 17:54	08/15/17 03:35	CCE
Metals (ICPMS) by Method 6020	WG1011487	1	08/19/17 13:33	08/23/17 07:15	LAT

- 5
Sr
- 6
Qc
- 7
Gl
- 8
Al
- 9
Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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
Technical Service Representative

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	608		10.0	1	08/15/2017 17:36	WG1009789

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.67	<u>T8</u>	1	08/14/2017 09:18	WG1009197

3 Ss

4 Cn

Sample Narrative:

L929091-01 WG1009197: 7.67 at 19.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	52.1		1.00	1	08/16/2017 05:49	WG1009575
Fluoride	0.582		0.100	1	08/16/2017 05:49	WG1009575
Sulfate	27.0		5.00	1	08/16/2017 05:49	WG1009575

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 22:15	WG1009309

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.95		0.200	1	08/15/2017 03:12	WG1008646
Lithium	0.0647		0.0150	1	08/15/2017 03:12	WG1008646
Molybdenum	ND		0.00500	1	08/15/2017 03:12	WG1008646

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 06:39	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 06:39	WG1011487
Barium	0.106		0.00500	1	08/23/2017 06:39	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 06:39	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 06:39	WG1011487
Calcium	48.9		1.00	1	08/23/2017 06:39	WG1011487
Chromium	ND		0.00200	1	08/23/2017 06:39	WG1011487
Cobalt	ND		0.00200	1	08/23/2017 06:39	WG1011487
Lead	ND		0.00200	1	08/23/2017 06:39	WG1011487
Selenium	ND		0.00200	1	08/23/2017 06:39	WG1011487
Thallium	ND		0.00200	1	08/23/2017 06:39	WG1011487



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	775		10.0	1	08/16/2017 20:28	WG1009798

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.16	<u>T8</u>	1	08/14/2017 09:18	WG1009197

3 Ss

4 Cn

Sample Narrative:

L929091-02 WG1009197: 7.16 at 19.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.4		1.00	1	08/16/2017 15:46	WG1009577
Fluoride	0.280		0.100	1	08/16/2017 15:46	WG1009577
Sulfate	228		25.0	5	08/17/2017 14:26	WG1010526

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 22:17	WG1009309

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.251	<u>B</u>	0.200	1	08/15/2017 03:21	WG1008646
Lithium	ND		0.0150	1	08/15/2017 03:21	WG1008646
Molybdenum	0.00876		0.00500	1	08/15/2017 03:21	WG1008646

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 06:42	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 06:42	WG1011487
Barium	0.0515		0.00500	1	08/23/2017 06:42	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 06:42	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 06:42	WG1011487
Calcium	102		1.00	1	08/23/2017 06:42	WG1011487
Chromium	ND		0.00200	1	08/23/2017 06:42	WG1011487
Cobalt	ND		0.00200	1	08/23/2017 06:42	WG1011487
Lead	ND		0.00200	1	08/23/2017 06:42	WG1011487
Selenium	ND		0.00200	1	08/23/2017 06:42	WG1011487
Thallium	ND		0.00200	1	08/23/2017 06:42	WG1011487



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	604		10.0	1	08/16/2017 20:28	WG1009798

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.99	T8	1	08/14/2017 09:18	WG1009197

3 Ss

4 Cn

Sample Narrative:

L929091-03 WG1009197: 6.99 at 19.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.8		1.00	1	08/16/2017 15:56	WG1009577
Fluoride	1.36		0.100	1	08/16/2017 15:56	WG1009577
Sulfate	24.8		5.00	1	08/16/2017 15:56	WG1009577

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 22:20	WG1009309

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.45		0.200	1	08/15/2017 03:25	WG1008646
Lithium	0.0662		0.0150	1	08/15/2017 03:25	WG1008646
Molybdenum	ND		0.00500	1	08/15/2017 03:25	WG1008646

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 06:46	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 06:46	WG1011487
Barium	0.0883		0.00500	1	08/23/2017 06:46	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 06:46	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 06:46	WG1011487
Calcium	23.3		1.00	1	08/23/2017 06:46	WG1011487
Chromium	ND		0.00200	1	08/23/2017 06:46	WG1011487
Cobalt	ND		0.00200	1	08/23/2017 06:46	WG1011487
Lead	ND		0.00200	1	08/23/2017 06:46	WG1011487
Selenium	ND		0.00200	1	08/23/2017 06:46	WG1011487
Thallium	ND		0.00200	1	08/23/2017 06:46	WG1011487



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	521		10.0	1	08/16/2017 20:28	WG1009798

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.44	<u>T8</u>	1	08/14/2017 08:33	WG1009198

Sample Narrative:

L929091-04 WG1009198: 7.44 at 19.0c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4.38		1.00	1	08/16/2017 16:06	WG1009577
Fluoride	0.239		0.100	1	08/16/2017 16:06	WG1009577
Sulfate	44.0		5.00	1	08/16/2017 16:06	WG1009577

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 22:41	WG1009309

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.537	<u>B</u>	0.200	1	08/15/2017 03:28	WG1008646
Lithium	0.0372		0.0150	1	08/15/2017 03:28	WG1008646
Molybdenum	ND		0.00500	1	08/15/2017 03:28	WG1008646

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 07:04	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 07:04	WG1011487
Barium	0.0394		0.00500	1	08/23/2017 07:04	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 07:04	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 07:04	WG1011487
Calcium	58.0		1.00	1	08/23/2017 07:04	WG1011487
Chromium	ND		0.00200	1	08/23/2017 07:04	WG1011487
Cobalt	ND		0.00200	1	08/23/2017 07:04	WG1011487
Lead	ND		0.00200	1	08/23/2017 07:04	WG1011487
Selenium	ND		0.00200	1	08/23/2017 07:04	WG1011487
Thallium	ND		0.00200	1	08/23/2017 07:04	WG1011487

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1900		10.0	1	08/16/2017 20:28	WG1009798

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.84	<u>T8</u>	1	08/14/2017 08:33	WG1009198

3 Ss

4 Cn

Sample Narrative:

L929091-05 WG1009198: 6.84 at 18.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.1		1.00	1	08/16/2017 16:26	WG1009577
Fluoride	0.114		0.100	1	08/16/2017 16:26	WG1009577
Sulfate	954		50.0	10	08/16/2017 16:36	WG1009577

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/22/2017 12:22	WG1012159

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.521		0.200	1	08/23/2017 15:54	WG1012182
Lithium	0.0517		0.0150	1	08/23/2017 15:54	WG1012182
Molybdenum	ND		0.00500	1	08/23/2017 15:54	WG1012182

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 07:08	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 07:08	WG1011487
Barium	0.0140		0.00500	1	08/23/2017 07:08	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 07:08	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 07:08	WG1011487
Calcium	330		1.00	1	08/23/2017 07:08	WG1011487
Chromium	ND		0.00200	1	08/23/2017 07:08	WG1011487
Cobalt	0.00214		0.00200	1	08/23/2017 07:08	WG1011487
Lead	ND		0.00200	1	08/23/2017 07:08	WG1011487
Selenium	ND		0.00200	1	08/23/2017 07:08	WG1011487
Thallium	ND		0.00200	1	08/23/2017 07:08	WG1011487



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	522		10.0	1	08/16/2017 16:35	WG1010261

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45	<u>T8</u>	1	08/14/2017 08:33	WG1009198

3 Ss

4 Cn

Sample Narrative:

L929091-06 WG1009198: 7.45 at 18.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	34.1		1.00	1	08/16/2017 23:24	WG1010028
Fluoride	0.530		0.100	1	08/16/2017 23:24	WG1010028
Sulfate	33.3		5.00	1	08/16/2017 23:24	WG1010028

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 22:43	WG1009309

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.31		0.200	1	08/15/2017 03:31	WG1008646
Lithium	0.0369		0.0150	1	08/15/2017 03:31	WG1008646
Molybdenum	ND		0.00500	1	08/15/2017 03:31	WG1008646

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 07:11	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 07:11	WG1011487
Barium	0.106		0.00500	1	08/23/2017 07:11	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 07:11	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 07:11	WG1011487
Calcium	66.4		1.00	1	08/23/2017 07:11	WG1011487
Chromium	ND		0.00200	1	08/23/2017 07:11	WG1011487
Cobalt	ND		0.00200	1	08/23/2017 07:11	WG1011487
Lead	ND		0.00200	1	08/23/2017 07:11	WG1011487
Selenium	ND		0.00200	1	08/23/2017 07:11	WG1011487
Thallium	ND		0.00200	1	08/23/2017 07:11	WG1011487



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	510		10.0	1	08/16/2017 16:35	WG1010261

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.34	<u>T8</u>	1	08/14/2017 08:33	WG1009198

3 Ss

4 Cn

Sample Narrative:

L929091-07 WG1009198: 7.34 at 18.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	22.6		1.00	1	08/16/2017 23:09	WG1010029
Fluoride	0.511		0.100	1	08/16/2017 23:09	WG1010029
Sulfate	15.1		5.00	1	08/16/2017 23:09	WG1010029

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	08/14/2017 22:45	WG1009309

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.22		0.200	1	08/15/2017 03:35	WG1008646
Lithium	0.0567		0.0150	1	08/15/2017 03:35	WG1008646
Molybdenum	ND		0.00500	1	08/15/2017 03:35	WG1008646

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	08/23/2017 07:15	WG1011487
Arsenic	ND		0.00200	1	08/23/2017 07:15	WG1011487
Barium	0.182		0.00500	1	08/23/2017 07:15	WG1011487
Beryllium	ND		0.00200	1	08/23/2017 07:15	WG1011487
Cadmium	ND		0.00100	1	08/23/2017 07:15	WG1011487
Calcium	56.0		1.00	1	08/23/2017 07:15	WG1011487
Chromium	ND		0.00200	1	08/23/2017 07:15	WG1011487
Cobalt	ND		0.00200	1	08/23/2017 07:15	WG1011487
Lead	ND		0.00200	1	08/23/2017 07:15	WG1011487
Selenium	ND		0.00200	1	08/23/2017 07:15	WG1011487
Thallium	ND		0.00200	1	08/23/2017 07:15	WG1011487



[L929091-01](#)

Method Blank (MB)

(MB) R3241751-1 08/15/17 17:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L929091-01 Original Sample (OS) • Duplicate (DUP)

(OS) L929091-01 08/15/17 17:36 • (DUP) R3241751-4 08/15/17 17:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	608	620	1	1.95		5

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

(LCS) R3241751-2 08/15/17 17:36 • (LCSD) R3241751-3 08/15/17 17:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8610	8500	97.8	96.6	85.0-115			1.29	5



Method Blank (MB)

(MB) R3242455-1 08/16/17 20:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L929091-05 Original Sample (OS) • Duplicate (DUP)

(OS) L929091-05 08/16/17 20:28 • (DUP) R3242455-4 08/16/17 20:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1900	1970	1	3.75		5

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

(LCS) R3242455-2 08/16/17 20:28 • (LCSD) R3242455-3 08/16/17 20:28

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8560	8660	97.3	98.4	85.0-115			1.16	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3242184-1 08/16/17 16:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L929091-07 Original Sample (OS) • Duplicate (DUP)

(OS) L929091-07 08/16/17 16:35 • (DUP) R3242184-4 08/16/17 16:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	510	490	1	4.00		5

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

(LCS) R3242184-2 08/16/17 16:35 • (LCSD) R3242184-3 08/16/17 16:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8350	8470	94.9	96.3	85.0-115			1.43	5

⁷Gl

⁸Al

⁹Sc



L928839-01 Original Sample (OS) • Duplicate (DUP)

(OS) L928839-01 08/14/17 09:18 • (DUP) WG1009197-3 08/14/17 09:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.54	6.54	1	0.000	<u>T8</u>	1

Sample Narrative:

OS: 6.54 at 20.0c
 DUP: 6.54 at 20.0c

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

L929091-03 Original Sample (OS) • Duplicate (DUP)

(OS) L929091-03 08/14/17 09:18 • (DUP) WG1009197-4 08/14/17 09:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.99	7.00	1	0.143	<u>T8</u>	1

Sample Narrative:

OS: 6.99 at 19.5c
 DUP: 7.00 at 19.5c

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) WG1009197-1 08/14/17 09:18 • (LCSD) WG1009197-2 08/14/17 09:18

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	9.19	9.08	9.10	98.8	99.0	98.4-102			0.220	1

Sample Narrative:

LCS: 9.08 at 19.7c
 LCSD: 9.10 at 19.8c



L928851-02 Original Sample (OS) • Duplicate (DUP)

(OS) L928851-02 08/14/17 08:33 • (DUP) WG1009198-3 08/14/17 08:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.65	6.64	1	0.150	<u>T8</u>	1

Sample Narrative:

OS: 6.65 at 19.4c
 DUP: 6.64 at 19.3c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L929191-02 Original Sample (OS) • Duplicate (DUP)

(OS) L929191-02 08/14/17 08:33 • (DUP) WG1009198-4 08/14/17 08:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.38	7.39	1	0.135	<u>T8</u>	1

Sample Narrative:

OS: 7.38 at 19.1c
 DUP: 7.39 at 19.1c

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) WG1009198-1 08/14/17 08:33 • (LCSD) WG1009198-2 08/14/17 08:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	9.19	9.08	9.09	98.8	98.9	98.4-102			0.110	1

Sample Narrative:

LCS: 9.08 at 19.1c
 LCSD: 9.09 at 19.1c



Method Blank (MB)

(MB) R3241597-1 08/15/17 21:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L928843-07 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-07 08/15/17 23:52 • (DUP) R3241597-4 08/16/17 00:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	49.5	49.6	1	0		15
Fluoride	0.693	0.674	1	3		15
Sulfate	23.2	23.1	1	0		15

L929212-01 Original Sample (OS) • Duplicate (DUP)

(OS) L929212-01 08/16/17 07:04 • (DUP) R3241597-7 08/16/17 07:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	12.2	12.3	1	0		15
Fluoride	0.660	0.784	1	17	J3	15
Sulfate	11.5	11.5	1	0		15

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

(LCS) R3241597-2 08/15/17 22:10 • (LCSD) R3241597-3 08/15/17 22:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.7	99	99	80-120			0	15
Fluoride	8.00	8.02	8.01	100	100	80-120			0	15
Sulfate	40.0	39.9	39.9	100	100	80-120			0	15



[L929091-01](#)

L928843-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928843-08 08/16/17 00:21 • (MS) R3241597-5 08/16/17 00:51 • (MSD) R3241597-6 08/16/17 01:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	5.00	1.80	6.42	6.40	92	92	1	80-120			0	15
Sulfate	50.0	ND	49.3	49.0	92	91	1	80-120			1	15

L929212-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L929212-01 08/16/17 07:04 • (MS) R3241597-8 08/16/17 08:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	12.2	56.1	88	1	80-120	
Fluoride	5.00	0.660	5.22	91	1	80-120	
Sulfate	50.0	11.5	54.9	87	1	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3241882-1 08/16/17 08:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.134	↓	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L928806-01 Original Sample (OS) • Duplicate (DUP)

(OS) L928806-01 08/16/17 13:36 • (DUP) R3241882-5 08/16/17 13:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	15.1	15.1	1	0		15
Fluoride	0.557	0.555	1	0		15
Sulfate	21.8	21.9	1	0		15

L929091-04 Original Sample (OS) • Duplicate (DUP)

(OS) L929091-04 08/16/17 16:06 • (DUP) R3241882-8 08/16/17 16:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	4.38	4.33	1	1		15
Fluoride	0.239	0.239	1	0		15
Sulfate	44.0	44.0	1	0		15

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

(LCS) R3241882-2 08/16/17 09:06 • (LCSD) R3241882-3 08/16/17 09:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.8	39.8	100	100	80-120			0	15
Fluoride	8.00	8.03	8.03	100	100	80-120			0	15
Sulfate	40.0	40.2	40.2	100	100	80-120			0	15



L928781-33 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-33 08/16/17 12:37 • (MS) R3241882-4 08/16/17 12:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	76.0	124	96	1	80-120	E
Fluoride	5.00	0.176	5.11	99	1	80-120	
Sulfate	50.0	79.2	125	91	1	80-120	E

L929079-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929079-02 08/16/17 14:36 • (MS) R3241882-6 08/16/17 14:46 • (MSD) R3241882-7 08/16/17 15:16

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	63.8	112	112	95	97	1	80-120	E	E	1	15
Fluoride	5.00	0.417	5.49	5.61	102	104	1	80-120			2	15
Sulfate	50.0	27.6	76.3	77.2	97	99	1	80-120			1	15

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



Method Blank (MB)

(MB) R3241918-1 08/16/17 18:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.16	↓	0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L928781-02 Original Sample (OS) • Duplicate (DUP)

(OS) L928781-02 08/16/17 19:15 • (DUP) R3241918-4 08/16/17 19:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	33.7	35.9	1	6		15
Fluoride	0.213	0.249	1	16	P1	15
Sulfate	43.4	44.1	1	2		15

L928843-02 Original Sample (OS) • Duplicate (DUP)

(OS) L928843-02 08/16/17 21:24 • (DUP) R3241918-6 08/16/17 21:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	37.2	36.1	5	3		15
Fluoride	ND	0.428	5	2	↓	15
Sulfate	115	111	5	3		15

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

(LCS) R3241918-2 08/16/17 18:25 • (LCSD) R3241918-3 08/16/17 18:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.9	39.9	100	100	80-120			0	15
Fluoride	8.00	8.03	8.04	100	100	80-120			0	15
Sulfate	40.0	40.2	40.2	100	100	80-120			0	15



L928781-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-04 08/16/17 19:35 • (MS) R3241918-5 08/16/17 19:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	43.7	95.6	104	1	80-120	
Fluoride	5.00	ND	5.17	103	1	80-120	
Sulfate	50.0	6.36	57.6	102	1	80-120	

L929091-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929091-06 08/16/17 23:24 • (MS) R3241918-7 08/16/17 23:34 • (MSD) R3241918-8 08/16/17 23:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50.0	34.1	83.3	83.4	98	98	1	80-120			0	15
Fluoride	5.00	0.530	5.63	5.63	102	102	1	80-120			0	15
Sulfate	50.0	33.3	81.6	81.7	97	97	1	80-120			0	15

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3241972-1 08/16/17 20:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L929091-07 Original Sample (OS) • Duplicate (DUP)

(OS) L929091-07 08/16/17 23:09 • (DUP) R3241972-4 08/16/17 23:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	22.6	22.5	1	0		15
Fluoride	0.511	0.531	1	4		15
Sulfate	15.1	15.1	1	0		15

L929136-01 Original Sample (OS) • Duplicate (DUP)

(OS) L929136-01 08/17/17 01:54 • (DUP) R3241972-5 08/17/17 02:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	2.69	2.63	1	3		15
Sulfate	37.8	37.8	1	0		15

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

(LCS) R3241972-2 08/16/17 21:14 • (LCSD) R3241972-3 08/16/17 21:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.7	99	99	80-120			0	15
Fluoride	8.00	8.07	8.03	101	100	80-120			1	15
Sulfate	40.0	40.2	39.9	100	100	80-120			1	15

L929136-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L929136-01 08/17/17 01:54 • (MS) R3241972-6 08/17/17 02:24

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Chloride	50.0	2.69	47.6	90	1	80-120	
Sulfate	50.0	37.8	81.4	87	1	80-120	



L929172-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929172-08 08/17/17 03:54 • (MS) R3241972-7 08/17/17 04:09 • (MSD) R3241972-8 08/17/17 04:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	0.0552	48.5	48.8	97	97	1	80-120			1	15
Fluoride	5.00	U	5.59	5.13	112	103	1	80-120			9	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3242343-1 08/17/17 08:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L928781-29 Original Sample (OS) • Duplicate (DUP)

(OS) L928781-29 08/17/17 11:56 • (DUP) R3242343-4 08/17/17 12:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	5.96	5.96	1	0		15

L929226-01 Original Sample (OS) • Duplicate (DUP)

(OS) L929226-01 08/17/17 14:35 • (DUP) R3242343-6 08/17/17 14:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	31.1	31.1	1	0		15

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

(LCS) R3242343-2 08/17/17 08:45 • (LCSD) R3242343-3 08/17/17 08:55

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	40.2	40.2	100	100	80-120			0	15

L928781-31 Original Sample (OS) • Matrix Spike (MS)

(OS) L928781-31 08/17/17 12:26 • (MS) R3242343-5 08/17/17 12:36

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	28.7	77.8	98	1	80-120	

L929226-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929226-01 08/17/17 14:35 • (MS) R3242343-7 08/17/17 15:15 • (MSD) R3242343-8 08/17/17 15:25

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	31.1	79.8	80.1	98	98	1	80-120			0	15



Method Blank (MB)

(MB) R3241159-1 08/14/17 21:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3241159-2 08/14/17 21:59 • (LCSD) R3241159-3 08/14/17 22:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00258	0.00253	86	84	80-120			2	20

L929079-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929079-02 08/14/17 22:04 • (MS) R3241159-4 08/14/17 22:06 • (MSD) R3241159-5 08/14/17 22:08

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00266	0.00260	89	87	1	75-125			3	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3243318-1 08/22/17 11:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3243318-2 08/22/17 11:59 • (LCSD) R3243318-3 08/22/17 12:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00285	0.00280	95	93	80-120			2	20

L930223-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L930223-08 08/22/17 12:08 • (MS) R3243318-4 08/22/17 12:11 • (MSD) R3243318-5 08/22/17 12:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	U	0.00289	0.00260	96	87	1	75-125			11	20

⁷ Gl

⁸ Al

L930223-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L930223-11 08/22/17 12:15 • (MS) R3243318-6 08/22/17 12:18 • (MSD) R3243318-7 08/22/17 12:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	U	0.00284	0.00293	95	98	1	75-125			3	20

⁹ Sc



Method Blank (MB)

(MB) R3241191-1 08/15/17 02:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	0.0706	↓	0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3241191-2 08/15/17 02:05 • (LCSD) R3241191-3 08/15/17 02:08

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	1.10	1.03	110	103	80-120			6	20
Lithium	1.00	1.05	1.05	105	105	80-120			0	20
Molybdenum	1.00	1.04	1.03	104	103	80-120			1	20

L928373-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L928373-01 08/15/17 02:11 • (MS) R3241191-5 08/15/17 02:18 • (MSD) R3241191-6 08/15/17 02:21

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.409	1.42	1.41	101	100	1	75-125			1	20
Lithium	1.00	ND	1.12	1.12	111	111	1	75-125			0	20
Molybdenum	1.00	ND	1.05	1.05	105	105	1	75-125			0	20



Method Blank (MB)

(MB) R3243908-1 08/23/17 18:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3243908-2 08/23/17 18:08 • (LCSD) R3243908-3 08/23/17 18:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.973	0.953	97	95	80-120			2	20
Lithium	1.00	1.02	1.00	102	100	80-120			2	20
Molybdenum	1.00	1.04	1.04	104	104	80-120			0	20

L929711-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929711-04 08/23/17 18:15 • (MS) R3243908-5 08/23/17 18:21 • (MSD) R3243908-6 08/23/17 18:25

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	ND	1.04	1.05	95	95	1	75-125			1	20
Lithium	1.00	ND	1.02	1.01	101	100	1	75-125			1	20
Molybdenum	1.00	ND	1.04	1.03	104	103	1	75-125			0	20



Method Blank (MB)

(MB) R3242965-1 08/21/17 11:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3243556-1 08/23/17 06:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Beryllium	U		0.00012	0.00200

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

(LCS) R3242965-2 08/21/17 11:14 • (LCSD) R3242965-3 08/21/17 11:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	0.0500	0.0498	0.0494	100	99	80-120			1	20
Arsenic	0.0500	0.0513	0.0495	103	99	80-120			3	20
Barium	0.0500	0.0467	0.0435	93	87	80-120			7	20
Cadmium	0.0500	0.0547	0.0516	109	103	80-120			6	20
Calcium	5.00	4.92	4.78	98	96	80-120			3	20
Chromium	0.0500	0.0524	0.0508	105	102	80-120			3	20
Cobalt	0.0500	0.0536	0.0525	107	105	80-120			2	20
Lead	0.0500	0.0485	0.0464	97	93	80-120			4	20
Selenium	0.0500	0.0531	0.0509	106	102	80-120			4	20
Thallium	0.0500	0.0480	0.0462	96	92	80-120			4	20



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

(LCS) R3243556-2 08/23/17 06:17 • (LCSD) R3243556-3 08/23/17 06:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Beryllium	0.0500	0.0433	0.0416	87	83	80-120			4	20

¹ Cp

² Tc

³ Ss

⁴ Cn

L929552-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929552-02 08/21/17 11:21 • (MS) R3242965-5 08/21/17 11:28 • (MSD) R3242965-6 08/21/17 11:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Antimony	0.0500	U	0.0508	0.0496	102	99	1	75-125			2	20
Arsenic	0.0500	0.00106	0.0501	0.0498	98	97	1	75-125			1	20
Barium	0.0500	0.143	0.187	0.185	89	85	1	75-125			1	20
Cadmium	0.0500	U	0.0530	0.0539	106	108	1	75-125			2	20
Calcium	5.00	105	108	111	66	125	1	75-125	V		3	20
Chromium	0.0500	U	0.0510	0.0498	102	100	1	75-125			2	20
Cobalt	0.0500	U	0.0512	0.0508	102	102	1	75-125			1	20
Lead	0.0500	U	0.0480	0.0484	96	97	1	75-125			1	20
Selenium	0.0500	0.000559	0.0530	0.0527	105	104	1	75-125			0	20
Thallium	0.0500	U	0.0476	0.0478	95	96	1	75-125			0	20

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L929552-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L929552-02 08/23/17 06:24 • (MS) R3243556-5 08/23/17 06:31 • (MSD) R3243556-6 08/23/17 06:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Beryllium	0.0500	U	0.0430	0.0434	86	87	1	75-125			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.
Rec.	Recovery.

Qualifier Description

B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

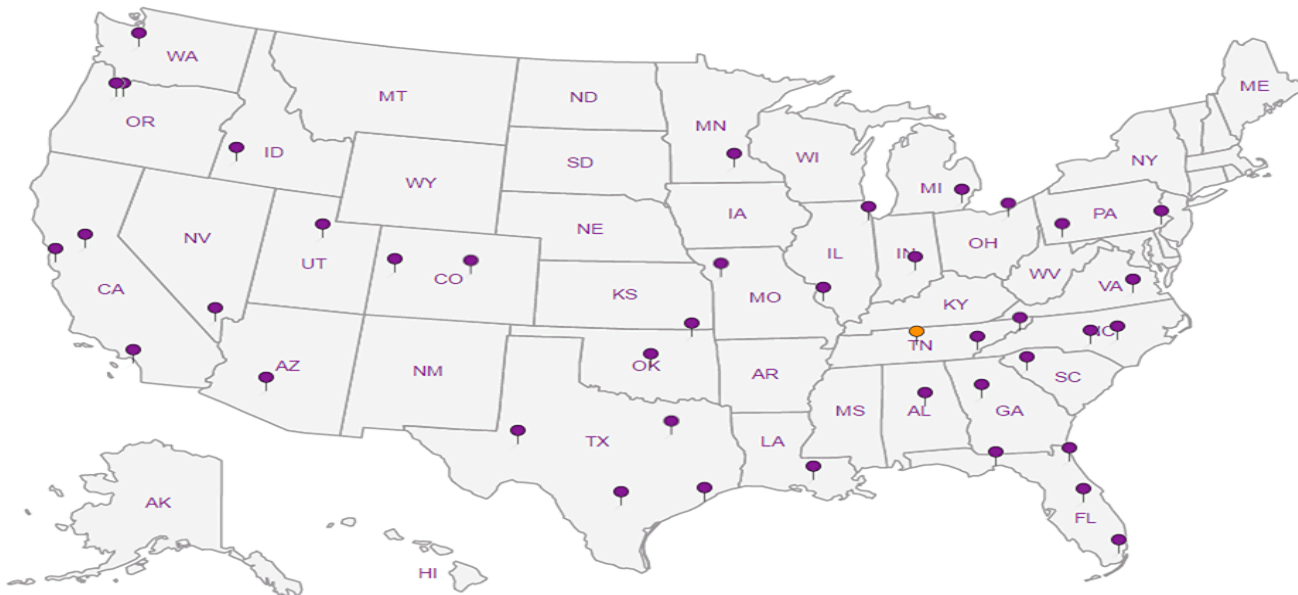
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



Jeremy W. Watkins

**ESC Lab Sciences
Non-Conformance Form**

Login #: L929091	Client: URSKC	Date: 8/12/17	Evaluated by: Jeremy
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Non-Conformance (check applicable items)

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

Login Comments: Metals for MW-903 not preserved. Total or Dissolved?

Client informed by:	Call	X	Email	Voice Mail	Date: 8/16/17	Time: 0843
TSR Initials: JC	Client Contact: A. Skaskevych					

Login Instructions: Total Metals.

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Case Narrative

Lab No: 20170763

This report contains the analytical results for the 22 sample(s) received under chain of custody by ESC Lab Sciences on 8/11/2017 2:14:21 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L928889



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170763
 Date Reported : 09/12/17
 Date Received : 08/11/17
 Page Number : 2 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170763-01							
Client ID : MW-708							
Date Sampled : 8/8/2017 1:30:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.866 +/- 0.592	0.833	pCi/l				
Radium-226 SM 7500 Ra B M*	0.160 +/- 0.169	0.211	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.706 +/- 0.423	0.622	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-02							
Client ID : TW-1							
Date Sampled : 8/8/2017 1:55:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.05 +/- 0.728	0.934	pCi/l				
Radium-226 SM 7500 Ra B M*	0.302 +/- 0.211	0.185	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.743 +/- 0.517	0.749	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-03							
Client ID : MW-707B							
Date Sampled : 8/8/2017 2:20:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.310 +/- 0.591	0.753	pCi/l				
Radium-226 SM 7500 Ra B M*	0.211 +/- 0.186	0.212	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.099 +/- 0.405	0.541	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-04							
Client ID : MW-701							
Date Sampled : 8/8/2017 2:55:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	2.29 +/- 0.701	1.27	pCi/l				
Radium-226 SM 7500 Ra B M*	0.178 +/- 0.220	0.309	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	2.11 +/- 0.481	0.957	pCi/l		09/01/17	09/08/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170763
 Date Reported : 09/12/17
 Date Received : 08/11/17
 Page Number : 3 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170763-05							
Client ID : MW-704							
Date Sampled : 8/8/2017 3:55:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.17 +/- 0.756	1.14	pCi/l				
Radium-226 SM 7500 Ra B M*	0.221 +/- 0.276	0.382	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.945 +/- 0.480	0.755	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-06							
Client ID : MW-13							
Date Sampled : 8/8/2017 5:30:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.075 +/- 0.614	0.927	pCi/l				
Radium-226 SM 7500 Ra B M*	0.075 +/- 0.147	0.248	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	-0.355 +/- 0.467	0.679	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-07							
Client ID : MW-702							
Date Sampled : 8/9/2017 9:05:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.46 +/- 0.745	1.09	pCi/l				
Radium-226 SM 7500 Ra B M*	0.368 +/- 0.249	0.252	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	1.09 +/- 0.496	0.840	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-08							
Client ID : MW-706							
Date Sampled : 8/9/2017 10:00:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.54 +/- 0.832	1.08	pCi/l				
Radium-226 SM 7500 Ra B M*	0.619 +/- 0.361	0.409	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.925 +/- 0.471	0.671	pCi/l		09/01/17	09/08/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170763
 Date Reported : 09/12/17
 Date Received : 08/11/17
 Page Number : 4 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20170763-09
Client ID : MW-705
Date Sampled : 8/9/2017 11:25:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.831 +/- 0.738	0.840	pCi/l			
Radium-226	SM 7500 Ra B M*	0.330 +/- 0.241	0.280	pCi/l	08/28/17	08/30/17	RE
Radium-228	EPA 904*	0.501 +/- 0.497	0.560	pCi/l	09/01/17	09/08/17	JR

Lab ID : 20170763-10
Client ID : MW-950
Date Sampled : 8/9/2017 11:25:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.53 +/- 0.621	0.675	pCi/l			
Radium-226	SM 7500 Ra B M*	0.266 +/- 0.199	0.185	pCi/l	08/28/17	08/30/17	RE
Radium-228	EPA 904*	1.26 +/- 0.422	0.490	pCi/l	09/01/17	09/08/17	JR

Lab ID : 20170763-11
Client ID : MW-801
Date Sampled : 8/9/2017 10:40:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.972 +/- 0.700	0.819	pCi/l			
Radium-226	SM 7500 Ra B M*	0.536 +/- 0.266	0.253	pCi/l	08/28/17	08/30/17	RE
Radium-228	EPA 904*	0.436 +/- 0.434	0.566	pCi/l	09/01/17	09/08/17	JR

Lab ID : 20170763-12
Client ID : MW-904
Date Sampled : 8/7/2017 2:00:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.155 +/- 0.668	0.894	pCi/l			
Radium-226	SM 7500 Ra B M*	0.155 +/- 0.144	0.149	pCi/l	08/28/17	08/30/17	RE
Radium-228	EPA 904*	-0.261 +/- 0.524	0.745	pCi/l	09/01/17	09/08/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170763
 Date Reported : 09/12/17
 Date Received : 08/11/17
 Page Number : 5 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170763-13							
Client ID : MW-951							
Date Sampled : 8/8/2017 4:50:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.394 +/- 0.644	0.786	pCi/l				
Radium-226 SM 7500 Ra B M*	0.394 +/- 0.240	0.227	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	-0.040 +/- 0.404	0.559	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-14							
Client ID : MW-802							
Date Sampled : 8/7/2017 4:20:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.22 +/- 0.815	0.915	pCi/l				
Radium-226 SM 7500 Ra B M*	0.641 +/- 0.306	0.192	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.580 +/- 0.509	0.723	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-15							
Client ID : MW-803							
Date Sampled : 8/8/2017 4:05:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.84 +/- 0.882	1.02	pCi/l				
Radium-226 SM 7500 Ra B M*	0.759 +/- 0.339	0.292	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	1.08 +/- 0.543	0.728	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-16							
Client ID : MW-805							
Date Sampled : 8/8/2017 12:20:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.175 +/- 0.775	1.16	pCi/l				
Radium-226 SM 7500 Ra B M*	0.175 +/- 0.272	0.405	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	-0.444 +/- 0.503	0.750	pCi/l		09/01/17	09/08/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170763
 Date Reported : 09/12/17
 Date Received : 08/11/17
 Page Number : 6 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170763-17							
Client ID : MW-804							
Date Sampled : 8/8/2017 4:26:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.19 +/- 0.754	0.983	pCi/l				
Radium-226 SM 7500 Ra B M*	0.241 +/- 0.238	0.304	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.949 +/- 0.516	0.679	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-18							
Client ID : MW-601							
Date Sampled : 8/9/2017 1:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.847 +/- 0.675	0.818	pCi/l				
Radium-226 SM 7500 Ra B M*	0.279 +/- 0.260	0.268	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	0.568 +/- 0.415	0.550	pCi/l		09/01/17	09/08/17	JR
Lab ID : 20170763-19							
Client ID : MW-601 MS							
Date Sampled : 8/9/2017 1:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	112		% Rec		08/28/17	08/30/17	RE
Radium-228 EPA 904*	74.2		% Rec		09/01/17	09/08/17	JR
Lab ID : 20170763-20							
Client ID : MW-601 MSD							
Date Sampled : 8/9/2017 1:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	0.8		RPD		08/28/17	08/30/17	RE
Radium-228 EPA 904*	2.5		RPD		09/01/17	09/08/17	JR
Lab ID : 20170763-21							
Client ID : MW-6							
Date Sampled : 8/9/2017 1:45:00 PM							
Matrix : NPW							

*NELAC Certified Parameter BDL = Below Detection Limit



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170763
 Date Reported : 09/12/17
 Date Received : 08/11/17
 Page Number : 7 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Radiochemical Analyses							
Combined Radium	1.98 +/- 0.731	0.901	pCi/l				
Radium-226 SM 7500 Ra B M*	0.456 +/- 0.266	0.213	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	1.52 +/- 0.465	0.688	pCi/l		09/01/17	09/08/17	JR

Lab ID : 20170763-22
Client ID : MW-7
Date Sampled : 8/9/2017 2:50:00 PM
Matrix : NPW

Radiochemical Analyses							
Combined Radium	2.93 +/- 1.01	1.03	pCi/l				
Radium-226 SM 7500 Ra B M*	1.53 +/- 0.449	0.178	pCi/l		08/28/17	08/30/17	RE
Radium-228 EPA 904*	1.40 +/- 0.559	0.855	pCi/l		09/01/17	09/08/17	JR

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	0.014	120.0			NC	0.928	112.0	112.0	0.8	R1273
Radium-228	0.474	99.0			NC	0.093	74.2	76.3	2.5	R3997

Lab Approval:

Ron Eidson
 Director of Radiochemistry

Analysis / Container / Preservative

Pres Chk

Billing Information:
 Dana Monroe - 1334927
 2380 McGee Suite 200
 Kansas City, MO 64108

AECOM - Kansas City, MO
 2380 McGee Suite 200
 Kansas City, MO 64108

Report to:
 Alla Skaskevych
 Email To: robert.exceen@aecom.com;
 alla.skaskevych@aecom.com;

Project
 Description: La Cygne Generating Station

Client Project #
 60482842

Lab Project #
 URSKC-LACYGNE

Site/Facility ID #
 TASK 100

Collected by (print):
Nam Ganyadara

Collected by (signature):
Nam Ganyadara

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

City/State Collected:

Lab Project #
 URSKC-LACYGNE

P.O. #
 no PO number

Quote #

Date Results Needed

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs
MW-708	G	NPW	NA	8/18/17	1330	2
TW-1	G	NPW			1355	2
MW-707B	G	NPW			1420	2
MW-701	G	NPW			1455	2
MW-704	G	NPW			1555	2
MW-13	G	NPW			1730	2
MW-702	G	NPW		8/19/17	0905	2
MW-706	G	NPW			1000	2
MW-705	G	NPW			1125	2
MW-950	G	NPW			1125	2

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

L# 928889

Table #

Acctnum: URSKC

Template: T112863

Prelogin: P611820

TSR: 206 - Jeff Carr

PB:

Shipped Via:

Remarks

Sample # (lab only)

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

FSC KC

Samples returned via:
 ___ UPS ___ FedEx ___ Courier

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

Relinquished by: (Signature)
Nam Ganyadara

Date: 8/19/17 1500

Received by: (Signature)
[Signature]

Date: 8/10/17 1700

Received by: (Signature)
[Signature]

Date: 8/11/17 1414

Received for lab by: (Signature)
[Signature]

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

Temp: *Sub* °C Bottles Received: *44*
 Date: *8/11/17* Time: *1414*

if preservation required by Login: Date/Time
 Hold: _____ Condition: NCF / OK

2870763-1



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

L# 928889
Table #
Acctnum: URSKC
Template: T112863
Prelogin: P611820
TSR: 206 - Jeff Carr
PB:

Shipped Via:
Remarks
Sample # (tab only)

Analysis / Container / Preservative

Pre Chk

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

City/State Collected:
Lab Project # URSKC-LACYGNE
P.O. # no PO number
Quote #

Date Results Needed

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-801	Grab	NPW	N/A	8-9-17	10:40	2
MW-904	Grab	NPW		8-7-17	14:00	2
MW-951	Grab	NPW		8-8-17	16:50	2
MW-802	Grab	NPW		8-7-17	16:20	2
MW-803	Grab	NPW		8-8-17	16:05	2
MW-805	Grab	NPW		8-8-17	11:40	2
MW-804	Grab	NPW		8-8-17	16:26	2
MW-601	Grab	NPW		8-9-17	13:15	2
MW-601 MS	Grab	NPW		8-9-17	13:15	2
MW-601 MSD	Grab	NPW		8-9-17	13:15	2

ORL-RA-226, RA-228 1L-HDPE-Add HN03

DRF

12:30

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

ESKC

Samples returned via:
UPS FedEx Courier

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

pH Temp
Flow Other

Trip Blank Received: Yes / No
HCL / MeOH
TBR

Temp: °C Bottles Received:
Date: Time:

Received by: (Signature)
Received by: (Signature)
Received for tab by: (Signature)

Relinquished by: (Signature)
Relinquished by: (Signature)
Relinquished by: (Signature)

Temp: 44
Date: 8/11/17 14:14
Time: 2000763-2

Received by: (Signature)
Received by: (Signature)
Received for tab by: (Signature)

Date: 8-9-17 15:00
Date: 8/10/17
Date:

Received by: (Signature)
Received by: (Signature)
Received for tab by: (Signature)

Relinquished by: (Signature)
Relinquished by: (Signature)
Relinquished by: (Signature)

Condition: NCF / OK

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Allia Skaskevych

Email To: robert.exceen@aecom.com;
allia.skaskevych@aecom.com;

Project

Description: **La Cygne Generating Station**

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Norm Gung
Tom

Site/Facility ID #
TASK 100

P.O. #
no PO number

Collected by (signature):
Norm Gung
Tom

Rush? (Lab MUST Be Notified)

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 30 Day (Rad Only)
Three Day

Sample ID

Date

Time

Contrs

MW-6

NPW

8/19/17

1345

2

MW-7

NPW

8/19/17

1450

2

NPW

2

NPW

2

NPW

2

NPW

2

NPW

2

NPW

2

NPW

2

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

PH _____ Temp _____
Flow _____ Other _____

Samples returned via:
UPS FedEx Courier

Tracking #

Relinquished by: (Signature)
Norm Gung

Date: 8/19/17

Time: 1500

Relinquished by: (Signature)
Tom

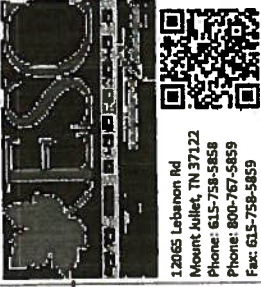
Date: 8/16/17

Time: 1700

Relinquished by: (Signature)
Tom

Date: 8/16/17

Time: 1700



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-759-5858
Phone: 800-767-5859
Fax: 615-759-5859

L # **928889**

Table #

Acctnum: **URSKC**

Template: **T112863**

Prelogin: **P611820**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Remarks

Sample # (lab only)

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

If preservation required by Login: Date/Time
Hold: _____
Condition: NCF / .OK

2010763-D

SAMPLE LOGIN

Date Received: 8/11/2017 2:14:21

Lab Number: 20170763

Due: 9/11/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170763-01 B	MW-708	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-01 A	MW-708	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170763-02 A	TW-1	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-02 B	TW-1	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170763-03 A	MW-707B	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-03 B	MW-707B	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170763-04 A	MW-701	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-04 B	MW-701	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170763-05 A	MW-704	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-05 B	MW-704	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170763-06 A	MW-13	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-06 B	MW-13	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170763-07 B	MW-702	NPW	08/06/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-07 A	MW-702	NPW	08/06/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						

20170763-08 A	MW-706	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-08 B	MW-706	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-09 A	MW-705	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-09 B	MW-705	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-10 A	MW-950	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-10 B	MW-950	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-11 A	MW-801	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-11 B	MW-801	NPW	08/09/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-12 B	MW-904	NPW	08/07/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-12 A	MW-904	NPW	08/07/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-13 A	MW-951	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-13 B	MW-951	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-14 A	MW-802	NPW	08/07/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-14 B	MW-802	NPW	08/07/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-15 A	MW-803	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-15 B	MW-803	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226	SM 7500 Ra B M*								
Radium-228	EPA 904*/9320*								
20170763-16 A	MW-805	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170763-16 B	MW-805	NPW	08/08/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No

CONTAINER INSPECTION

Coolers 3 Custody Seals Broken

Temperature: 65 C

Ice

Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken

Chain of Custody Record

Labels in Tact

Radiation Survey Complete

Anomalies

Inspected By: [Signature]

DATE

8/11/17

QA or Designee Review: [Signature]

DATE

08/14/17

Sample Custodian Review: [Signature]

DATE

8/11/17

Project Notes:

Case Narrative

Lab No: 20170764

This report contains the analytical results for the 12 sample(s) received under chain of custody by ESC Lab Sciences on 8/14/2017 1:50:37 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L929260



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170764
 Date Reported : 09/13/17
 Date Received : 08/14/17
 Page Number : 2 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170764-01							
Client ID : MW-905							
Date Sampled : 8/9/2017 5:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.161 +/- 0.675	0.970	pCi/l				
Radium-226 SM 7500 Ra B M*	0.161 +/- 0.159	0.184	pCi/l		08/31/17	09/05/17	RE
Radium-228 EPA 904*	-0.078 +/- 0.516	0.786	pCi/l		08/30/17	09/06/17	JR
Lab ID : 20170764-02							
Client ID : MW-15							
Date Sampled : 8/10/2017 1:50:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.184 +/- 0.713	1.04	pCi/l				
Radium-226 SM 7500 Ra B M*	0.168 +/- 0.165	0.201	pCi/l		08/31/17	09/05/17	RE
Radium-228 EPA 904*	0.016 +/- 0.548	0.841	pCi/l		08/30/17	09/06/17	JR
Lab ID : 20170764-03							
Client ID : MW-602							
Date Sampled : 8/10/2017 2:20:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.000 +/- 0.627	0.912	pCi/l				
Radium-226 SM 7500 Ra B M*	-0.008 +/- 0.151	0.313	pCi/l		08/31/17	09/05/17	RE
Radium-228 EPA 904*	-0.061 +/- 0.476	0.599	pCi/l		08/30/17	09/06/17	JR
Lab ID : 20170764-04							
Client ID : MW-14R							
Date Sampled : 8/10/2017 2:50:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.54 +/- 0.837	1.13	pCi/l				
Radium-226 SM 7500 Ra B M*	0.413 +/- 0.310	0.380	pCi/l		08/31/17	09/05/17	RE
Radium-228 EPA 904*	1.13 +/- 0.527	0.749	pCi/l		08/30/17	09/06/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170764
 Date Reported : 09/13/17
 Date Received : 08/14/17
 Page Number : 3 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170764-05
Client ID : MW-903
Date Sampled : 8/10/2017 3:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.01 +/- 0.615	0.948	pCi/l				
Radium-226	SM 7500 Ra B M*	0.070 +/- 0.137	0.231	pCi/l	08/31/17	09/05/17	RE
Radium-228	EPA 904*	0.941 +/- 0.478	0.717	pCi/l	08/30/17	09/06/17	JR

Lab ID : 20170764-06
Client ID : MW-902
Date Sampled : 8/11/2017 10:35:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.50 +/- 0.709	0.827	pCi/l				
Radium-226	SM 7500 Ra B M*	0.459 +/- 0.294	0.288	pCi/l	08/31/17	09/05/17	RE
Radium-228	EPA 904*	1.04 +/- 0.415	0.539	pCi/l	08/30/17	09/06/17	JR

Lab ID : 20170764-07
Client ID : MW-901
Date Sampled : 8/11/2017 10:55:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	0.641 +/- 0.815	0.960	pCi/l				
Radium-226	SM 7500 Ra B M*	0.641 +/- 0.321	0.226	pCi/l	08/31/17	09/05/17	RE
Radium-228	EPA 904*	-0.294 +/- 0.494	0.734	pCi/l	08/30/17	09/06/17	JR

Lab ID : 20170764-08
Client ID : MW-11
Date Sampled : 8/10/2017 9:50:00 AM
Matrix : NPW

Radiochemical Analyses

Combined Radium	1.90 +/- 0.803	1.16	pCi/l				
Radium-226	SM 7500 Ra B M*	-0.050 +/- 0.255	0.440	pCi/l	08/31/17	09/05/17	RE
Radium-228	EPA 904*	1.90 +/- 0.548	0.718	pCi/l	08/30/17	09/06/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170764
 Date Reported : 09/13/17
 Date Received : 08/14/17
 Page Number : 4 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170764-09							
Client ID : MW-10							
Date Sampled : 8/10/2017 11:00:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.695 +/- 0.803	1.02	pCi/l				
Radium-226 SM 7500 Ra B M*	0.695 +/- 0.349	0.338	pCi/l		08/31/17	09/05/17	RE
Radium-228 EPA 904*	-0.248 +/- 0.454	0.677	pCi/l		08/30/17	09/06/17	JR
Lab ID : 20170764-10							
Client ID : MW-10MS							
Date Sampled : 8/10/2017 11:00:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	116		% Rec		08/31/17	09/05/17	RE
Radium-228 EPA 904*	97.8		% Rec		08/30/17	09/06/17	JR
Lab ID : 20170764-11							
Client ID : MW-10MSD							
Date Sampled : 8/10/2017 11:00:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	3.0		RPD		08/31/17	09/05/17	RE
Radium-228 EPA 904*	19.0		RPD		08/30/17	09/06/17	JR
Lab ID : 20170764-12							
Client ID : MW-703							
Date Sampled : 8/10/2017 2:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.88 +/- 0.806	0.684	pCi/l				
Radium-226 SM 7500 Ra B M*	1.47 +/- 0.429	0.148	pCi/l		08/31/17	09/05/17	RE
Radium-228 EPA 904*	0.412 +/- 0.377	0.536	pCi/l		08/30/17	09/06/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170764
 Date Reported : 09/13/17
 Date Received : 08/14/17
 Page Number : 5 of 5

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	-0.012	119.0			29.6	0.768	116.0	113.0	3.0	R1275
Radium-228							103.0	101.0	1.4	R3996
Radium-228	0.184	112.0			NC	0.225	97.8	81.3	19.0	R3996

Lab Approval:

Ron Eidson
 Director of Radiochemistry

AECOM - Kansas City, MO
 2380 McGee Suite 200
 Kansas City, MO 64108

Billing Information:
 Dana Monroe - 1334927
 2380 McGee Suite 200
 Kansas City, MO 64108

Pres Chk

Chain of Custody Page 1 of 1



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



Report to:
 Brian Linnan

Email To: brian.linnan@aecom.com;
 robert.exceen@aecom.com;

Project
 Description: La Cygne Generating Station

City/State
 Collected:

Phone: 913-344-1000
 Fax: 913-344-1011

Client Project #
 60482842

Lab Project #
 URSKC-LACYGNE

Collected by (print):
 Jim Muckler +
 Dillon Moran

Site/Facility ID #
 TASK 100

P.O. #
 no PO number

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

Immediately
 Packed on Ice N ___ Y X

No. of
 Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	Analysis / Container / Preservative
MW-905	Grab	NPW	N/A	8-9-17	17:15	2	X	
MW-15	Grab	NPW		8-10-17	13:50	2	X	
MW-602	Grab	NPW		8-10-17	14:20	2	X	
MW-14R	Grab	NPW		8-10-17	14:50	2	X	
MW-903	Grab	NPW		8-10-17	15:45	2	X	
MW-902	Grab	NPW		8-11-17	10:35	2	X	
MW-901	Grab	NPW		8-11-17	10:55	2	X	
		NPW				2	X	
		NPW				2	X	
		NPW				2	X	

ORL-RA-226, RA-228, IL-HDPE-ADD HN03

Copy

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

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

ESCKC

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)
 [Signature]

Date: 8-11-17
 Time: 16:20

Received by: (Signature)
 [Signature]

Trip Blank Received: Yes / No
 HCL / MeOH
 TBR

Relinquished by: (Signature)

Date: _____
 Time: _____

Received by: (Signature)

Temp: 24 °C
 Bottles Received: 24

If preservation required by Logim: Date/Time

Relinquished by: (Signature)

Date: _____
 Time: _____

Received for lab by: (Signature)
 [Signature]

Date: 8/14/17
 Time: 1350

Hold: _____
 Condition: NCF / OK

2077764

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Ch

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Alla Skaskevych

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

Project
Description: La Cygne Generating Station

City/State
Collected:

Phone: 913-344-1000
Fax: 913-344-1011

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Nathan Gung
Terry Andrews

Site/Facility ID #
TASK 100

P.O. #
no PO number

Collected by (signature):
Nathan Gung

Rush? (Lab MUST Be Notified)

Quote #

Immediately
Packed on Ice N ___ Y ___

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

Date Results Needed

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Analysis	Container	Preservative
MW-11	G	NPW	NA	8/10/17	0950	2	X		
MW-10	G	NPW	↓	↓	1100	2	X		
MW-10MS	G	NPW	↓	↓	1100	2	X		
MW-10MSD	G	NPW	↓	↓	1100	2	X		
MW-703	G	NPW	↓	↓	1415	2	X		
		NPW				2	X		

ORL-RA-226, RA-228-1L-HDPE-Add HNO3

Copy

L# 929260

Table #

Acctnum: URSKC

Template: T112863

Prelogin: P611820

TSR: 206 - Jeff Carr

PB:

Shipped Via:

Remarks

Sample # (lab only)

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

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

ESCKC

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking #

pH ___ Temp ___

Flow ___ Other ___

Sample Receipt Checklist

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

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes / No

HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: Time:

Hold:

-Condition:
NCF / OK

8/11/17 1350

SAMPLE LOGIN

Date Received: 8/14/2017 1:50:37

Lab Number: 20170764

Due: 9/12/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170764-01 B	MW-905	NPW	08/09/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-01 A	MW-905	NPW	08/09/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
						SM 7500 Ra B M*			
						EPA 904*			
20170764-02 A	MW-15	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-02 B	MW-15	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
						SM 7500 Ra B M*			
						EPA 904*			
20170764-03 A	MW-602	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-03 B	MW-602	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
						SM 7500 Ra B M*			
						EPA 904*			
20170764-04 A	MW-14R	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-04 B	MW-14R	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
						SM 7500 Ra B M*			
						EPA 904*			
20170764-05 A	MW-903	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-05 B	MW-903	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	No
						SM 7500 Ra B M*			
						EPA 904*			
20170764-06 B	MW-902	NPW	08/11/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-06 A	MW-902	NPW	08/11/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
						SM 7500 Ra B M*			
						EPA 904*			
20170764-07 B	MW-901	NPW	08/11/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-07 A	MW-901	NPW	08/11/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
						SM 7500 Ra B M*			
						EPA 904*			

20170764-08 A	MW-11	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-08 B	MW-11	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170764-09 A	MW-10	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-09 B	MW-10	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170764-10 A	MW-10MS	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-10 B	MW-10MS	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170764-11 A	MW-10MSD	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-11 B	MW-10MSD	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170764-12 B	MW-703	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170764-12 A	MW-703	NPW	08/10/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken Temperature: 65 C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete N/A

Anomalles

Inspected By: [Signature] DATE 8/14/17
QA or Designee Review: [Signature] DATE 08/14/17
Sample Custodian Review: [Signature] DATE 8/14/17

Project Notes:

Jared Morrison
December 16, 2022

ATTACHMENT 1-11
September 2017 Sampling Event Laboratory Report

Case Narrative

Lab No: 20170833

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 9/5/2017 12:09:16 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L933962



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170833
 Date Reported : 10/11/17
 Date Received : 09/05/17
 Page Number : 2 of 2

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170833-01							
Client ID : MW-904							
Date Sampled : 9/1/2017 9:45:00 AM							
Matrix : NPW							

Radiochemical Analyses

Combined Radium		0.560 +/- 0.635	1.04	pCi/l			
Radium-226	SM 7500 Ra B M*	0.037 +/- 0.126	0.246	pCi/l	09/21/17	09/26/17	RE
Radium-228	EPA 904*	0.523 +/- 0.509	0.794	pCi/l	09/21/17	09/26/17	JR

QC Report

Parameter	Blank	LCS		LCSD		DUP RPD	RER, NAD or DER	MS		MSD		Batch ID
		%REC		%REC	RPD			%REC		%REC	RPD	
Radium-226	0.114		117.0			NC	0.858	104.0	102.0	1.7		R1283
Radium-228	0.526		89.1			NC	0.521	80.5	96.4	15.2		R4005

Lab Approval:

Ron Eidson
 Director of Radiochemistry

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Alla Skaskevych

Project

Description: **La Cygne Generating Station**

Phone: **913-344-1000**
Fax: **913-344-1011**

Collected by (print):

Collected by (signature):

Immediately
Packed on Ice N Y

Sample ID

VW-904

Comp/Grab

Grab
~~RAW~~
GW

Matrix *

Date

9/11/17 9:45

Depth

2

Quote #

Date Results Needed

No. of

Cntrs

Billing information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Email To: **alla.skaskevych@aecom.com;**
robert.exceen@aecom.com; jay.martin@kcpi.com

City/State Collected:

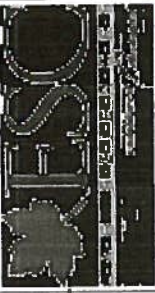
Lab Project #
URSKC-LACYGNE

P.O. #

no PO number

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# **933962**
Table #

Account: **URSKC**
Template: **T125201**
Prelogin: **P615201**
TSR: **206 - Jeff Carr**
PB:

Shipped Via:

Remarks

Sample # (lab only)

ORL-RA-226, RA-228 1L-HDPE Add HNO3 X

Remarks: **Report Radium 226 and 228 Combined.**

Matrix:
S - Soil AIR - Air F - Filter
W - Groundwater B - Bioassay
RW - Waste Water
WD - Drinking Water
T - Other

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
UPS ___ FedEx ___ Counter ___

Relinquished by: (Signature)

Date: **9/11/17 11:50**

Time:

Relinquished by: (Signature)

Date:

Time:

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes / No

HCL / MeOH
TBR

Temp **4.5** °C Bottles Received: **2**

Date: **9/11/17**

Time: **12:07**

Received by: (Signature)
[Signature]

Received for lab by: (Signature)

Date: **9/11/17**

Time: **20170833**

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

Preservation required by Login: Date/Time

Condition: NCF / OK

SAMPLE LOGIN

Date Received: 9/5/2017 12:09:16

Lab Number: 20170833

Due: 10/3/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170833-01 B	MW-904	NPW	09/01/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170833-01 A	MW-904	NPW	09/01/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No

SM 7500 Ra B M*
EPA 904*

CONTAINER INSPECTION

Coolers Custody Seals Broken Temperature: 15 C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete Anomalies

Inspected By: *[Signature]* DATE: 9/5/17
 QA or Designee Review: *[Signature]* DATE: 9/5/17
 Sample Custodian Review: *[Signature]* DATE: 9/5/17

Project Notes:

Case Narrative

Lab No: 20170890

This report contains the analytical results for the 1 sample(s) received under chain of custody by ESC Lab Sciences on 9/25/2017 11:50:31 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L938985



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170890
 Date Reported : 10/23/17
 Date Received : 09/25/17
 Page Number : 2 of 2

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170890-01							
Client ID : MW-904							
Date Sampled : 9/22/2017 9:25:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.664 +/- 0.702	1.08	pCi/l				
Radium-226 SM 7500 Ra B M*	0.101 +/- 0.161	0.250	pCi/l		10/16/17	10/17/17	RT
Radium-228 EPA 904*	0.563 +/- 0.541	0.834	pCi/l		10/02/17	10/06/17	JR

QC Report

Parameter	Blank	LCS %REC	LCS %REC	LCS RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	MSD RPD	Batch ID
Radium-226	-0.014	119.0			NC	0.782	114.0	114.0	0.2	R1288
Radium-228	0.080	83.0			NC	0.750	90.5	91.9	1.6	R4009

Lab Approval:

Ron Eidson
 Director of Radiochemistry

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Alla Skaskevych

Project
Description: **La Cygne Generating Station**

Phone: **913-344-1000**
Fax: **913-344-1011**

Collected by (print):

Collected by (signature):

Immediately Packed on Ice N Y

Client Project #
60482842

Site/Facility ID #
TASK 100

Rush? (Lab MUST Be Notified)

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

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

No. of

Ents

MW-904

Grabb
~~HW~~
GW

9/22/17 9:25

2

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Email To: alla.skaskevych@aecom.com;
robert.excaen@aecom.com; jay.martin@kcpl.com

City/State Collected:

Lab Project #
URSKC-LACYGNE

P.O. #
no PO number

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

ORL-RA-226, RA-228-1L-HDPE-Add HNO3 X

Chain of Custody Page ___ of ___



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-787-5859
Fax: 615-758-5859

L # **938985**
Table #

Acctnum: **URSKC**
Template: **T125201**
Prelogin: **P619272**
TSR: **206 - Jeff Carr**
PB:

Shipped Via: **ESCK**

Remarks Sample # (lab only)

Remarks: Report Radium 226 and 228 Combined.

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

Samples returned via:
 UPS FedEx Courier

Relinquished by: (Signature)
[Signature]
Date: 9/22/17 11:20

Relinquished by: (Signature)
[Signature]
Date: 9/22/17 17:00

Relinquished by: (Signature)
[Signature]
Date: 9/25/17 11:50

pH _____ Temp _____
Flow _____ Other _____

Tracking #

Trip Blank Received: Yes/No
HCL/ MeOH
TBR

Temp: **Abv** °C Bottles Received: **2**

Date: **9/25/17** Time: **11:50**

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

If preservation required by LogIn: Date/Time

Hold: Condition: NCF / OK

20120890

SAMPLE LOGIN

Date Received: 9/25/2017 11:50:3

Lab Number: 20170890

Due: 10/23/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170890-01 B	MW-904	NPW	09/22/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170890-01 A	MW-904	NPW	09/22/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						

CONTAINER INSPECTION

Coolers 1 Custody Seals Broken Temperature: 15 C Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete Anomalies

Inspected By: [Signature] DATE 9/25/17

QA or Designee Review: [Signature] DATE 09/25/17

Sample Custodian Review: [Signature] DATE 9/25/17

Project Notes:

AECOM - Kansas City, MO

Sample Delivery Group: L933825
Samples Received: 09/02/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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



Cp: Cover Page	1	¹Cp
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MW-904 L933825-01	5	
Qc: Quality Control Summary	6	⁴Cn
Gravimetric Analysis by Method 2540 C-2011	6	⁵Sr
Wet Chemistry by Method 9040C	7	
Wet Chemistry by Method 9056A	8	⁶Qc
Mercury by Method 7470A	10	
Metals (ICP) by Method 6010B	11	⁷Gl
Metals (ICPMS) by Method 6020	12	
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Al: Accreditations & Locations	15	
Sc: Sample Chain of Custody	16	⁹Sc

SAMPLE SUMMARY



MW-904 L933825-01 GW

Collected by
Collected date/time
Received date/time

09/01/17 09:45
09/02/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1016908	1	09/06/17 16:10	09/06/17 16:47	MMF
Wet Chemistry by Method 9040C	WG1016764	1	09/06/17 10:09	09/06/17 10:09	TH
Wet Chemistry by Method 9056A	WG1017070	1	09/07/17 14:58	09/07/17 14:58	DR
Wet Chemistry by Method 9056A	WG1018588	5	09/09/17 23:18	09/09/17 23:18	NJM
Mercury by Method 7470A	WG1017075	1	09/06/17 08:33	09/06/17 13:29	EL
Metals (ICP) by Method 6010B	WG1018811	1	09/12/17 12:45	09/12/17 23:44	ST
Metals (ICPMS) by Method 6020	WG1019056	1	09/12/17 12:43	09/13/17 18:27	LAT

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	723		10.0	1	09/06/2017 16:47	WG1016908

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.44	<u>T8</u>	1	09/06/2017 10:09	WG1016764

3 Ss

4 Cn

Sample Narrative:

L933825-01 WG1016764: 7.44 at 18.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	35.7		1.00	1	09/07/2017 14:58	WG1017070
Fluoride	0.346		0.100	1	09/07/2017 14:58	WG1017070
Sulfate	101		25.0	5	09/09/2017 23:18	WG1018588

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/06/2017 13:29	WG1017075

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.18		0.200	1	09/12/2017 23:44	WG1018811
Lithium	0.0432		0.0150	1	09/12/2017 23:44	WG1018811
Molybdenum	0.00956		0.00500	1	09/12/2017 23:44	WG1018811

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	09/13/2017 18:27	WG1019056
Arsenic	ND		0.00200	1	09/13/2017 18:27	WG1019056
Barium	0.0944		0.00500	1	09/13/2017 18:27	WG1019056
Beryllium	ND		0.00200	1	09/13/2017 18:27	WG1019056
Cadmium	ND		0.00100	1	09/13/2017 18:27	WG1019056
Calcium	76.3		1.00	1	09/13/2017 18:27	WG1019056
Chromium	ND		0.00200	1	09/13/2017 18:27	WG1019056
Cobalt	ND		0.00200	1	09/13/2017 18:27	WG1019056
Lead	ND		0.00200	1	09/13/2017 18:27	WG1019056
Selenium	ND		0.00200	1	09/13/2017 18:27	WG1019056
Thallium	ND		0.00200	1	09/13/2017 18:27	WG1019056



Method Blank (MB)

(MB) R3247682-1 09/06/17 16:47

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L933078-02 Original Sample (OS) • Duplicate (DUP)

(OS) L933078-02 09/06/17 16:47 • (DUP) R3247682-4 09/06/17 16:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	766	752	1	1.84		5

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

(LCS) R3247682-2 09/06/17 16:47 • (LCSD) R3247682-3 09/06/17 16:47

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8560	8570	97.3	97.4	85.0-115			0.117	5

⁷ Gl

⁸ Al

⁹ Sc



L933992-01 Original Sample (OS) • Duplicate (DUP)

(OS) L933992-01 09/06/17 10:09 • (DUP) WG1016764-3 09/06/17 10:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.23	6.99	1	0.000	T8	1

Sample Narrative:

OS: 7.23 18.6c
DUP: 6.99 at 17.5c

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

(LCS) WG1016764-1 09/06/17 10:09 • (LCSD) WG1016764-2 09/06/17 10:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
pH	10.0	10.0	10.0	100	100	98.4-102			0.000	1

Sample Narrative:

LCS: 10.04 at 18.4c
LCSD: 10.03 at 18.4c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3247647-1 09/07/17 11:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L933775-01 Original Sample (OS) • Duplicate (DUP)

(OS) L933775-01 09/07/17 13:06 • (DUP) R3247647-4 09/07/17 13:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	54.9	56.4	1	3		15
Fluoride	0.303	0.312	1	3		15

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

(LCS) R3247647-2 09/07/17 11:24 • (LCSD) R3247647-3 09/07/17 11:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	41.2	41.5	103	104	80-120			1	15
Fluoride	8.00	8.69	8.69	109	109	80-120			0	15

L933775-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L933775-01 09/07/17 13:06 • (MS) R3247647-5 09/07/17 13:46

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	54.9	95.2	81	1	80-120	
Fluoride	5.00	0.303	4.24	79	1	80-120	<u>J6</u>



Method Blank (MB)

(MB) R3248558-1 09/09/17 14:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L933669-01 Original Sample (OS) • Duplicate (DUP)

(OS) L933669-01 09/09/17 18:31 • (DUP) R3248558-4 09/09/17 18:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	23.0	23.2	1	1		15

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

(LCS) R3248558-2 09/09/17 14:52 • (LCSD) R3248558-3 09/09/17 15:08

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	50.0	51.9	51.5	104	103	80-120			1	15

L933669-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L933669-01 09/09/17 18:31 • (MS) R3248558-5 09/09/17 19:35 • (MSD) R3248558-6 09/09/17 19:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	23.0	77.0	76.5	108	107	1	80-120			1	15



Method Blank (MB)

(MB) R3247305-1 09/06/17 13:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3247305-2 09/06/17 13:24 • (LCSD) R3247305-3 09/06/17 13:27

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00355	0.00360	118	120	80-120			2	20

L933825-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L933825-01 09/06/17 13:29 • (MS) R3247305-4 09/06/17 13:31 • (MSD) R3247305-5 09/06/17 13:33

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00369	0.00348	123	116	1	75-125			6	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3248804-1 09/12/17 20:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3248804-2 09/12/17 20:13 • (LCSD) R3248804-3 09/12/17 20:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Boron	1.00	0.985	0.980	98	98	80-120			0	20
Lithium	1.00	0.950	0.948	95	95	80-120			0	20
Molybdenum	1.00	0.997	0.996	100	100	80-120			0	20

L934008-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L934008-01 09/12/17 20:18 • (MS) R3248804-5 09/12/17 20:23 • (MSD) R3248804-6 09/12/17 20:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1.00	ND	1.04	1.04	99	100	1	75-125			0	20
Lithium	1.00	ND	0.958	0.959	96	96	1	75-125			0	20
Molybdenum	1.00	ND	1.00	1.00	100	100	1	75-125			0	20



Method Blank (MB)

(MB) R3249181-1 09/13/17 17:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3249181-2 09/13/17 17:23 • (LCSD) R3249181-3 09/13/17 17:26

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0510	0.0494	102	99	80-120			3	20
Arsenic	0.0500	0.0464	0.0459	93	92	80-120			1	20
Barium	0.0500	0.0468	0.0457	94	91	80-120			3	20
Beryllium	0.0500	0.0457	0.0445	91	89	80-120			3	20
Cadmium	0.0500	0.0504	0.0512	101	102	80-120			2	20
Calcium	5.00	4.78	4.59	96	92	80-120			4	20
Chromium	0.0500	0.0489	0.0479	98	96	80-120			2	20
Cobalt	0.0500	0.0500	0.0491	100	98	80-120			2	20
Lead	0.0500	0.0473	0.0469	95	94	80-120			1	20
Selenium	0.0500	0.0524	0.0521	105	104	80-120			0	20
Thallium	0.0500	0.0457	0.0454	91	91	80-120			1	20

L934044-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L934044-06 09/13/17 17:30 • (MS) R3249181-5 09/13/17 17:37 • (MSD) R3249181-6 09/13/17 17:41

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Antimony	0.0500	U	0.0506	0.0505	101	101	1	75-125			0	20
Arsenic	0.0500	0.000444	0.0462	0.0468	91	93	1	75-125			1	20
Barium	0.0500	0.00195	0.0470	0.0484	90	93	1	75-125			3	20
Beryllium	0.0500	U	0.0442	0.0431	88	86	1	75-125			2	20
Cadmium	0.0500	U	0.0504	0.0493	101	99	1	75-125			2	20



L934044-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L934044-06 09/13/17 17:30 • (MS) R3249181-5 09/13/17 17:37 • (MSD) R3249181-6 09/13/17 17:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	15.3	20.0	19.9	94	93	1	75-125			0	20
Chromium	0.0500	0.00117	0.0489	0.0488	95	95	1	75-125			0	20
Cobalt	0.0500	U	0.0490	0.0489	98	98	1	75-125			0	20
Lead	0.0500	0.000287	0.0475	0.0475	94	94	1	75-125			0	20
Selenium	0.0500	U	0.0526	0.0525	105	105	1	75-125			0	20
Thallium	0.0500	U	0.0460	0.0464	92	93	1	75-125			1	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, 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.

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

Qualifier Description

J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

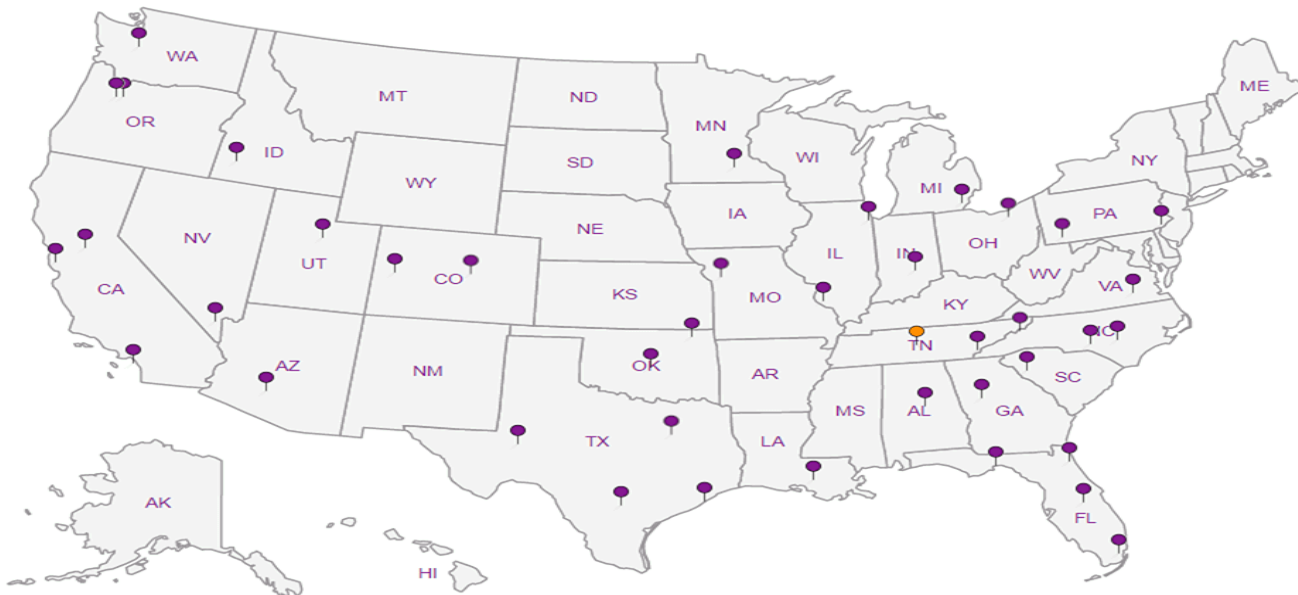
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

AECOM - Kansas City, MO

Sample Delivery Group: L938875
Samples Received: 09/23/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:












Jeff Carr

Technical Service Representative

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



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SAMPLE SUMMARY



MW-904 L938875-01 GW

Collected by
Collected date/time
Received date/time

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1024549	1	09/26/17 21:57	09/26/17 22:09	EG
Wet Chemistry by Method 9040C	WG1024224	1	09/25/17 10:16	09/25/17 10:16	TH
Wet Chemistry by Method 9056A	WG1025912	1	09/30/17 23:35	09/30/17 23:35	NJM
Wet Chemistry by Method 9056A	WG1026830	2	10/02/17 16:33	10/02/17 16:33	DR
Mercury by Method 7470A	WG1024422	1	10/01/17 18:49	10/03/17 11:02	ABL
Metals (ICP) by Method 6010B	WG1026034	1	09/30/17 14:48	10/01/17 22:04	ST
Metals (ICPMS) by Method 6020	WG1026102	1	09/30/17 05:17	09/30/17 19:41	LAT

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



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	652		10.0	1	09/26/2017 22:09	WG1024549

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.48	<u>T8</u>	1	09/25/2017 10:16	WG1024224

3 Ss

4 Cn

Sample Narrative:

L938875-01 WG1024224: 7.48 at 17.7c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	36.4		1.00	1	09/30/2017 23:35	WG1025912
Fluoride	0.412		0.100	1	09/30/2017 23:35	WG1025912
Sulfate	105	<u>J5</u>	10.0	2	10/02/2017 16:33	WG1026830

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/03/2017 11:02	WG1024422

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.19		0.200	1	10/01/2017 22:04	WG1026034
Lithium	0.0458		0.0150	1	10/01/2017 22:04	WG1026034
Molybdenum	0.00857		0.00500	1	10/01/2017 22:04	WG1026034

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	09/30/2017 19:41	WG1026102
Arsenic	ND		0.00200	1	09/30/2017 19:41	WG1026102
Barium	0.0974		0.00500	1	09/30/2017 19:41	WG1026102
Beryllium	ND		0.00200	1	09/30/2017 19:41	WG1026102
Cadmium	ND		0.00100	1	09/30/2017 19:41	WG1026102
Calcium	77.1		1.00	1	09/30/2017 19:41	WG1026102
Chromium	ND		0.00200	1	09/30/2017 19:41	WG1026102
Cobalt	ND		0.00200	1	09/30/2017 19:41	WG1026102
Lead	ND		0.00200	1	09/30/2017 19:41	WG1026102
Selenium	ND		0.00200	1	09/30/2017 19:41	WG1026102
Thallium	ND		0.00200	1	09/30/2017 19:41	WG1026102



Method Blank (MB)

(MB) R3253153-1 09/26/17 22:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L938613-01 Original Sample (OS) • Duplicate (DUP)

(OS) L938613-01 09/26/17 22:09 • (DUP) R3253153-4 09/26/17 22:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2860	2830	1	0.880		5

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

(LCS) R3253153-2 09/26/17 22:09 • (LCSD) R3253153-3 09/26/17 22:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8420	8320	95.7	94.5	85.0-115			1.19	5

7 Gl

8 Al

9 Sc



L938575-02 Original Sample (OS) • Duplicate (DUP)

(OS) L938575-02 09/25/17 10:16 • (DUP) WG1024224-3 09/25/17 10:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.69	7.69	1	0.000	T8	1

Sample Narrative:

OS: 7.69 at 13.1c
 DUP: 7.69 at 13.1c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L938875-01 Original Sample (OS) • Duplicate (DUP)

(OS) L938875-01 09/25/17 10:16 • (DUP) WG1024224-4 09/25/17 10:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.48	7.50	1	0.267	T8	1

Sample Narrative:

OS: 7.48 at 17.7c
 DUP: 7.50 at 17.7c

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) WG1024224-1 09/25/17 10:16 • (LCSD) WG1024224-2 09/25/17 10:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.90	9.91	99.0	99.1	98.4-102			0.101	1

Sample Narrative:

LCS: 9.90 at 19.9c
 LCSD: 9.91 at 19.9c



Method Blank (MB)

(MB) R3253961-1 09/30/17 10:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L938345-01 Original Sample (OS) • Duplicate (DUP)

(OS) L938345-01 09/30/17 16:52 • (DUP) R3253961-4 09/30/17 17:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	4.29	4.41	1	3		15
Fluoride	0.677	0.689	1	2		15

L938423-01 Original Sample (OS) • Duplicate (DUP)

(OS) L938423-01 09/30/17 17:49 • (DUP) R3253961-7 09/30/17 18:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	4.41	4.41	1	0		15
Fluoride	0.676	0.687	1	2		15

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

(LCS) R3253961-2 09/30/17 11:03 • (LCSD) R3253961-3 09/30/17 11:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	40.4	40.4	101	101	80-120			0	15
Fluoride	8.00	8.31	8.32	104	104	80-120			0	15

L938345-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L938345-01 09/30/17 16:52 • (MS) R3253961-5 09/30/17 17:20 • (MSD) R3253961-6 09/30/17 17:35

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	4.29	56.4	57.8	104	107	1	80-120			2	15
Fluoride	5.00	0.677	5.72	6.05	101	108	1	80-120			6	15



L938423-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L938423-01 09/30/17 17:49 • (MS) R3253961-8 09/30/17 18:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	4.41	56.9	105	1	80-120	
Fluoride	5.00	0.676	5.82	103	1	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3253974-1 10/02/17 10:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L939959-01 Original Sample (OS) • Duplicate (DUP)

(OS) L939959-01 10/02/17 12:17 • (DUP) R3253974-4 10/02/17 12:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	256	245	10	4		15

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

(LCS) R3253974-2 10/02/17 10:18 • (LCSD) R3253974-3 10/02/17 10:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	40.1	40.0	100	100	80-120			0	15

L938875-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L938875-01 10/02/17 16:33 • (MS) R3253974-5 10/02/17 16:48

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	25.0	105	200	189	2	80-120	<u>J5</u>



Method Blank (MB)

(MB) R3254303-1 10/03/17 09:53

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3254303-2 10/03/17 09:56 • (LCSD) R3254303-3 10/03/17 09:58

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00317	0.00318	106	106	80-120			0	20

L938808-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L938808-03 10/03/17 10:05 • (MS) R3254303-4 10/03/17 10:07 • (MSD) R3254303-5 10/03/17 10:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.000162	0.00349	0.00322	111	102	1	75-125			8	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3253800-1 10/02/17 00:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3253800-2 10/02/17 00:21 • (LCSD) R3253800-3 10/02/17 00:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.995	1.00	100	100	80-120			0	20
Lithium	1.00	0.997	0.990	100	99	80-120			1	20
Molybdenum	1.00	1.02	1.01	102	101	80-120			1	20

5 Sr

6 Qc

7 Gl

L938800-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L938800-14 10/02/17 00:27 • (MS) R3253800-5 10/02/17 00:33 • (MSD) R3253800-6 10/02/17 00:36

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	0.0409	1.06	1.03	102	99	1	75-125			3	20
Lithium	1.00	U	1.01	0.989	101	99	1	75-125			2	20
Molybdenum	1.00	U	1.04	1.02	104	102	1	75-125			1	20

8 Al

9 Sc



Method Blank (MB)

(MB) R3253828-1 09/30/17 17:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3253828-2 09/30/17 18:02 • (LCSD) R3253828-3 09/30/17 18:06

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0519	0.0526	104	105	80-120			1	20
Arsenic	0.0500	0.0510	0.0498	102	100	80-120			2	20
Barium	0.0500	0.0507	0.0512	101	102	80-120			1	20
Beryllium	0.0500	0.0482	0.0483	96	97	80-120			0	20
Cadmium	0.0500	0.0506	0.0511	101	102	80-120			1	20
Calcium	5.00	5.12	5.00	102	100	80-120			2	20
Chromium	0.0500	0.0516	0.0503	103	101	80-120			3	20
Cobalt	0.0500	0.0524	0.0518	105	104	80-120			1	20
Lead	0.0500	0.0502	0.0499	100	100	80-120			0	20
Selenium	0.0500	0.0493	0.0502	99	100	80-120			2	20
Thallium	0.0500	0.0500	0.0503	100	101	80-120			1	20

L938676-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L938676-01 09/30/17 18:09 • (MS) R3253828-5 09/30/17 18:16 • (MSD) R3253828-6 09/30/17 18:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Antimony	0.0500	ND	0.0534	0.0513	105	101	1	75-125			4	20
Arsenic	0.0500	0.00748	0.0576	0.0575	100	100	1	75-125			0	20
Barium	0.0500	0.198	0.246	0.253	96	109	1	75-125			3	20
Beryllium	0.0500	ND	0.0469	0.0477	94	95	1	75-125			2	20
Cadmium	0.0500	0.00696	0.0591	0.0582	104	103	1	75-125			2	20



[L938875-01](#)

L938676-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L938676-01 09/30/17 18:09 • (MS) R3253828-5 09/30/17 18:16 • (MSD) R3253828-6 09/30/17 18:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	79.2	85.2	83.0	119	76	1	75-125			3	20
Chromium	0.0500	0.00205	0.0517	0.0506	99	97	1	75-125			2	20
Cobalt	0.0500	0.00208	0.0520	0.0516	100	99	1	75-125			1	20
Lead	0.0500	0.00337	0.0533	0.0523	100	98	1	75-125			2	20
Selenium	0.0500	ND	0.0504	0.0514	101	103	1	75-125			2	20
Thallium	0.0500	ND	0.0495	0.0487	99	97	1	75-125			2	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, 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.

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

Qualifier Description

J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
T8	Sample(s) received past/too close to holding time expiration.



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

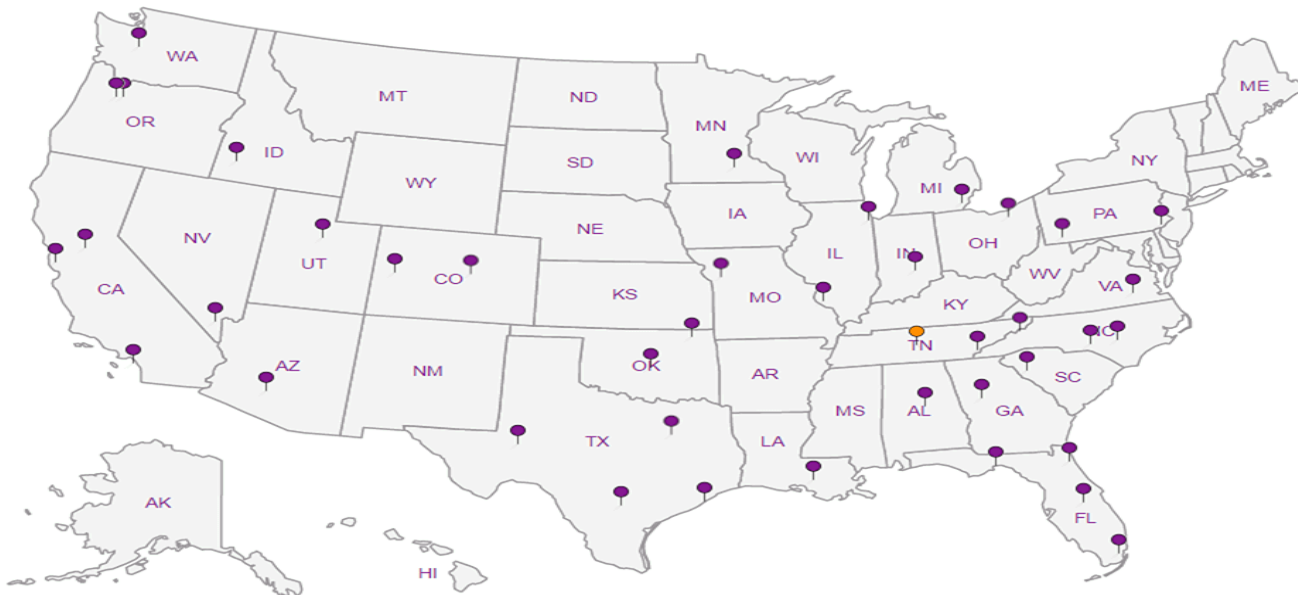
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Jared Morrison
December 16, 2022

ATTACHMENT 1-12
October 2017 Sampling Event Laboratory Report



Case Narrative

Lab No: 20170954

This report contains the analytical results for the 14 sample(s) received under chain of custody by ESC Lab Sciences on 10/9/2017 12:50:47 PM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L942866



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170954
 Date Reported : 11/27/17
 Date Received : 10/09/17
 Page Number : 2 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170954-01							
Client ID : MW-602							
Date Sampled : 10/5/2017 10:45:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.77 +/- 0.693	1.193	pCi/l				
Radium-226 SM 7500 Ra B M*	-0.244 +/- 0.253	0.499	pCi/l		10/31/17	11/03/17	RE
Radium-228 EPA 904*	1.77 +/- 0.440	0.694	pCi/l		11/03/17	11/16/17	JR
Lab ID : 20170954-02							
Client ID : MW-602 MS							
Date Sampled : 10/5/2017 10:45:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	116		% Rec		10/31/17	11/03/17	RE
Radium-228 EPA 904*	76.5		% Rec		11/03/17	11/16/17	JR
Lab ID : 20170954-03							
Client ID : MW-602 MSD							
Date Sampled : 10/5/2017 10:45:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	9.5		RPD		10/31/17	11/03/17	RE
Radium-228 EPA 904*	0.3		RPD		11/03/17	11/16/17	JR
Lab ID : 20170954-04							
Client ID : MW-14R							
Date Sampled : 10/5/2017 11:30:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.12 +/- 0.574	0.755	pCi/l				
Radium-226 SM 7500 Ra B M*	0.061 +/- 0.098	0.156	pCi/l		10/31/17	11/03/17	RE
Radium-228 EPA 904*	1.06 +/- 0.476	0.599	pCi/l		11/03/17	11/17/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170954
 Date Reported : 11/27/17
 Date Received : 10/09/17
 Page Number : 3 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
--------	--------	----	-------	------	-----------	---------------	---------

Lab ID : 20170954-05
Client ID : MW-804
Date Sampled : 10/5/2017 12:00:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.18 +/- 0.919	1.17	pCi/l			
Radium-226	SM 7500 Ra B M*	0.398 +/- 0.409	0.542	pCi/l	10/31/17	11/03/17	RE
Radium-228	EPA 904*	0.785 +/- 0.510	0.628	pCi/l	11/03/17	11/17/17	JR

Lab ID : 20170954-06
Client ID : MW-951
Date Sampled : 10/5/2017 12:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.521 +/- 0.668	0.869	pCi/l			
Radium-226	SM 7500 Ra B M*	0.521 +/- 0.268	0.256	pCi/l	10/31/17	11/03/17	RE
Radium-228	EPA 904*	-0.196 +/- 0.400	0.613	pCi/l	11/03/17	11/17/17	JR

Lab ID : 20170954-07
Client ID : MW-805
Date Sampled : 10/5/2017 12:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.123 +/- 0.652	0.875	pCi/l			
Radium-226	SM 7500 Ra B M*	0.123 +/- 0.158	0.224	pCi/l	10/31/17	11/03/17	RE
Radium-228	EPA 904*	-0.427 +/- 0.494	0.651	pCi/l	11/03/17	11/17/17	JR

Lab ID : 20170954-08
Client ID : MW-904
Date Sampled : 10/5/2017 1:50:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		0.807 +/- 0.645	0.86	pCi/l			
Radium-226	SM 7500 Ra B M*	0.146 +/- 0.191	0.273	pCi/l	10/31/17	11/03/17	RE
Radium-228	EPA 904*	0.661 +/- 0.454	0.587	pCi/l	11/03/17	11/17/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170954
 Date Reported : 11/27/17
 Date Received : 10/09/17
 Page Number : 4 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170954-09							
Client ID : MW-601							
Date Sampled : 10/6/2017 11:00:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.343 +/- 0.678	0.97	pCi/l				
Radium-226 SM 7500 Ra B M*	0.099 +/- 0.159	0.246	pCi/l		10/31/17	11/03/17	RE
Radium-228 EPA 904*	0.244 +/- 0.519	0.724	pCi/l		11/03/17	11/17/17	JR
Lab ID : 20170954-10							
Client ID : MW-11							
Date Sampled : 10/5/2017 10:15:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.356 +/- 0.608	0.93	pCi/l				
Radium-226 SM 7500 Ra B M*	0.027 +/- 0.116	0.230	pCi/l		10/31/17	11/06/17	RE
Radium-228 EPA 904*	0.329 +/- 0.492	0.700	pCi/l		11/03/17	11/17/17	JR
Lab ID : 20170954-11							
Client ID : MW-703							
Date Sampled : 10/5/2017 11:40:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	2.59 +/- 0.967	0.883	pCi/l				
Radium-226 SM 7500 Ra B M*	1.09 +/- 0.379	0.230	pCi/l		10/31/17	11/06/17	RE
Radium-228 EPA 904*	1.50 +/- 0.588	0.653	pCi/l		11/03/17	11/17/17	JR
Lab ID : 20170954-12							
Client ID : MW-13							
Date Sampled : 10/5/2017 2:05:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.141 +/- 0.744	1.07	pCi/l				
Radium-226 SM 7500 Ra B M*	0.141 +/- 0.170	0.233	pCi/l		10/31/17	11/06/17	RE
Radium-228 EPA 904*	-1.17 +/- 0.574	0.834	pCi/l		11/03/17	11/17/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170954
 Date Reported : 11/27/17
 Date Received : 10/09/17
 Page Number : 5 of 5

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170954-13							
Client ID : MW-7							
Date Sampled : 10/5/2017 3:55:00 PM							
Matrix : NPW							

Radiochemical Analyses

Combined Radium		2.09 +/- 0.949	1.05	pCi/l			
Radium-226	SM 7500 Ra B M*	1.09 +/- 0.371	0.184	pCi/l	10/31/17	11/06/17	RE
Radium-228	EPA 904*	1.00 +/- 0.578	0.870	pCi/l	11/03/17	11/17/17	JR

Lab ID : 20170954-14
Client ID : MW-6
Date Sampled : 10/5/2017 5:35:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.38 +/- 0.727	0.860	pCi/l			
Radium-226	SM 7500 Ra B M*	0.428 +/- 0.239	0.185	pCi/l	10/31/17	11/06/17	RE
Radium-228	EPA 904*	0.954 +/- 0.488	0.675	pCi/l	11/03/17	11/17/17	JR

QC Report

Parameter	Blank	LCS %REC	LCSD %REC RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC RPD	Batch ID
Radium-226	0.009	109.0		NC	0.516	116.0	105.0 9.5	R1293
Radium-228	0.394	89.5		NC	0.549	76.5	76.1 0.3	R4017

Lab Approval:

Ron Eidson
 Director of Radiochemistry

AECOM - Kansas City, MO
 2380 McGee Suite 200
 Kansas City, MO 64108

Billing Information:
 Dana Monroe - 1334927
 2380 McGee Suite 200
 Kansas City, MO 64108

Report to:
 Alla Skaskevych
 Email To: alla.skaskevych@aecom.com;
 robert.exceen@aecom.com; jay.martin@kcpl.com

Project:
 Description: La Cygne Generating Station

Client Project #
 60482842

Site/Facility ID #
 TASK 100

City/State
 Collected: URSKC-LACYGNE

P.O. #
 no PO number

Quote #

Matrix: NPW

Comp/Grab: Grab

Depth: N/A

Date: 10-5-17

Time: 10:45

Matrix * Depth Date Time

Sample ID	Matrix	Depth	Date	Time	No. of Cntrs
MW-602	NPW	N/A	10-5-17	10:45	2
MW-602 MS	NPW		10-5-17	10:45	2
MW-602 MSD	NPW		10-5-17	10:45	2
MW-14R	NPW		10-5-17	11:30	2
MW-804	NPW		10-5-17	12:00	2
MW-951	NPW		10-5-17	12:15	2
MW-805	NPW		10-5-17	12:40	2
MW-904	NPW		10-5-17	13:50	2
MW-601	NPW		10-6-17	11:00	2

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Matrix: S - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - Waste Water
 DW - Drinking Water
 JT - Other

Relinquished by: (Signature) *Jim Mueller*

Relinquished by: (Signature) *Jim Mueller*

Relinquished by: (Signature) *Jim Mueller*

Date: 10-6-17 **Time:** 13:00

Date: 10-6-17 **Time:** 17:00

Date: **Time:**

Samples returned via: UPS FedEx Courier

Tracking #

Received by: (Signature) *Jim Mueller*

Received by: (Signature) *Jim Mueller*

Received for lab by: (Signature) *Jim Mueller*

Chain of Custody Page ___ of ___

Analysis / Container / Preservative

Sample Receipt Checklist

COC Seal Present/Intact: Y N

COC Signed/Accurate: Y N

Bottles/Arrive Intact: Y N

Correct bottles used: Y N

Sufficient volume sent: Y N

VOA Zero Headpace: Y N

Preservation Correct/Checked: Y N

Temp: Ab °C **Bottles Received:** 28

Date: 10/5/17 **Time:** 13:50

Hold: **Condition:** NCF / OK

COPY

ORL-RA-226, RA-228 1L HDPE AGG HNO3

SAMPLE LOGIN

Date Received: 10/9/2017 12:50:4

Lab Number: 20170954

Due: 11/6/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170954-01 B	MW-602	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-01 A	MW-602	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170954-02 A	MW-602 MS	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-02 B	MW-602 MS	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170954-03 A	MW-602 MSD	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-03 B	MW-602 MSD	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170954-04 A	MW-14R	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-04 B	MW-14R	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170954-05 A	MW-804	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-05 B	MW-804	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170954-06 A	MW-951	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-06 B	MW-951	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						
20170954-07 B	MW-805	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-07 A	MW-805	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
	Radium-226		SM 7500 Ra B M*						
	Radium-228		EPA 904*						

20170954-08 B	MW-904	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-08 A	MW-904	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170954-09 A	MW-601	NPW	10/06/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-09 B	MW-601	NPW	10/06/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170954-10 A	MW-11	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-10 B	MW-11	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170954-11 A	MW-703	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-11 B	MW-703	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170954-12 A	MW-13	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-12 B	MW-13	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170954-13 A	MW-7	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-13 B	MW-7	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170954-14 B	MW-6	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170954-14 A	MW-6	NPW	10/05/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						

CONTAINER INSPECTION

Coolers 2 Custody Seals Broken 0 Temperature: ABC Ice Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken 0 Chain of Custody Record Labels in Tact Radiation Survey Complete YEA

Anomalies

Inspected By: [Signature] DATE 10/21/17
QA or Designee Review: [Signature] DATE 10/09/17
Sample Custodian Review: [Signature] DATE 10/17/17

Project Notes:

AECOM - Kansas City, MO

Sample Delivery Group: L941904
Samples Received: 10/06/2017
Project Number: 60482842
Description: La Cygne Generating Station

Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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SAMPLE SUMMARY



MW-15 L941904-01 GW

			Collected by JM/KG	Collected date/time 10/03/17 14:30	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1029248	1	10/10/17 16:08	10/10/17 17:01	BS
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 08:45	10/13/17 08:45	KCF
Wet Chemistry by Method 9056A	WG1030420	5	10/13/17 13:36	10/13/17 13:36	KCF
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 15:52	EL
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 00:37	CCE
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:20	JPD

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

MW-903 L941904-02 GW

			Collected by JM/KG	Collected date/time 10/03/17 15:00	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1029248	1	10/10/17 16:08	10/10/17 17:01	BS
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 09:00	10/13/17 09:00	KCF
Wet Chemistry by Method 9056A	WG1030420	20	10/13/17 13:51	10/13/17 13:51	KCF
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 15:55	EL
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 00:40	CCE
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:24	JPD

MW-902 L941904-03 GW

			Collected by JM/KG	Collected date/time 10/03/17 15:40	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1029248	1	10/10/17 16:08	10/10/17 17:01	BS
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 09:15	10/13/17 09:15	KCF
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 15:57	EL
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 00:50	CCE
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:35	JPD

MW-901 L941904-04 GW

			Collected by JM/KG	Collected date/time 10/03/17 16:15	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1029248	1	10/10/17 16:08	10/10/17 17:01	BS
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 09:30	10/13/17 09:30	KCF
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 15:59	EL
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 00:53	CCE
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:38	JPD

MW-905 L941904-05 GW

			Collected by JM/KG	Collected date/time 10/03/17 16:40	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1029248	1	10/10/17 16:08	10/10/17 17:01	BS
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 09:45	10/13/17 09:45	KCF
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 16:08	EL
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 00:57	CCE
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:42	JPD

SAMPLE SUMMARY



MW-801 L941904-06 GW

						Collected by JM/KG	Collected date/time 10/04/17 13:25	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1029931	1	10/11/17 15:34	10/11/17 16:37	BS			
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB			
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 10:00	10/13/17 10:00	KCF			
Wet Chemistry by Method 9056A	WG1030420	5	10/13/17 14:06	10/13/17 14:06	KCF			
Mercury by Method 7470A	WG1031772	1	10/16/17 10:26	10/16/17 14:51	ABL			
Metals (ICP) by Method 6010B	WG1031427	1	10/16/17 10:09	10/16/17 12:39	CCE			
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:45	JPD			

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-802 L941904-07 GW

						Collected by JM/KG	Collected date/time 10/04/17 14:15	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1029931	1	10/11/17 15:34	10/11/17 16:37	BS			
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB			
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 10:15	10/13/17 10:15	KCF			
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 16:10	EL			
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 01:00	CCE			
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:49	JPD			

6
Qc

7
Gl

8
Al

9
Sc

MW-803 L941904-08 GW

						Collected by JM/KG	Collected date/time 10/04/17 14:45	Received date/time 10/06/17 10:13
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst			
Gravimetric Analysis by Method 2540 C-2011	WG1029931	1	10/11/17 15:34	10/11/17 16:37	BS			
Wet Chemistry by Method 9040C	WG1028903	1	10/07/17 12:46	10/07/17 12:46	GB			
Wet Chemistry by Method 9056A	WG1030420	1	10/13/17 10:29	10/13/17 10:29	KCF			
Mercury by Method 7470A	WG1030069	1	10/11/17 13:58	10/12/17 16:13	EL			
Metals (ICP) by Method 6010B	WG1029577	1	10/12/17 14:04	10/13/17 01:03	CCE			
Metals (ICPMS) by Method 6020	WG1029564	1	10/13/17 15:57	10/19/17 15:52	JPD			



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	815		10.0	1	10/10/2017 17:01	WG1029248

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.22	<u>T8</u>	1	10/07/2017 12:46	WG1028903

3 Ss

4 Cn

Sample Narrative:

L941904-01 WG1028903: 7.22 at 20.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.5		1.00	1	10/13/2017 08:45	WG1030420
Fluoride	0.244		0.100	1	10/13/2017 08:45	WG1030420
Sulfate	222		25.0	5	10/13/2017 13:36	WG1030420

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:52	WG1030069

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.225		0.200	1	10/13/2017 00:37	WG1029577
Lithium	0.0209		0.0150	1	10/13/2017 00:37	WG1029577
Molybdenum	ND		0.00500	1	10/13/2017 00:37	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:20	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:20	WG1029564
Barium	0.0541		0.00500	1	10/19/2017 15:20	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:20	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:20	WG1029564
Calcium	108		1.00	1	10/19/2017 15:20	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:20	WG1029564
Cobalt	ND		0.00200	1	10/19/2017 15:20	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:20	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:20	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:20	WG1029564



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2070		10.0	1	10/10/2017 17:01	WG1029248

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.90	<u>T8</u>	1	10/07/2017 12:46	WG1028903

3 Ss

4 Cn

Sample Narrative:

L941904-02 WG1028903: 6.90 at 21.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.3		1.00	1	10/13/2017 09:00	WG1030420
Fluoride	ND		0.100	1	10/13/2017 09:00	WG1030420
Sulfate	1010		100	20	10/13/2017 13:51	WG1030420

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:55	WG1030069

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.416		0.200	1	10/13/2017 00:40	WG1029577
Lithium	0.0506		0.0150	1	10/13/2017 00:40	WG1029577
Molybdenum	ND		0.00500	1	10/13/2017 00:40	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:24	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:24	WG1029564
Barium	0.0146		0.00500	1	10/19/2017 15:24	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:24	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:24	WG1029564
Calcium	344		1.00	1	10/19/2017 15:24	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:24	WG1029564
Cobalt	0.00241		0.00200	1	10/19/2017 15:24	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:24	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:24	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:24	WG1029564



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	541		10.0	1	10/10/2017 17:01	WG1029248

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.29	<u>T8</u>	1	10/07/2017 12:46	WG1028903

3 Ss

4 Cn

Sample Narrative:

L941904-03 WG1028903: 7.29 at 20.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	34.6		1.00	1	10/13/2017 09:15	WG1030420
Fluoride	0.466		0.100	1	10/13/2017 09:15	WG1030420
Sulfate	36.5		5.00	1	10/13/2017 09:15	WG1030420

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:57	WG1030069

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.26		0.200	1	10/13/2017 00:50	WG1029577
Lithium	0.0389		0.0150	1	10/13/2017 00:50	WG1029577
Molybdenum	ND		0.00500	1	10/13/2017 00:50	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:35	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:35	WG1029564
Barium	0.114		0.00500	1	10/19/2017 15:35	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:35	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:35	WG1029564
Calcium	69.2		1.00	1	10/19/2017 15:35	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:35	WG1029564
Cobalt	ND		0.00200	1	10/19/2017 15:35	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:35	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:35	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:35	WG1029564



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	544		10.0	1	10/10/2017 17:01	WG1029248

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.32	<u>T8</u>	1	10/07/2017 12:46	WG1028903

Sample Narrative:

L941904-04 WG1028903: 7.32 at 20.7c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	22.9		1.00	1	10/13/2017 09:30	WG1030420
Fluoride	0.483		0.100	1	10/13/2017 09:30	WG1030420
Sulfate	14.9		5.00	1	10/13/2017 09:30	WG1030420

Mercury by Method 7470A

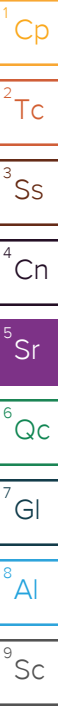
Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	10/12/2017 15:59	WG1030069

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Boron	1.19		0.200	1	10/13/2017 00:53	WG1029577
Lithium	0.0519		0.0150	1	10/13/2017 00:53	WG1029577
Molybdenum	ND		0.00500	1	10/13/2017 00:53	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.00200	1	10/19/2017 15:38	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:38	WG1029564
Barium	0.192		0.00500	1	10/19/2017 15:38	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:38	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:38	WG1029564
Calcium	58.2		1.00	1	10/19/2017 15:38	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:38	WG1029564
Cobalt	ND		0.00200	1	10/19/2017 15:38	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:38	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:38	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:38	WG1029564





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	662		10.0	1	10/10/2017 17:01	WG1029248

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.41	<u>T8</u>	1	10/07/2017 12:46	WG1028903

3 Ss

4 Cn

Sample Narrative:

L941904-05 WG1028903: 7.41 at 21.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	53.6		1.00	1	10/13/2017 09:45	WG1030420
Fluoride	0.569		0.100	1	10/13/2017 09:45	WG1030420
Sulfate	26.6		5.00	1	10/13/2017 09:45	WG1030420

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 16:08	WG1030069

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.89		0.200	1	10/13/2017 00:57	WG1029577
Lithium	0.0715		0.0150	1	10/13/2017 00:57	WG1029577
Molybdenum	ND		0.00500	1	10/13/2017 00:57	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:42	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:42	WG1029564
Barium	0.126		0.00500	1	10/19/2017 15:42	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:42	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:42	WG1029564
Calcium	52.3		1.00	1	10/19/2017 15:42	WG1029564
Chromium	0.00428		0.00200	1	10/19/2017 15:42	WG1029564
Cobalt	0.00257		0.00200	1	10/19/2017 15:42	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:42	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:42	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:42	WG1029564



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	916		10.0	1	10/11/2017 16:37	WG1029931

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.65	<u>T8</u>	1	10/07/2017 12:46	WG1028903

Sample Narrative:

L941904-06 WG1028903: 7.65 at 20.8c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	118		5.00	5	10/13/2017 14:06	WG1030420
Fluoride	1.16		0.100	1	10/13/2017 10:00	WG1030420
Sulfate	ND		5.00	1	10/13/2017 10:00	WG1030420

Mercury by Method 7470A

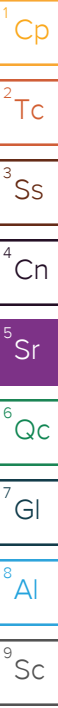
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/16/2017 14:51	WG1031772

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.30		0.200	1	10/16/2017 12:39	WG1031427
Lithium	0.0981		0.0150	1	10/16/2017 12:39	WG1031427
Molybdenum	ND		0.00500	1	10/16/2017 12:39	WG1031427

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:45	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:45	WG1029564
Barium	0.588		0.00500	1	10/19/2017 15:45	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:45	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:45	WG1029564
Calcium	31.4		1.00	1	10/19/2017 15:45	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:45	WG1029564
Cobalt	ND		0.00200	1	10/19/2017 15:45	WG1029564
Lead	0.00708		0.00200	1	10/19/2017 15:45	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:45	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:45	WG1029564





Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	684		10.0	1	10/11/2017 16:37	WG1029931

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	<u>T8</u>	1	10/07/2017 12:46	WG1028903

3 Ss

4 Cn

Sample Narrative:

L941904-07 WG1028903: 7.68 at 19.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	36.4		1.00	1	10/13/2017 10:15	WG1030420
Fluoride	1.07		0.100	1	10/13/2017 10:15	WG1030420
Sulfate	ND		5.00	1	10/13/2017 10:15	WG1030420

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 16:10	WG1030069

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.48		0.200	1	10/13/2017 01:00	WG1029577
Lithium	0.0890		0.0150	1	10/13/2017 01:00	WG1029577
Molybdenum	ND		0.00500	1	10/13/2017 01:00	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:49	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:49	WG1029564
Barium	0.883		0.00500	1	10/19/2017 15:49	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:49	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:49	WG1029564
Calcium	34.1		1.00	1	10/19/2017 15:49	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:49	WG1029564
Cobalt	ND		0.00200	1	10/19/2017 15:49	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:49	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:49	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:49	WG1029564



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	625		10.0	1	10/11/2017 16:37	WG1029931

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.64	<u>T8</u>	1	10/07/2017 12:46	WG1028903

3 Ss

4 Cn

Sample Narrative:

L941904-08 WG1028903: 7.64 at 19.9c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	49.3		1.00	1	10/13/2017 10:29	WG1030420
Fluoride	0.594		0.100	1	10/13/2017 10:29	WG1030420
Sulfate	23.2		5.00	1	10/13/2017 10:29	WG1030420

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 16:13	WG1030069

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.07		0.200	1	10/13/2017 01:03	WG1029577
Lithium	0.0909		0.0150	1	10/13/2017 01:03	WG1029577
Molybdenum	0.00549		0.00500	1	10/13/2017 01:03	WG1029577

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/19/2017 15:52	WG1029564
Arsenic	ND		0.00200	1	10/19/2017 15:52	WG1029564
Barium	0.240		0.00500	1	10/19/2017 15:52	WG1029564
Beryllium	ND		0.00200	1	10/19/2017 15:52	WG1029564
Cadmium	ND		0.00100	1	10/19/2017 15:52	WG1029564
Calcium	46.1		1.00	1	10/19/2017 15:52	WG1029564
Chromium	ND		0.00200	1	10/19/2017 15:52	WG1029564
Cobalt	ND		0.00200	1	10/19/2017 15:52	WG1029564
Lead	ND		0.00200	1	10/19/2017 15:52	WG1029564
Selenium	ND		0.00200	1	10/19/2017 15:52	WG1029564
Thallium	ND		0.00200	1	10/19/2017 15:52	WG1029564



Method Blank (MB)

(MB) R3256942-1 10/10/17 17:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L941644-08 Original Sample (OS) • Duplicate (DUP)

(OS) L941644-08 10/10/17 17:01 • (DUP) R3256942-4 10/10/17 17:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	7300	6960	1	4.77		5

L941895-07 Original Sample (OS) • Duplicate (DUP)

(OS) L941895-07 10/10/17 17:01 • (DUP) R3256942-5 10/10/17 17:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	7690	7340	1	4.66		5

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

(LCS) R3256942-2 10/10/17 17:01 • (LCSD) R3256942-3 10/10/17 17:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8470	8540	96.3	97.0	85.0-115			0.823	5



Method Blank (MB)

(MB) R3257326-1 10/11/17 16:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

4 Cn

L941895-08 Original Sample (OS) • Duplicate (DUP)

(OS) L941895-08 10/11/17 16:37 • (DUP) R3257326-4 10/11/17 16:37

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1240	1250	1	1.20		5

5 Sr

6 Qc

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

(LCS) R3257326-2 10/11/17 16:37 • (LCSD) R3257326-3 10/11/17 16:37

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8630	8640	98.1	98.2	85.0-115			0.116	5

7 Gl

8 Al

9 Sc



L941514-01 Original Sample (OS) • Duplicate (DUP)

(OS) L941514-01 10/07/17 12:46 • (DUP) WG1028903-3 10/07/17 12:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.80	6.80	1	0.000	T8	1

Sample Narrative:

OS: 6.80 at 16.1c
 DUP: 6.80 at 16.4c

L941919-04 Original Sample (OS) • Duplicate (DUP)

(OS) L941919-04 10/07/17 12:46 • (DUP) WG1028903-4 10/07/17 12:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.15	7.15	1	0.000	T8	1

Sample Narrative:

OS: 7.15 at 20.2c
 DUP: 7.15 at 20.4c

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

(LCS) WG1028903-1 10/07/17 12:46 • (LCSD) WG1028903-2 10/07/17 12:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	10.0	10.0	100	100	98.3-102			0.000	1

Sample Narrative:

LCS: 10.00 at 19.9c
 LCSD: 10.00 at 19.8c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3257312-1 10/13/17 02:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L941717-01 Original Sample (OS) • Duplicate (DUP)

(OS) L941717-01 10/13/17 04:02 • (DUP) R3257312-4 10/13/17 04:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	3.38	2.80	1	19	P1	15
Fluoride	0.0388	0.0458	1	17	J P1	15
Sulfate	4.56	4.62	1	1	J	15

L941895-07 Original Sample (OS) • Duplicate (DUP)

(OS) L941895-07 10/13/17 07:45 • (DUP) R3257312-6 10/13/17 08:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Fluoride	0.391	0.407	1	4		15

L941895-07 Original Sample (OS) • Duplicate (DUP)

(OS) L941895-07 10/13/17 13:06 • (DUP) R3257312-9 10/13/17 13:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	214	210	100	2		15
Sulfate	4800	4670	100	3		15

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

(LCS) R3257312-2 10/13/17 03:03 • (LCSD) R3257312-3 10/13/17 03:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.4	39.3	98	98	80-120			0	15
Fluoride	8.00	7.94	7.94	99	99	80-120			0	15
Sulfate	40.0	39.6	39.5	99	99	80-120			0	15



L941717-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L941717-02 10/13/17 04:32 • (MS) R3257312-5 10/13/17 04:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	5.06	53.8	97	1	80-120	
Fluoride	5.00	0.0339	5.00	99	1	80-120	
Sulfate	50.0	5.34	54.2	98	1	80-120	

L941904-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L941904-08 10/13/17 10:29 • (MS) R3257312-7 10/13/17 10:44 • (MSD) R3257312-8 10/13/17 10:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50.0	49.3	97.6	94.9	97	91	1	80-120			3	15
Fluoride	5.00	0.594	5.73	5.40	103	96	1	80-120			6	15
Sulfate	50.0	23.2	73.0	69.6	100	93	1	80-120			5	15

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



Method Blank (MB)

(MB) R3257018-1 10/12/17 15:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000049	0.000200

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

(LCS) R3257018-2 10/12/17 15:16 • (LCSD) R3257018-3 10/12/17 15:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00294	0.00289	98	96	80-120			2	20

L941895-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L941895-10 10/12/17 15:20 • (MS) R3257018-4 10/12/17 15:23 • (MSD) R3257018-5 10/12/17 15:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00312	0.00299	104	100	1	75-125			4	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3257813-1 10/16/17 14:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

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

(LCS) R3257813-2 10/16/17 14:30 • (LCSD) R3257813-3 10/16/17 14:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00293	0.00286	98	95	80-120			2	20

L943292-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L943292-01 10/16/17 14:40 • (MS) R3257813-4 10/16/17 14:42 • (MSD) R3257813-5 10/16/17 14:44

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00333	0.00326	111	109	1	75-125			2	20

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3257061-1 10/12/17 23:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

(LCS) R3257061-2 10/12/17 23:35 • (LCSD) R3257061-3 10/12/17 23:38

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.976	0.993	98	99	80-120			2	20
Lithium	1.00	0.954	0.969	95	97	80-120			2	20
Molybdenum	1.00	1.02	1.02	102	102	80-120			0	20

L941846-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L941846-03 10/12/17 23:41 • (MS) R3257061-5 10/12/17 23:48 • (MSD) R3257061-6 10/12/17 23:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	ND	1.13	1.11	99	98	1	75-125			1	20
Lithium	1.00	0.0371	1.02	1.01	98	97	1	75-125			1	20
Molybdenum	1.00	ND	1.03	1.03	103	103	1	75-125			0	20



Method Blank (MB)

(MB) R3257761-1 10/16/17 12:16

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3257761-2 10/16/17 12:19 • (LCSD) R3257761-3 10/16/17 12:21

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.991	1.02	99	102	80-120			3	20
Lithium	1.00	1.00	1.00	100	100	80-120			0	20
Molybdenum	1.00	1.01	1.02	101	102	80-120			0	20

L942352-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L942352-01 10/16/17 12:24 • (MS) R3257761-5 10/16/17 12:29 • (MSD) R3257761-6 10/16/17 12:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	ND	1.06	1.08	102	104	1	75-125			3	20
Lithium	1.00	ND	0.989	1.01	99	101	1	75-125			2	20
Molybdenum	1.00	ND	1.01	1.02	101	102	1	75-125			2	20



Method Blank (MB)

(MB) R3258923-1 10/19/17 14:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	U		0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3258923-2 10/19/17 14:59 • (LCSD) R3258923-3 10/19/17 15:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0499	0.0498	100	100	80-120			0	20
Arsenic	0.0500	0.0492	0.0488	98	98	80-120			1	20
Barium	0.0500	0.0466	0.0451	93	90	80-120			3	20
Beryllium	0.0500	0.0449	0.0446	90	89	80-120			1	20
Cadmium	0.0500	0.0515	0.0518	103	104	80-120			1	20
Calcium	5.00	4.89	4.90	98	98	80-120			0	20
Chromium	0.0500	0.0498	0.0499	100	100	80-120			0	20
Cobalt	0.0500	0.0511	0.0512	102	102	80-120			0	20
Lead	0.0500	0.0496	0.0497	99	99	80-120			0	20
Selenium	0.0500	0.0496	0.0505	99	101	80-120			2	20
Thallium	0.0500	0.0485	0.0483	97	97	80-120			0	20

L941955-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L941955-02 10/19/17 15:06 • (MS) R3258923-5 10/19/17 15:13 • (MSD) R3258923-6 10/19/17 15:17

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Antimony	0.0500	U	0.0514	0.0512	103	102	1	75-125			0	20
Arsenic	0.0500	0.00165	0.0506	0.0494	98	96	1	75-125			2	20
Barium	0.0500	0.0915	0.137	0.137	92	92	1	75-125			0	20
Beryllium	0.0500	U	0.0445	0.0453	89	91	1	75-125			2	20
Cadmium	0.0500	U	0.0512	0.0516	102	103	1	75-125			1	20



L941955-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L941955-02 10/19/17 15:06 • (MS) R3258923-5 10/19/17 15:13 • (MSD) R3258923-6 10/19/17 15:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5.00	150	154	155	83	102	1	75-125			1	20
Chromium	0.0500	0.00518	0.0539	0.0534	97	97	1	75-125			1	20
Cobalt	0.0500	0.000813	0.0491	0.0490	97	96	1	75-125			0	20
Lead	0.0500	0.00147	0.0514	0.0519	100	101	1	75-125			1	20
Selenium	0.0500	0.00142	0.0525	0.0509	102	99	1	75-125			3	20
Thallium	0.0500	U	0.0499	0.0494	100	99	1	75-125			1	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, 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.

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

Qualifier Description

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.
T8	Sample(s) received past/too close to holding time expiration.



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

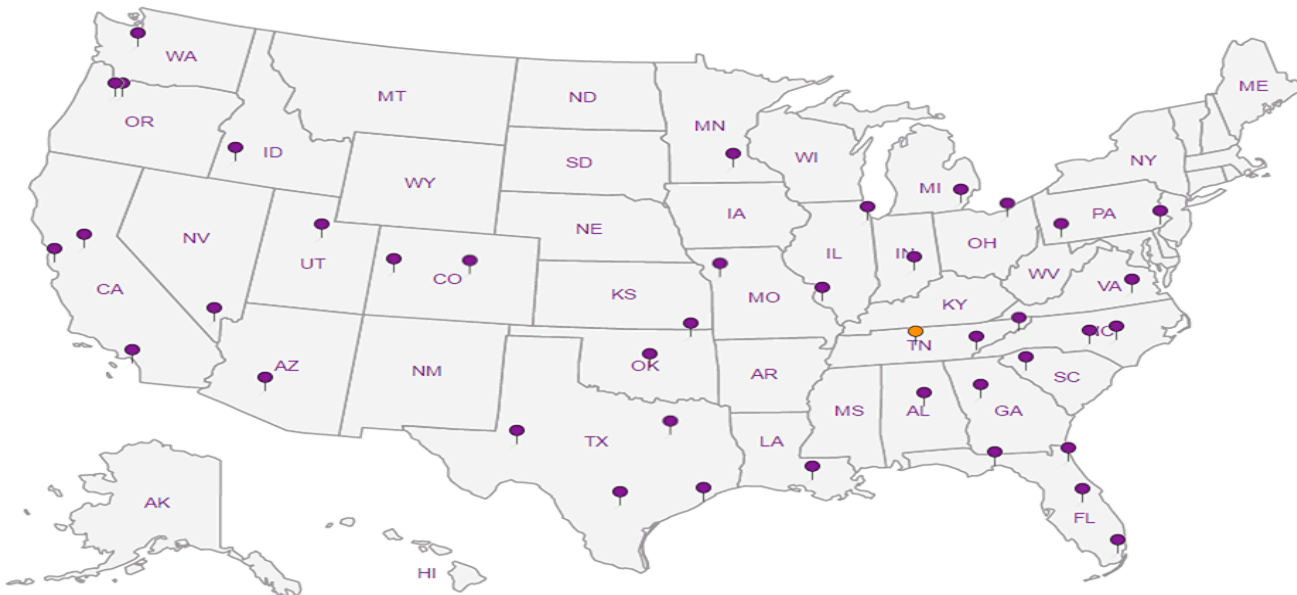
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Alla Skaskevych

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

Project
Description: La Cygne Generating Station

City/State
Collected:

Phone: 913-344-1000
Fax: 913-344-1011

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Muckler +
Kelly Glenz

Site/Facility ID #

P.O. #
no PO number

Collected by (signature):
Jim Muckler
Kelly Glenz

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

Immediately
Packed on Ice N ___ Y **X**

No. of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-15	Grab	GW	N/A	10-3-17	14:30	3
MW-903	↓	GW	↓	10-3-17	15:00	3
MW-902		GW		10-3-17	15:40	3
MW-901		GW		10-3-17	16:15	3
MW-905		GW		10-3-17	16:40	3
MW-801		GW		10-4-17	13:25	3
MW-802		GW		10-4-17	14:15	3
MW-803		GW		10-4-17	14:45	3
		GW				

Anions - Cl, F, SO4 250mlHDPE-NoPres

TDS, pH 250mlHDPE-NoPres

Total Metals 250mlHDPE-HNO3

Analysis / Container / Preservative

Pres
Chk

2

Chain of Custody Page 1 of 1



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



L# 941904
D118

Acctnum: URSKC
Template: T114093
Prelogin: P611823
TSR: 206 - Jeff Carr
PB:

Shipped Via:

Remarks	Sample # (lab only)
	-01
	-02
	-03
	-04
	-05
	-06
	-07
	-08

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

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

Please indicate sample ID for the MS/MSD.

ESCKC

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking #

Sample Receipt Checklist	
COC Seal Present/Intact:	NP <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero HeadSpace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature)
Jim Muckler

Date: 10-4-17
Time: 16:45

Received by: (Signature)
[Signature]

Trip Blank Received: Yes/No
HCL/MeOH
TBR

Relinquished by: (Signature)
[Signature]

Date: 10/4/17
Time: 1800

Received by: (Signature)
[Signature]

Temp: 0.9 °C
Bottles Received: 24

If preservation required by Login: Date/Time

Relinquished by: (Signature)
[Signature]

Date: 10/5/17
Time: 1300

Received for lab by: (Signature)
[Signature]

Date: 10/8/17
Time: 1013

Hold: Condition: NCF OK

AECOM - Kansas City, MO

Sample Delivery Group: L942140
Samples Received: 10/07/2017
Project Number: 60482842
Description: La Cygne Generating Station

Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



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SAMPLE SUMMARY



MW-602 L942140-01 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/14/17 22:09	10/14/17 22:09	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:07	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 14:55	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 16:19	JPD

Collected by JM/KG Collected date/time 10/05/17 10:45 Received date/time 10/07/17 08:45

1
Cp

2
Tc

3
Ss

4
Cn

MW-14R L942140-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/14/17 22:49	10/14/17 22:49	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:44	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 15:40	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 16:53	JPD

Collected by JM/KG Collected date/time 10/05/17 11:30 Received date/time 10/07/17 08:45

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-804 L942140-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/14/17 23:10	10/14/17 23:10	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:46	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 15:44	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 16:56	JPD

Collected by JM/KG Collected date/time 10/05/17 12:00 Received date/time 10/07/17 08:45

MW-951 L942140-04 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/14/17 23:50	10/14/17 23:50	KCF
Wet Chemistry by Method 9056A	WG1031219	20	10/15/17 00:00	10/15/17 00:00	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:48	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 15:47	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:00	JPD

Collected by JM/KG Collected date/time 10/05/17 12:15 Received date/time 10/07/17 08:45

MW-805 L942140-05 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/15/17 00:11	10/15/17 00:11	KCF
Wet Chemistry by Method 9056A	WG1031219	20	10/15/17 00:21	10/15/17 00:21	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:51	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 15:50	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:03	JPD

Collected by JM/KG Collected date/time 10/05/17 12:40 Received date/time 10/07/17 08:45

SAMPLE SUMMARY



MW-904 L942140-06 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/15/17 00:31	10/15/17 00:31	KCF
Wet Chemistry by Method 9056A	WG1031979	5	10/16/17 15:13	10/16/17 15:13	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:53	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 15:53	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:07	JPD

Collected by JM/KG Collected date/time 10/05/17 13:50 Received date/time 10/07/17 08:45

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

MW-601 L942140-07 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030570	1	10/13/17 16:58	10/13/17 17:25	BS
Wet Chemistry by Method 9040C	WG1029240	1	10/09/17 14:57	10/09/17 14:57	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/15/17 00:41	10/15/17 00:41	KCF
Wet Chemistry by Method 9056A	WG1031219	5	10/15/17 00:51	10/15/17 00:51	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:55	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 16:03	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:10	JPD

Collected by JM/KG Collected date/time 10/06/17 11:00 Received date/time 10/07/17 08:45

MW-11 L942140-08 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029765	1	10/10/17 15:44	10/10/17 15:44	ER
Wet Chemistry by Method 9056A	WG1031219	1	10/15/17 01:01	10/15/17 01:01	KCF
Wet Chemistry by Method 9056A	WG1031219	5	10/15/17 01:12	10/15/17 01:12	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 14:57	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 16:07	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:14	JPD

Collected by JM/KG Collected date/time 10/05/17 10:15 Received date/time 10/07/17 08:45

MW-703 L942140-09 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029765	1	10/10/17 15:44	10/10/17 15:44	ER
Wet Chemistry by Method 9056A	WG1031207	1	10/13/17 16:00	10/13/17 16:00	KCF
Wet Chemistry by Method 9056A	WG1031671	2	10/16/17 14:20	10/16/17 14:20	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 15:00	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 16:10	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:24	JPD

Collected by JM/KG Collected date/time 10/05/17 11:40 Received date/time 10/07/17 08:45

MW-13 L942140-10 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029765	1	10/10/17 15:44	10/10/17 15:44	ER
Wet Chemistry by Method 9056A	WG1031207	1	10/13/17 16:59	10/13/17 16:59	KCF
Wet Chemistry by Method 9056A	WG1031207	20	10/13/17 17:14	10/13/17 17:14	KCF

Collected by JM/KG Collected date/time 10/05/17 14:05 Received date/time 10/07/17 08:45

SAMPLE SUMMARY



MW-13 L942140-10 GW

Collected by JM/KG
Collected date/time 10/05/17 14:05
Received date/time 10/07/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 15:02	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 16:13	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:28	JPD

1
Cp

2
Tc

3
Ss

4
Cn

MW-7 L942140-11 GW

Collected by JM/KG
Collected date/time 10/05/17 15:55
Received date/time 10/07/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029765	1	10/10/17 15:44	10/10/17 15:44	ER
Wet Chemistry by Method 9056A	WG1031207	1	10/13/17 17:29	10/13/17 17:29	KCF
Wet Chemistry by Method 9056A	WG1031671	2	10/16/17 14:33	10/16/17 14:33	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 15:04	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 16:17	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:31	JPD

5
Sr

6
Qc

7
Gl

8
Al

MW-6 L942140-12 GW

Collected by JM/KG
Collected date/time 10/05/17 17:35
Received date/time 10/07/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1030088	1	10/12/17 10:28	10/12/17 11:10	BS
Wet Chemistry by Method 9040C	WG1029765	1	10/10/17 15:44	10/10/17 15:44	ER
Wet Chemistry by Method 9056A	WG1031207	1	10/13/17 18:44	10/13/17 18:44	KCF
Wet Chemistry by Method 9056A	WG1031207	5	10/13/17 18:59	10/13/17 18:59	KCF
Mercury by Method 7470A	WG1030074	1	10/11/17 13:56	10/12/17 15:11	EL
Metals (ICP) by Method 6010B	WG1031430	1	10/16/17 08:29	10/16/17 16:20	CCE
Metals (ICPMS) by Method 6020	WG1031502	1	10/16/17 12:51	10/20/17 17:35	JPD

9
Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	607		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.62	<u>T8</u>	1	10/09/2017 14:57	WG1029240

3 Ss

4 Cn

Sample Narrative:

L942140-01 WG1029240: 7.62 at 18.6c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.9		1.00	1	10/14/2017 22:09	WG1031219
Fluoride	0.972	<u>J3</u>	0.100	1	10/14/2017 22:09	WG1031219
Sulfate	26.9		5.00	1	10/14/2017 22:09	WG1031219

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:07	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	2.31		0.200	1	10/16/2017 14:55	WG1031430
Lithium	0.0612		0.0150	1	10/16/2017 14:55	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 14:55	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 16:19	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 16:19	WG1031502
Barium	0.101		0.00500	1	10/20/2017 16:19	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 16:19	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 16:19	WG1031502
Calcium	25.3		1.00	1	10/20/2017 16:19	WG1031502
Chromium	ND		0.00200	1	10/20/2017 16:19	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 16:19	WG1031502
Lead	ND		0.00200	1	10/20/2017 16:19	WG1031502
Selenium	ND		0.00200	1	10/20/2017 16:19	WG1031502
Thallium	ND		0.00200	1	10/20/2017 16:19	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	529		10.0	1	10/12/2017 11:10	WG1030088

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.26	<u>T8</u>	1	10/09/2017 14:57	WG1029240

Sample Narrative:

L942140-02 WG1029240: 7.26 at 18.8c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	4.12		1.00	1	10/14/2017 22:49	WG1031219
Fluoride	0.169		0.100	1	10/14/2017 22:49	WG1031219
Sulfate	40.7		5.00	1	10/14/2017 22:49	WG1031219

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:44	WG1030074

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.420		0.200	1	10/16/2017 15:40	WG1031430
Lithium	0.0346		0.0150	1	10/16/2017 15:40	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 15:40	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 16:53	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 16:53	WG1031502
Barium	0.0436		0.00500	1	10/20/2017 16:53	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 16:53	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 16:53	WG1031502
Calcium	61.5		1.00	1	10/20/2017 16:53	WG1031502
Chromium	ND		0.00200	1	10/20/2017 16:53	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 16:53	WG1031502
Lead	ND		0.00200	1	10/20/2017 16:53	WG1031502
Selenium	ND		0.00200	1	10/20/2017 16:53	WG1031502
Thallium	ND		0.00200	1	10/20/2017 16:53	WG1031502

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	577		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.12	<u>T8</u>	1	10/09/2017 14:57	WG1029240

3 Ss

4 Cn

Sample Narrative:

L942140-03 WG1029240: 7.12 at 19.1c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	26.9		1.00	1	10/14/2017 23:10	WG1031219
Fluoride	0.327		0.100	1	10/14/2017 23:10	WG1031219
Sulfate	21.9		5.00	1	10/14/2017 23:10	WG1031219

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:46	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.53		0.200	1	10/16/2017 15:44	WG1031430
Lithium	0.0397		0.0150	1	10/16/2017 15:44	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 15:44	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 16:56	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 16:56	WG1031502
Barium	0.162		0.00500	1	10/20/2017 16:56	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 16:56	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 16:56	WG1031502
Calcium	65.9		1.00	1	10/20/2017 16:56	WG1031502
Chromium	ND		0.00200	1	10/20/2017 16:56	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 16:56	WG1031502
Lead	ND		0.00200	1	10/20/2017 16:56	WG1031502
Selenium	ND		0.00200	1	10/20/2017 16:56	WG1031502
Thallium	ND		0.00200	1	10/20/2017 16:56	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2110		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.49	<u>T8</u>	1	10/09/2017 14:57	WG1029240

3 Ss

4 Cn

Sample Narrative:

L942140-04 WG1029240: 6.49 at 19.3c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	502		20.0	20	10/15/2017 00:00	WG1031219
Fluoride	ND		0.100	1	10/14/2017 23:50	WG1031219
Sulfate	903		100	20	10/15/2017 00:00	WG1031219

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:48	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.419		0.200	1	10/16/2017 15:47	WG1031430
Lithium	0.0160		0.0150	1	10/16/2017 15:47	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 15:47	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:00	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 17:00	WG1031502
Barium	0.0356		0.00500	1	10/20/2017 17:00	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:00	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:00	WG1031502
Calcium	465		1.00	1	10/20/2017 17:00	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:00	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:00	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:00	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:00	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:00	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2110		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.49	<u>T8</u>	1	10/09/2017 14:57	WG1029240

3 Ss

4 Cn

Sample Narrative:

L942140-05 WG1029240: 6.49 at 19.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	505		20.0	20	10/15/2017 00:21	WG1031219
Fluoride	ND		0.100	1	10/15/2017 00:11	WG1031219
Sulfate	914		100	20	10/15/2017 00:21	WG1031219

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:51	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.406		0.200	1	10/16/2017 15:50	WG1031430
Lithium	0.0173		0.0150	1	10/16/2017 15:50	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 15:50	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:03	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 17:03	WG1031502
Barium	0.0344		0.00500	1	10/20/2017 17:03	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:03	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:03	WG1031502
Calcium	467		1.00	1	10/20/2017 17:03	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:03	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:03	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:03	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:03	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:03	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	727		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.56	<u>T8</u>	1	10/09/2017 14:57	WG1029240

3 Ss

4 Cn

Sample Narrative:

L942140-06 WG1029240: 7.56 at 19.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	34.1		1.00	1	10/15/2017 00:31	WG1031219
Fluoride	0.290		0.100	1	10/15/2017 00:31	WG1031219
Sulfate	100		25.0	5	10/16/2017 15:13	WG1031979

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:53	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.13		0.200	1	10/16/2017 15:53	WG1031430
Lithium	0.0463		0.0150	1	10/16/2017 15:53	WG1031430
Molybdenum	0.00947		0.00500	1	10/16/2017 15:53	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:07	WG1031502
Arsenic	0.00212		0.00200	1	10/20/2017 17:07	WG1031502
Barium	0.101		0.00500	1	10/20/2017 17:07	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:07	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:07	WG1031502
Calcium	71.8		1.00	1	10/20/2017 17:07	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:07	WG1031502
Cobalt	0.00508		0.00200	1	10/20/2017 17:07	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:07	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:07	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:07	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	948		10.0	1	10/13/2017 17:25	WG1030570

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.85	<u>T8</u>	1	10/09/2017 14:57	WG1029240

3 Ss

4 Cn

Sample Narrative:

L942140-07 WG1029240: 7.85 at 15.8c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	166		5.00	5	10/15/2017 00:51	WG1031219
Fluoride	1.26		0.100	1	10/15/2017 00:41	WG1031219
Sulfate	ND		5.00	1	10/15/2017 00:41	WG1031219

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:55	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.83		0.200	1	10/16/2017 16:03	WG1031430
Lithium	0.0737		0.0150	1	10/16/2017 16:03	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 16:03	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:10	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 17:10	WG1031502
Barium	0.132		0.00500	1	10/20/2017 17:10	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:10	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:10	WG1031502
Calcium	21.1		1.00	1	10/20/2017 17:10	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:10	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:10	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:10	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:10	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:10	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1040		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.66	<u>T8</u>	1	10/10/2017 15:44	WG1029765

3 Ss

4 Cn

Sample Narrative:

L942140-08 WG1029765: 7.66 at 13.4c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	99.2		1.00	1	10/15/2017 01:01	WG1031219
Fluoride	0.379		0.100	1	10/15/2017 01:01	WG1031219
Sulfate	236		25.0	5	10/15/2017 01:12	WG1031219

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 14:57	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.988		0.200	1	10/16/2017 16:07	WG1031430
Lithium	0.0669		0.0150	1	10/16/2017 16:07	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 16:07	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:14	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 17:14	WG1031502
Barium	0.0413		0.00500	1	10/20/2017 17:14	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:14	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:14	WG1031502
Calcium	65.1		1.00	1	10/20/2017 17:14	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:14	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:14	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:14	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:14	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:14	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	930		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.84	<u>T8</u>	1	10/10/2017 15:44	WG1029765

3 Ss

4 Cn

Sample Narrative:

L942140-09 WG1029765: 7.84 at 12.2c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	111		2.00	2	10/16/2017 14:20	WG1031671
Fluoride	1.37		0.100	1	10/13/2017 16:00	WG1031207
Sulfate	ND		5.00	1	10/13/2017 16:00	WG1031207

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:00	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.88		0.200	1	10/16/2017 16:10	WG1031430
Lithium	0.0689		0.0150	1	10/16/2017 16:10	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 16:10	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:24	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 17:24	WG1031502
Barium	0.290		0.00500	1	10/20/2017 17:24	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:24	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:24	WG1031502
Calcium	21.6		1.00	1	10/20/2017 17:24	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:24	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:24	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:24	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:24	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:24	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2140		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.34	<u>T8</u>	1	10/10/2017 15:44	WG1029765

3 Ss

4 Cn

Sample Narrative:

L942140-10 WG1029765: 7.34 at 12.0c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	13.6		1.00	1	10/13/2017 16:59	WG1031207
Fluoride	0.138		0.100	1	10/13/2017 16:59	WG1031207
Sulfate	1330		100	20	10/13/2017 17:14	WG1031207

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:02	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.470		0.200	1	10/16/2017 16:13	WG1031430
Lithium	0.0556		0.0150	1	10/16/2017 16:13	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 16:13	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:28	WG1031502
Arsenic	ND		0.00200	1	10/20/2017 17:28	WG1031502
Barium	0.0192	<u>B</u>	0.00500	1	10/20/2017 17:28	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:28	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:28	WG1031502
Calcium	274		1.00	1	10/20/2017 17:28	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:28	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:28	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:28	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:28	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:28	WG1031502



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	944		10.0	1	10/12/2017 11:10	WG1030088

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.92	<u>T8</u>	1	10/10/2017 15:44	WG1029765

Sample Narrative:

L942140-11 WG1029765: 7.92 at 12.6c

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	105		2.00	2	10/16/2017 14:33	WG1031671
Fluoride	1.19		0.100	1	10/13/2017 17:29	WG1031207
Sulfate	ND	<u>P1</u>	5.00	1	10/13/2017 17:29	WG1031207

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:04	WG1030074

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.59		0.200	1	10/16/2017 16:17	WG1031430
Lithium	0.0759		0.0150	1	10/16/2017 16:17	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 16:17	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:31	WG1031502
Arsenic	0.00280		0.00200	1	10/20/2017 17:31	WG1031502
Barium	0.563		0.00500	1	10/20/2017 17:31	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:31	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:31	WG1031502
Calcium	23.4		1.00	1	10/20/2017 17:31	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:31	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:31	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:31	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:31	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:31	WG1031502

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1230		10.0	1	10/12/2017 11:10	WG1030088

1 Cp

2 Tc

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.34	<u>T8</u>	1	10/10/2017 15:44	WG1029765

3 Ss

4 Cn

Sample Narrative:

L942140-12 WG1029765: 7.34 at 12.5c

5 Sr

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	208		5.00	5	10/13/2017 18:59	WG1031207
Fluoride	0.464		0.100	1	10/13/2017 18:44	WG1031207
Sulfate	165		25.0	5	10/13/2017 18:59	WG1031207

6 Qc

7 Gl

8 Al

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	10/12/2017 15:11	WG1030074

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1.11		0.200	1	10/16/2017 16:20	WG1031430
Lithium	0.0483		0.0150	1	10/16/2017 16:20	WG1031430
Molybdenum	ND		0.00500	1	10/16/2017 16:20	WG1031430

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00200	1	10/20/2017 17:35	WG1031502
Arsenic	0.00475		0.00200	1	10/20/2017 17:35	WG1031502
Barium	0.185		0.00500	1	10/20/2017 17:35	WG1031502
Beryllium	ND		0.00200	1	10/20/2017 17:35	WG1031502
Cadmium	ND		0.00100	1	10/20/2017 17:35	WG1031502
Calcium	105		1.00	1	10/20/2017 17:35	WG1031502
Chromium	ND		0.00200	1	10/20/2017 17:35	WG1031502
Cobalt	ND		0.00200	1	10/20/2017 17:35	WG1031502
Lead	ND		0.00200	1	10/20/2017 17:35	WG1031502
Selenium	ND		0.00200	1	10/20/2017 17:35	WG1031502
Thallium	ND		0.00200	1	10/20/2017 17:35	WG1031502



Method Blank (MB)

(MB) R3257729-1 10/12/17 11:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2.82	10.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L942140-04 Original Sample (OS) • Duplicate (DUP)

(OS) L942140-04 10/12/17 11:10 • (DUP) R3257729-4 10/12/17 11:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2110	2150	1	1.88		5

L942140-05 Original Sample (OS) • Duplicate (DUP)

(OS) L942140-05 10/12/17 11:10 • (DUP) R3257729-5 10/12/17 11:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2110	2190	1	3.96		5

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

(LCS) R3257729-2 10/12/17 11:10 • (LCSD) R3257729-3 10/12/17 11:10

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800	8660	8750	98.4	99.4	85.0-115			1.03	5



Method Blank (MB)

(MB) R3258045-1 10/13/17 17:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

1 Cp

2 Tc

3 Ss

L942140-07 Original Sample (OS) • Duplicate (DUP)

(OS) L942140-07 10/13/17 17:25 • (DUP) R3258045-4 10/13/17 17:25

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	948	948	1	0.000		5

4 Cn

5 Sr

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

(LCS) R3258045-2 10/13/17 17:25 • (LCSD) R3258045-3 10/13/17 17:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8610	8560	97.8	97.3	85.0-115			0.582	5

6 Qc

7 Gl

8 Al

9 Sc



L942022-01 Original Sample (OS) • Duplicate (DUP)

(OS) L942022-01 10/09/17 14:57 • (DUP) WG1029240-3 10/09/17 14:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.10	6.15	1	0.816	T8	1

Sample Narrative:

OS: 6.10 at 19.3c
DUP: 6.15 at 19.9c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L942285-01 Original Sample (OS) • Duplicate (DUP)

(OS) L942285-01 10/09/17 14:57 • (DUP) WG1029240-4 10/09/17 14:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.92	6.90	1	0.289	T8	1

Sample Narrative:

OS: 6.92 at 20.7c
DUP: 6.90 at 20.7c

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) WG1029240-1 10/09/17 14:57 • (LCSD) WG1029240-2 10/09/17 14:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	5.96	5.96	5.96	100	100	98.3-102			0.000	1

Sample Narrative:

LCS: 5.96 at 22.2c
LCSD: 5.96 at 22.3c



L941792-01 Original Sample (OS) • Duplicate (DUP)

(OS) L941792-01 10/10/17 15:44 • (DUP) WG1029765-3 10/10/17 15:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.56	7.60	1	0.528	T8	1

Sample Narrative:

OS: 7.56 at 13.0c
 DUP: 7.60 at 12.9c

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L942373-02 Original Sample (OS) • Duplicate (DUP)

(OS) L942373-02 10/10/17 15:44 • (DUP) WG1029765-4 10/10/17 15:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.80	7.78	1	0.257	T8	1

Sample Narrative:

OS: 7.80 at 16.0c
 DUP: 7.78 at 16.4c

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) WG1029765-1 10/10/17 15:44 • (LCSD) WG1029765-2 10/10/17 15:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	5.96	6.02	6.02	101	101	98.3-102			0.000	1

Sample Narrative:

LCS: 6.02 at 20.0c
 LCSD: 6.02 at 20.1c



Method Blank (MB)

(MB) R3257473-1 10/13/17 06:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L942140-09 Original Sample (OS) • Duplicate (DUP)

(OS) L942140-09 10/13/17 16:00 • (DUP) R3257473-4 10/13/17 16:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Fluoride	1.37	1.36	1	1		15
Sulfate	ND	0.000	1	0		15

L942140-11 Original Sample (OS) • Duplicate (DUP)

(OS) L942140-11 10/13/17 17:29 • (DUP) R3257473-7 10/13/17 17:44

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Fluoride	1.19	1.15	1	3		15
Sulfate	ND	0.000	1	200	P1	15

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

(LCS) R3257473-2 10/13/17 07:09 • (LCSD) R3257473-3 10/13/17 07:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.2	39.2	98	98	80-120			0	15
Fluoride	8.00	7.97	7.98	100	100	80-120			0	15
Sulfate	40.0	38.7	38.7	97	97	80-120			0	15

L942140-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L942140-09 10/13/17 16:00 • (MS) R3257473-5 10/13/17 16:30

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Fluoride	5.00	1.37	6.54	103	1	80-120	
Sulfate	50.0	ND	49.4	99	1	80-120	



L942140-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L942140-09 10/13/17 16:00 • (MS) R3257473-6 10/13/17 16:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Fluoride	5.00	1.37	6.49	103	1	80-120	
Sulfate	50.0	ND	48.7	97	1	80-120	

L942140-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L942140-11 10/13/17 17:29 • (MS) R3257473-8 10/13/17 18:29

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Fluoride	5.00	1.19	6.27	102	1	80-120	
Sulfate	50.0	ND	49.1	98	1	80-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3257690-1 10/14/17 18:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Fluoride	U		0.0099	0.100
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L942118-07 Original Sample (OS) • Duplicate (DUP)

(OS) L942118-07 10/14/17 20:17 • (DUP) R3257690-4 10/14/17 20:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	ND	0.000	1	0		15
Fluoride	ND	0.000	1	0		15
Sulfate	ND	0.000	1	0		15

L942140-01 Original Sample (OS) • Duplicate (DUP)

(OS) L942140-01 10/14/17 22:09 • (DUP) R3257690-6 10/14/17 22:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	17.9	17.1	1	4		15
Fluoride	0.972	0.944	1	3		15
Sulfate	26.9	26.7	1	1		15

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

(LCS) R3257690-2 10/14/17 18:15 • (LCSD) R3257690-3 10/14/17 18:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.8	39.6	99	99	80-120			0	15
Fluoride	8.00	8.27	8.23	103	103	80-120			0	15
Sulfate	40.0	40.5	40.2	101	101	80-120			1	15



L942118-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L942118-07 10/14/17 20:17 • (MS) R3257690-5 10/14/17 20:37

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	ND	50.0	100	1	80-120	
Fluoride	5.00	ND	4.04	81	1	80-120	
Sulfate	50.0	ND	51.5	102	1	80-120	

L942140-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L942140-01 10/14/17 22:09 • (MS) R3257690-7 10/14/17 22:29 • (MSD) R3257690-8 10/14/17 22:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	17.9	71.3	70.9	107	106	1	80-120			1	15
Fluoride	5.00	0.972	6.78	5.28	116	86	1	80-120	J3		25	15
Sulfate	50.0	26.9	80.5	80.8	107	108	1	80-120			0	15

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3257817-1 10/16/17 07:13

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	0.0758	J	0.0519	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L941520-35 Original Sample (OS) • Duplicate (DUP)

(OS) L941520-35 10/16/17 09:36 • (DUP) R3257817-4 10/16/17 12:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	0.0642	0.0978	1	41	J P1	15

L941834-01 Original Sample (OS) • Duplicate (DUP)

(OS) L941834-01 10/16/17 17:36 • (DUP) R3257817-6 10/16/17 17:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4.55	4.57	1	0		15

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

(LCS) R3257817-2 10/16/17 07:26 • (LCSD) R3257817-3 10/16/17 07:39

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40.0	39.6	39.8	99	100	80-120			0	15

L941520-35 Original Sample (OS) • Matrix Spike (MS)

(OS) L941520-35 10/16/17 09:36 • (MS) R3257817-5 10/16/17 13:02

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	0.0642	49.3	98	1	80-120	

L941834-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L941834-01 10/16/17 17:36 • (MS) R3257817-7 10/16/17 18:02 • (MSD) R3257817-8 10/16/17 18:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50.0	4.55	55.3	56.0	101	103	1	80-120			1	15



Method Blank (MB)

(MB) R3257723-1 10/16/17 08:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		0.0774	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L942701-01 Original Sample (OS) • Duplicate (DUP)

(OS) L942701-01 10/16/17 18:07 • (DUP) R3257723-4 10/16/17 18:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	57.1	57.4	1	0		15

L942652-01 Original Sample (OS) • Duplicate (DUP)

(OS) L942652-01 10/16/17 17:38 • (DUP) R3257723-7 10/16/17 19:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	7.49	7.61	1	2		15

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

(LCS) R3257723-2 10/16/17 09:13 • (LCSD) R3257723-3 10/16/17 09:28

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40.0	40.2	40.2	100	101	80-120			0	15

L942701-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L942701-01 10/16/17 18:07 • (MS) R3257723-5 10/16/17 18:36 • (MSD) R3257723-6 10/16/17 18:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50.0	57.1	101	101	88	87	1	80-120	<u>E</u>	<u>E</u>	1	15

L942652-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L942652-01 10/16/17 17:38 • (MS) R3257723-8 10/16/17 19:48

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50.0	7.49	56.4	98	1	80-120	



Method Blank (MB)

(MB) R3257017-6 10/12/17 14:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000049	0.000200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

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

(LCS) R3257017-7 10/12/17 14:02 • (LCSD) R3257017-8 10/12/17 14:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.00300	0.00319	0.00313	106	104	80-120			2	20

L942140-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L942140-01 10/12/17 14:07 • (MS) R3257017-9 10/12/17 14:14 • (MSD) R3257017-10 10/12/17 14:16

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00309	0.00288	103	96	1	75-125			7	20

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3257858-1 10/16/17 14:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Boron	U		0.0126	0.200
Lithium	U		0.0053	0.0150
Molybdenum	U		0.0016	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3257858-2 10/16/17 14:49 • (LCSD) R3257858-3 10/16/17 14:52

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Boron	1.00	0.958	0.938	96	94	80-120			2	20
Lithium	1.00	0.952	0.943	95	94	80-120			1	20
Molybdenum	1.00	1.00	0.995	100	99	80-120			1	20

L942140-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L942140-01 10/16/17 14:55 • (MS) R3257858-5 10/16/17 15:01 • (MSD) R3257858-6 10/16/17 15:05

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Boron	1.00	2.31	3.18	3.20	87	89	1	75-125			1	20
Lithium	1.00	0.0612	1.00	1.01	94	94	1	75-125			0	20
Molybdenum	1.00	ND	0.949	0.991	95	99	1	75-125			4	20



Method Blank (MB)

(MB) R3259351-1 10/20/17 16:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.000754	0.00200
Arsenic	U		0.00025	0.00200
Barium	0.00315	↓	0.00036	0.00500
Beryllium	U		0.00012	0.00200
Cadmium	U		0.00016	0.00100
Calcium	U		0.046	1.00
Chromium	U		0.00054	0.00200
Cobalt	U		0.00026	0.00200
Lead	U		0.00024	0.00200
Selenium	U		0.00038	0.00200
Thallium	U		0.00019	0.00200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3259351-2 10/20/17 16:12 • (LCSD) R3259351-3 10/20/17 16:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Antimony	0.0500	0.0544	0.0550	109	110	80-120			1	20
Arsenic	0.0500	0.0495	0.0497	99	99	80-120			0	20
Barium	0.0500	0.0537	0.0547	107	109	80-120			2	20
Beryllium	0.0500	0.0560	0.0562	112	112	80-120			0	20
Cadmium	0.0500	0.0485	0.0488	97	98	80-120			1	20
Calcium	5.00	5.08	5.21	102	104	80-120			3	20
Chromium	0.0500	0.0497	0.0501	99	100	80-120			1	20
Cobalt	0.0500	0.0499	0.0506	100	101	80-120			1	20
Lead	0.0500	0.0505	0.0504	101	101	80-120			0	20
Selenium	0.0500	0.0483	0.0495	97	99	80-120			3	20
Thallium	0.0500	0.0508	0.0509	102	102	80-120			0	20

L942140-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L942140-01 10/20/17 16:19 • (MS) R3259351-5 10/20/17 16:26

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Antimony	0.0500	ND	0.0564	113	1	75-125	
Arsenic	0.0500	ND	0.0503	101	1	75-125	
Barium	0.0500	0.101	0.156	110	1	75-125	
Beryllium	0.0500	ND	0.0558	112	1	75-125	
Cadmium	0.0500	ND	0.0487	97	1	75-125	



L942140-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L942140-01 10/20/17 16:19 • (MS) R3259351-5 10/20/17 16:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Calcium	5.00	25.3	30.1	96	1	75-125	
Chromium	0.0500	ND	0.0493	99	1	75-125	
Cobalt	0.0500	ND	0.0493	99	1	75-125	
Lead	0.0500	ND	0.0496	99	1	75-125	
Selenium	0.0500	ND	0.0514	103	1	75-125	
Thallium	0.0500	ND	0.0502	100	1	75-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



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.

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

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

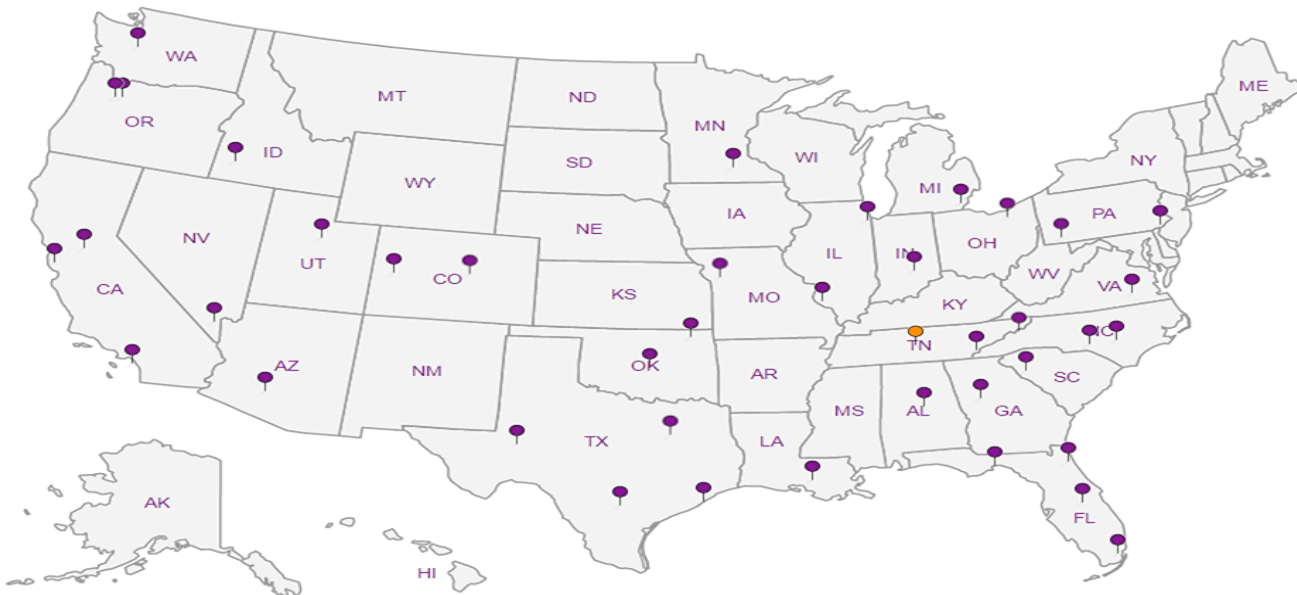
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



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



Report to:
Alla Skaskevych

Email To: robert.exceen@aecom.com;
alla.skaskevych@aecom.com;

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #

Lab Project #
URSKC-LACYGNE

Collected by (print):
Jim Mueckler + Kelly Glenz

Site/Facility ID #

P.O. #
no PO number

Collected by (signature):
Jim Mueckler + Kelly Glenz

Rush? (Lab MUST Be Notified)

Quote #

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

Date Results Needed

No.
of
Cntrs

Immediate
Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions - Cl ⁻ , F ⁻ , SO ₄	TDS, pH	Total Metals	Other	Other	Other	Other	Other	Other	Other	Other	Other			
MW-602	Grab	GW	N/A	10-5-17	10:45	3	X	X	X												
MW-602 MS	↓	GW	↓	10-5-17	10:45	3	X	X	X												
MW-602 MSD		GW		10-5-17	10:45	3	X	X	X												
MW-14R		GW		10-5-17	11:30	3	X	X	X												
MW-804		GW		10-5-17	12:00	3	X	X	X												
MW-951		GW		10-5-17	12:15	3	X	X	X												
MW-805		GW		10-5-17	12:40	3	X	X	X												
MW-904		GW		10-5-17	13:50	3	X	X	X												
MW-601		↓		GW	↓	10-6-17	11:00	3	X	X	X										
		GW				3	X	X	X												

L # **942140**

Table # **C183**

Acctnum: **URSKC**

Template: **T114093**

Prelogin: **P611823**

TSR: **206 - Jeff Carr**

PB:

Shipped Via:

Remarks Sample # (lab only)

-01
↓
-02
-03
-04
-05
-06
-07

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

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

Please indicate sample ID for the MS/MSD.

Samples returned via:
 UPS FedEx Courier

Tracking # **7384 4200 1474**

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 Headpace: Y N
Preservation Correct/Checked: Y N

Relinquished by: (Signature)

Date: **10-6-17** Time: **13:00**

Received by: (Signature)

Trip Blank Received: Yes / No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date: **10-6-17** Time: **1700**

Received by: (Signature)

Temp: **0.5°C** Bottles Received: **42**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: Time:

Received for lab by: (Signature)

Date: **10/7/17** Time: **0845**

Hold: Condition: **NCF / OK**

AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Alla Skaskevych

Email To: alla.skaskevych@aecom.com;
robert.exceen@aecom.com; jay.martin@kcpl.com

Project
Description: **La Cygne Generating Station**

City/State
Collected:

Phone: **913-344-1000**
Fax: **913-344-1011**

Client Project #
60482842

Lab Project #
URSKC-LACYGNE

Collected by (print):
Skaskevych/...
Collected by (signature):
[Signature]

Site/Facility ID #
TASK 100

P.O. #
no PO number

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

Immediately
Packed on Ice N Y

ORL-RA-226, RA-228 1L-HDPE-ADD HNO3

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres	Chk	Analysis	Container	Preservative
MW-11	Grab	NPW	/	10/5/17	1015	2	X				
MW-703	↓	NPW	/		1140	2	X				
MW-13	↓	NPW	/		140.5	2	X				
MW-7	↓	NPW	/		1555	2	X				
MW-6	↓	NPW	▽		1735	2	X				
		NPW				2	X				
		NPW				2	X				
		NPW				2	X				
		NPW				2	X				
		NPW				2	X				

L # **942140**
 Table #
 Acctnum: **URSKC**
 Template: **T112863**
 Prelogin: **P619968**
 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: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

Samples returned via:
 UPS FedEx Courier

Tracking # **7384 4200 1474**

pH _____ Temp _____
 Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature) *[Signature]*

Date: **10/5/17** Time: **1930**

Received by: (Signature) *[Signature]*

Trip Blank Received: Yes/No
 Yes No
 HCL/MeOH
 TBR

Relinquished by: (Signature) *[Signature]*

Date: **10/6/17** Time: **1700**

Received by: (Signature) *[Signature]*

Temp: **0.5°C** Bottles Received: **42**

Relinquished by: (Signature) *[Signature]*

Date: _____ Time: _____

Received for lab by: (Signature) *[Signature]*

Date: **10/7/17** Time: **0845**

If preservation required by Login; Date/Time
 Hold: _____ Condition: **NCF / OK**

Katie Ingram

To: Jeff Carr; Login
Subject: RE: URSKC NCF KI

**ESC Lab Sciences
Non-Conformance Form**

Login #:L942140	Client:URSKC	Date:10/07/17	Evaluated by: Myra "Katie" Ingram
-----------------	--------------	---------------	-----------------------------------

Non-Conformance (check applicable items)

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

Login Comments:

Metals not preserved for IDs: MW-602, MW-11, and MW-805.
An attempt to preserve ID: MW-805, but pH was not less than 2
MW -11 to the end of the COC is marked for analyses ORL-RA-226 and ORL-RA-228, but we received three containers for each ID consisting of; two 250mlHDPE no preserve and one 250mlHDPE-HNO3, as though they were meant to be analyzed for Anions, TDS, and Total Metals with the previous samples.

Client informed by:	Call	Email	X	Voice Mail	Date: 10/9/17	Time: 1253
TSR Initials: JC	Client Contact: A. Skaskevych					

Login Instructions: Preserve metals containers and log for total metals. Log sample on page 2 for the same tests as page 1. Revised COC will be delivered tomorrow.

This E-mail and any attached files are confidential, and may be copyright protected. If you are not the addressee, any dissemination of this communication is strictly prohibited. If you have received this message in error, please contact the sender immediately and delete/destroy all information received.

Case Narrative

Lab No: 20170947

This report contains the analytical results for the 20 sample(s) received under chain of custody by ESC Lab Sciences on 10/6/2017 10:40:04 AM. These samples are associated with your 60482842 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

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.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

DL for Radiochemistry = MDA

DL for Metals and Wet Chemistry = MDL

DL for Drinking Water = SDWA

Observations / Nonconformances

L941863



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170947
 Date Reported : 11/20/17
 Date Received : 10/06/17
 Page Number : 2 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170947-01							
Client ID : MW-950							
Date Sampled : 10/3/2017 9:30:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.298 +/- 0.632	0.926	pCi/l				
Radium-226 SM 7500 Ra B M*	0.187 +/- 0.181	0.224	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.111 +/- 0.451	0.702	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-02							
Client ID : MW-705							
Date Sampled : 10/3/2017 10:10:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.568 +/- 0.786	1.17	pCi/l				
Radium-226 SM 7500 Ra B M*	0.306 +/- 0.240	0.273	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.262 +/- 0.546	0.899	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-03							
Client ID : TW-1							
Date Sampled : 10/3/2017 12:10:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.17 +/- 0.711	1.14	pCi/l				
Radium-226 SM 7500 Ra B M*	0.348 +/- 0.240	0.246	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.818 +/- 0.471	0.891	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-04							
Client ID : MW-702							
Date Sampled : 10/3/2017 1:45:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.939 +/- 0.760	1.24	pCi/l				
Radium-226 SM 7500 Ra B M*	0.337 +/- 0.220	0.217	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.602 +/- 0.540	1.02	pCi/l		11/01/17	11/16/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170947
 Date Reported : 11/20/17
 Date Received : 10/06/17
 Page Number : 3 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170947-05							
Client ID : MW-701							
Date Sampled : 10/3/2017 3:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.25 +/- 0.833	1.10	pCi/l				
Radium-226 SM 7500 Ra B M*	0.303 +/- 0.218	0.230	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.944 +/- 0.615	0.874	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-06							
Client ID : MW-704							
Date Sampled : 10/3/2017 4:05:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	2.18 +/- 0.757	1.26	pCi/l				
Radium-226 SM 7500 Ra B M*	0.141 +/- 0.170	0.233	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	2.04 +/- 0.587	1.03	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-07							
Client ID : MW-707B							
Date Sampled : 10/3/2017 5:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.970 +/- 0.754	1.20	pCi/l				
Radium-226 SM 7500 Ra B M*	0.235 +/- 0.182	0.184	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.735 +/- 0.572	1.02	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-08							
Client ID : MW-706							
Date Sampled : 10/4/2017 9:20:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.510 +/- 0.766	1.03	pCi/l				
Radium-226 SM 7500 Ra B M*	0.510 +/- 0.285	0.254	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	-0.296 +/- 0.481	0.771	pCi/l		11/01/17	11/16/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170947
 Date Reported : 11/20/17
 Date Received : 10/06/17
 Page Number : 4 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170947-09							
Client ID : MW-708							
Date Sampled : 10/4/2017 10:15:00 AM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	0.149 +/- 0.859	1.40	pCi/l				
Radium-226 SM 7500 Ra B M*	0.149 +/- 0.258	0.372	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	-0.688 +/- 0.601	1.03	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-10							
Client ID : MW-10							
Date Sampled : 10/4/2017 2:55:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.67 +/- 0.808	1.09	pCi/l				
Radium-226 SM 7500 Ra B M*	0.638 +/- 0.313	0.314	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	1.03 +/- 0.495	0.778	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-11							
Client ID : MW-10 MS							
Date Sampled : 10/4/2017 2:55:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	123		% Rec		10/18/17	11/06/17	RE
Radium-228 EPA 904*	80.9		% Rec		11/01/17	11/16/17	JR
Lab ID : 20170947-12							
Client ID : MW-10 MSD							
Date Sampled : 10/4/2017 2:55:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Radium-226 SM 7500 Ra B M*	6.6		RPD		10/18/17	11/06/17	RE
Radium-228 EPA 904*	3.4		RPD		11/01/17	11/16/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170947
 Date Reported : 11/20/17
 Date Received : 10/06/17
 Page Number : 5 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
Lab ID : 20170947-13							
Client ID : MW-15							
Date Sampled : 10/3/2017 2:30:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.64 +/- 0.674	1.02	pCi/l				
Radium-226 SM 7500 Ra B M*	0.172 +/- 0.200	0.272	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	1.47 +/- 0.474	0.751	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-14							
Client ID : MW-903							
Date Sampled : 10/3/2017 3:00:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.24 +/- 0.775	1.06	pCi/l				
Radium-226 SM 7500 Ra B M*	0.360 +/- 0.238	0.232	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.879 +/- 0.537	0.830	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-15							
Client ID : MW-902							
Date Sampled : 10/3/2017 3:40:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.27 +/- 0.647	0.92	pCi/l				
Radium-226 SM 7500 Ra B M*	0.298 +/- 0.201	0.156	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.975 +/- 0.446	0.765	pCi/l		11/01/17	11/16/17	JR
Lab ID : 20170947-16							
Client ID : MW-901							
Date Sampled : 10/3/2017 4:15:00 PM							
Matrix : NPW							
Radiochemical Analyses							
Combined Radium	1.17 +/- 0.892	1.22	pCi/l				
Radium-226 SM 7500 Ra B M*	0.444 +/- 0.418	0.542	pCi/l		10/18/17	11/06/17	RE
Radium-228 EPA 904*	0.721 +/- 0.474	0.680	pCi/l		11/01/17	11/16/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170947
 Date Reported : 11/20/17
 Date Received : 10/06/17
 Page Number : 6 of 7

Analytical Report

Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
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Lab ID : 20170947-17
Client ID : MW-905
Date Sampled : 10/3/2017 4:40:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.29 +/- 0.628	0.96	pCi/l			
Radium-226	SM 7500 Ra B M*	0.142 +/- 0.150	0.172	pCi/l	10/18/17	11/06/17	RE
Radium-228	EPA 904*	1.15 +/- 0.478	0.790	pCi/l	11/01/17	11/16/17	JR

Lab ID : 20170947-18
Client ID : MW-801
Date Sampled : 10/4/2017 1:25:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.15 +/- 0.764	0.959	pCi/l			
Radium-226	SM 7500 Ra B M*	0.511 +/- 0.281	0.240	pCi/l	10/18/17	11/06/17	RE
Radium-228	EPA 904*	0.634 +/- 0.483	0.719	pCi/l	11/01/17	11/16/17	JR

Lab ID : 20170947-19
Client ID : MW-802
Date Sampled : 10/4/2017 2:15:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		1.90 +/- 0.857	1.27	pCi/l			
Radium-226	SM 7500 Ra B M*	0.633 +/- 0.412	0.490	pCi/l	10/18/17	11/06/17	RE
Radium-228	EPA 904*	1.27 +/- 0.445	0.780	pCi/l	11/01/17	11/16/17	JR

Lab ID : 20170947-20
Client ID : MW-803
Date Sampled : 10/4/2017 2:45:00 PM
Matrix : NPW

Radiochemical Analyses

Combined Radium		3.38 +/- 0.939	1.47	pCi/l			
Radium-226	SM 7500 Ra B M*	0.292 +/- 0.250	0.314	pCi/l	10/18/17	11/06/17	RE
Radium-228	EPA 904*	3.09 +/- 0.689	1.16	pCi/l	11/01/17	11/16/17	JR



Client : AECOM
 Client Project : 60482842
 Lab Number : 20170947
 Date Reported : 11/20/17
 Date Received : 10/06/17
 Page Number : 7 of 7

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Radium-226	-0.002	102.0			NC	0.423	123.0	115.0	6.6	R1292
Radium-228	-0.011	87.3			13.1	0.351	80.9	77.7	3.4	R4015

Lab Approval:

 Ron Eidson
 Director of Radiochemistry

ECOM - Kansas City, MO

180 McGee Suite 200
Kansas City, MO 64108

Report to:
Ila Skaskevych

Email To: alla.skaskevych@aecom.com;
robert.exceen@aecom.com; jay.martin@kcpl.com

Billing Information:

Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Project: La Cygne Generating Station

Client Project #
60482842

Site/Facility ID #
TASK 100

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

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

No. of

Concs

Remarks

Sample # (lab only)

Shipped Via:

Remarks

Sample Receipt Checklist

COC Seal Present/Intact: Y N

COC Signed/Accurate: Y N

Bottles arrive intact: Y N

Correct bottles used: Y N

Sufficient volume sent: Y N

If Applicable

VOA Zero Headpace: Y N

Preservation Correct/checked: Y N

if preservation required by LogIn: Date/Time

Hold: Condition: NCF / OK

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

ORL-RA-226, RA-228 1L-HDPE-Add HNO3

COPY

Remarks: Report Radium 226 and 228 Combined. Please indicate sample ID for the MS/MSD.

ESCKC

Samples returned via:
 UPS FedEx Courier

Received by: (Signature) *[Signature]* Date: 10/14/13 Time: 1800

Received by: (Signature) *[Signature]* Date: 10/14/13 Time: 1800

Received for lab by: (Signature) *[Signature]* Date: 10/16/13 Time: 1040

Received for lab by: (Signature) *[Signature]* Date: 10/16/13 Time: 201047

Trip Blank Received: Yes / No HCL / MeOH TBR

Temp: *As* °C Bottles Received: *10/16/13 1040*

Date: 10/16/13 Time: 1040

Date: 10/16/13 Time: 201047

pH _____ Temp _____

Flow _____ Other _____

VOA Zero Headpace: Y N

Preservation Correct/checked: Y N

if preservation required by LogIn: Date/Time

Hold: Condition: NCF / OK

SAMPLE LOGIN

Date Received: 10/6/2017 10:40:0

Lab Number: 20170947

Due: 11/3/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170947-01 B	MW-905 ⁹⁵⁰ <i>10/06/17 17</i>	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-01 A	MW-905 ⁹⁵⁰ <i>10/06/17 17</i>	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-02 A	MW-705	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-02 B	MW-705	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-03 A	TW-1	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-03 B	TW-1	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-04 A	MW-702	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-04 B	MW-702	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-05 A	MW-701	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-05 B	MW-701	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	Yes	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-06 B	MW-704	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-06 A	MW-704	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-07 B	MW-707B	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-07 A	MW-707B	NPW	10/03/17	Plastic	1 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						

20170947-08 A	MW-706	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-08 B	MW-706	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-09 A	MW-708	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-09 B	MW-708	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-10 A	MW-10	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-10 B	MW-10	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-11 B	MW-10 MS	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-11 A	MW-10 MS	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-12 A	MW-10 MSD	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-12 B	MW-10 MSD	NPW	10/04/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-13 A	MW-15	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-13 B	MW-15	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-14 A	MW-903	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-14 B	MW-903	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-15 B	MW-902	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-15 A	MW-902	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*						
20170947-16 A	MW-901	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No
20170947-16 B	MW-901	NPW	10/03/17	Plastic	1 L	HNO ₃ , pH < 2	<input checked="" type="checkbox"/>	No	No

CONTAINER INSPECTION

Coolers 3 Custody Seals Broken

Temperature: As C

Ice

Radiation Survey: <300 cpm

SAMPLE INSPECTION

Sample Seal Broken

Chain of Custody Record

Labels in Tact

Radiation Survey Complete

Anomalies

Inspected By: [Signature] DATE 10/6/17

QA or Designee Review: [Signature] DATE 10/6/17

Sample Custodian Review: [Signature] DATE 10/6/17

Project Notes:

Jared Morrison
December 16, 2022

ATTACHMENT 1-13
December 2017 Sampling Event Laboratory Report

December 20, 2017

AECOM - Kansas City, MO

Sample Delivery Group: L957015
Samples Received: 12/13/2017
Project Number: 60482842
Description: La Cygne Generating Station
Site: TASK 100
Report To: Alla Skaskevych
2380 McGee Suite 200
Kansas City, MO 64108

Entire Report Reviewed By:












Jeff Carr

Technical Service Representative

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



Cp: Cover Page	1	
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SAMPLE SUMMARY



MW-902 L957015-01 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1053253	1	12/14/17 03:50	12/14/17 03:50	MAJ

Collected by AS / TA
 Collected date/time 12/12/17 13:25
 Received date/time 12/13/17 08:45

¹ Cp

² Tc

³ Ss

MW-905 L957015-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1053253	1	12/14/17 04:05	12/14/17 04:05	MAJ

Collected by AS / TA
 Collected date/time 12/12/17 13:40
 Received date/time 12/13/17 08:45

⁴ Cn

⁵ Sr

MW-10 L957015-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1052837	1	12/13/17 11:52	12/13/17 15:09	ST

Collected by AS / TA
 Collected date/time 12/12/17 11:35
 Received date/time 12/13/17 08:45

⁶ Qc

⁷ Gl

⁸ Al

MW-805 L957015-04 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1055564	10	12/20/17 08:07	12/20/17 08:07	KCF
Metals (ICPMS) by Method 6020	WG1051832	1	12/13/17 13:35	12/16/17 16:16	WBD

Collected by AS / TA
 Collected date/time 12/11/17 12:05
 Received date/time 12/13/17 08:45

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. 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

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



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	36.1		5.00	1	12/14/2017 03:50	WG1053253

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	52.0		1.00	1	12/14/2017 04:05	WG1053253

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	0.961		0.200	1	12/13/2017 15:09	WG1052837

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	753		50.0	10	12/20/2017 08:07	WG1055564

1 Cp

2 Tc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Calcium	525		1.00	1	12/16/2017 16:16	WG1051832

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3273049-1 12/14/17 02:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.0519	1.00
Sulfate	0.0832	J	0.0774	5.00

1 Cp

2 Tc

3 Ss

4 Cn

L957015-02 Original Sample (OS) • Duplicate (DUP)

(OS) L957015-02 12/14/17 04:05 • (DUP) R3273049-4 12/14/17 04:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	52.0	51.9	1	0.102		15
Sulfate	28.0	28.0	1	0.00179		15

5 Sr

6 Qc

L957175-01 Original Sample (OS) • Duplicate (DUP)

(OS) L957175-01 12/14/17 06:57 • (DUP) R3273049-7 12/14/17 07:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	8.27	8.26	1	0		15
Sulfate	11.8	11.8	1	0		15

7 Gl

8 Al

9 Sc

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

(LCS) R3273049-2 12/14/17 02:52 • (LCSD) R3273049-3 12/14/17 03:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	39.7	39.7	99.3	99.3	80-120			0.0818	15
Sulfate	40.0	40.1	40.0	100	100	80-120			0.129	15

L957015-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L957015-02 12/14/17 04:05 • (MS) R3273049-5 12/14/17 04:33 • (MSD) R3273049-6 12/14/17 04:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	52.0	106	97.2	107	90.4	1	80-120	E		8.23	15
Sulfate	50.0	28.0	78.2	73.6	100	91.3	1	80-120			6.01	15



L957175-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L957175-01 12/14/17 06:57 • (MS) R3273049-8 12/14/17 07:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	8.27	60.9	105	1	80-120	
Sulfate	50.0	11.8	60.4	97.3	1	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3274414-1 12/20/17 06:34

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Sulfate	U		0.0774	5.00

¹Cp

²Tc

³Ss

⁴Cn

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

(LCS) R3274414-2 12/20/17 06:48 • (LCSD) R3274414-3 12/20/17 07:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Sulfate	40.0	40.1	40.0	100	99.9	80-120			0.368	15

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3272815-1 12/13/17 14:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		0.0126	0.200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3272815-2 12/13/17 14:16 • (LCSD) R3272815-3 12/13/17 14:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Boron	1.00	0.981	0.994	98.1	99.4	80-120			1.29	20

L956923-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L956923-01 12/13/17 14:22 • (MS) R3272815-5 12/13/17 14:29 • (MSD) R3272815-6 12/13/17 14:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1.00	ND	1.09	1.08	98.6	97.8	1	75-125			0.718	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3273567-1 12/16/17 14:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Calcium	U		0.046	1.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3273567-4 12/16/17 14:55 • (LCSD) R3273567-2 12/16/17 14:43

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Calcium	5.00	5.02	5.50	100	110	80-120			9.23	20

⁷ Gl

⁸ Al

L956501-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L956501-07 12/16/17 14:46 • (MS) R3273567-5 12/16/17 14:59 • (MSD) R3273567-6 12/16/17 15:03

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Calcium	5.00	58.9	63.9	62.3	101	68.7	1	75-125		V	2.55	20

⁹ Sc



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, 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.

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

Qualifier Description

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



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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

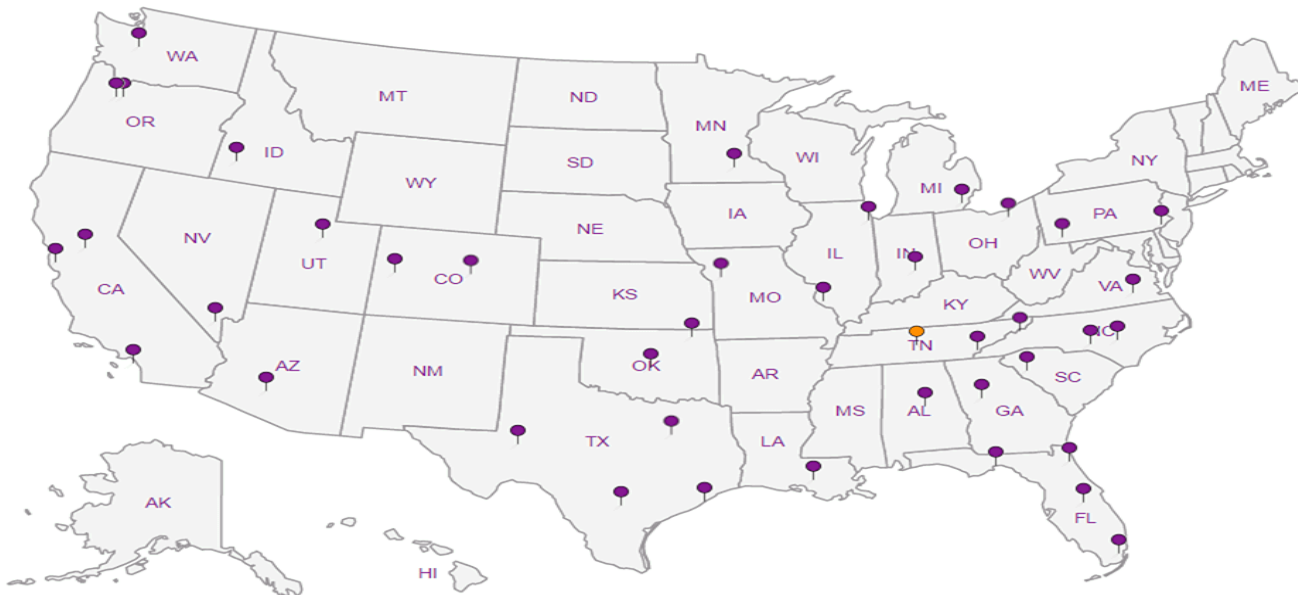
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{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.**



AECOM - Kansas City, MO

2380 McGee Suite 200
Kansas City, MO 64108

Report to:
Alla Skaskevych

Project
Description: **La Cygne Generating Station**

Phone: **913-344-1000**
Fax: **913-344-1011**

Collected by (print):

Collected by (signature):
A. Skaskevych
J. Andrews
Immediately
Packed on ice N Y

Client Project #
60482842

Site/Facility ID #
TASK 100

Rush? (Lab MUST Be Notified)

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

City/State
Collected:
Lab Project #
URSKC-LACYGNE

P.O. #
PROCESS AS NON-PO

Quote #
Date Results Needed

Billing Information:
Dana Monroe - 1334927
2380 McGee Suite 200
Kansas City, MO 64108

Email To: **alla.skaskevych@aecom.com;**
robert.exceen@aecom.com; jay.martin@kcpl.com

Analysis / Container / Preservative

Pres
Chk

Boron - 6010 250mlHDPE-HNO3
CHLORIDE 125mlHDPE-NoPres
Calcium - 6020 250mlHDPE-HNO3
SULFATE 125mlHDPE-NoPres

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# **957015**
H152

Acctnum: **URSKC**
Template: **T130678**
Prelogin: **P630729**
TSR: **206 - Jeff Carr**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Entrs	Boron	CHLORIDE	Calcium	SULFATE	Remarks	Sample # (lab only)
MW-902	G	GW	/	12/12/17	1325	1				X		01
MW-905		GW	/	12/12/17	1340	1		X				02
MW-10		GW	/	12/12/17	1135	1	X					03
MW-805	G	GW	/	12/11/17	1205	2			X	X		04

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **7305 8949 5490**

pH _____ Temp _____
Flow _____ Other _____

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

Relinquished by: (Signature) <i>[Signature]</i>	Date: 12/12/17	Time: 1800	Received by: (Signature) <i>[Signature]</i>	Trip Blank Received: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	HCL / MeOH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.3°C	Bottles Received: 5
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>Jennifer Royal 836</i>	Date: 12-13-17	Time: 8:45

If preservation required by Login: Date/Time

Hold: Condition: **NCF / OK**

January 31, 2018

SCS Engineers - KS

Sample Delivery Group: L958052
Samples Received: 12/15/2017
Project Number: 27217413.00
Description: KCPL - Iatan Generating Station

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

Entire Report Reviewed By:



Jeff Carr
Technical Service Representative

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



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	²Tc
Ss: Sample Summary	3	³Ss
Cn: Case Narrative	4	⁴Cn
Sr: Sample Results	5	⁵Sr
WELL WATER SOURCE L958052-01	5	⁶Qc
Qc: Quality Control Summary	6	⁷Gl
Radiochemistry by Method 904	6	⁸Al
Radiochemistry by Method SM7500Ra B M	7	⁹Sc
Gl: Glossary of Terms	8	
Al: Accreditations & Locations	9	
Sc: Sample Chain of Custody	10	



WELL WATER SOURCE L958052-01 Non-Potable Water

Collected by Jason R. Franks	Collected date/time 12/13/17 14:30	Received date/time 12/15/17 10:13
---------------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1054755	1	12/18/17 10:04	12/21/17 13:25	JMR
Radiochemistry by Method SM7500Ra B M	WG1054735	1	12/18/17 16:04	01/09/18 16:56	RGT

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



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

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



Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/L		+ / -	pCi/L	date / time	
RADIUM-228	2.01		0.550	0.807	12/21/2017 13:25	WG1054755

¹Cp

²Tc

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.306		0.220	0.231	01/09/2018 16:56	WG1054735

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3275708-1 12/21/17 13:25

Analyte	MB Result pCi/L	MB Qualifier	MB MDA pCi/L
Radium-228	0.662		0.578

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L958214-01 Original Sample (OS) • Duplicate (DUP)

(OS) L958214-01 12/21/17 13:25 • (DUP) R3275708-5 12/21/17 13:25

Analyte	Original Result pCi/L	DUP Result pCi/L	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	4.20	4.18	1	0.454	0.0148		20	2

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3275708-2 12/21/17 13:25

Analyte	Spike Amount pCi/L	LCS Result pCi/L	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.66	113	80-120	

⁹Sc

L958052-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L958052-01 12/21/17 13:25 • (MS) R3275708-3 12/21/17 13:25 • (MSD) R3275708-4 12/21/17 13:25

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	2.01	28.2	27.1	105	100	1	70-130			3.91		20



Method Blank (MB)

(MB) R3283112-1 01/09/18 16:56

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.00314		0.0592

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L957075-03 Original Sample (OS) • Duplicate (DUP)

(OS) L957075-03 01/09/18 16:56 • (DUP) R3283112-3 01/09/18 16:56

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	54.6	52.0	1	4.82	0.360		20	3

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3283112-2 01/09/18 16:56

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	4.97	5.25	106	80-120	

⁹Sc

L957077-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L957077-03 01/09/18 16:56 • (MS) R3283112-4 01/09/18 16:56 • (MSD) R3283112-5 01/09/18 16:56

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	19.9	32.6	62.1	52.3	148	99.1	1	75-125	<u>V</u>		17		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.

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

Qualifier Description

V	The sample concentration is too high to evaluate accurate spike recoveries.
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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	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

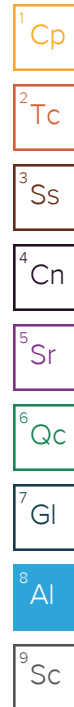
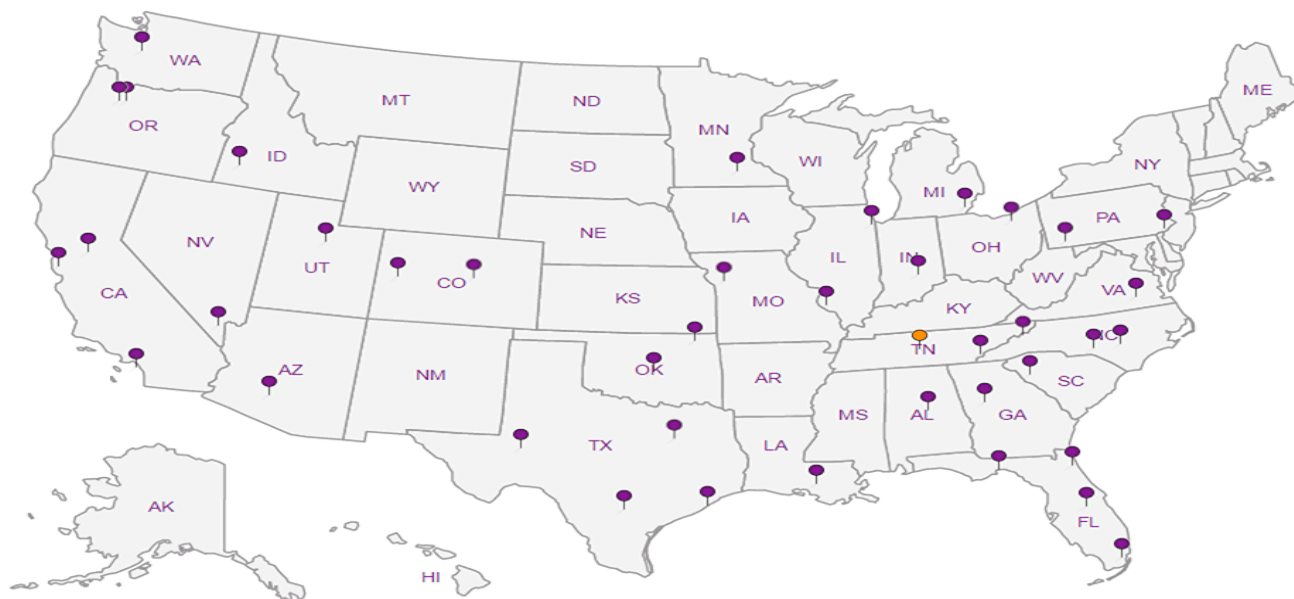
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold 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.



Jared Morrison
December 16, 2022

ATTACHMENT 2

Statistical Analyses

Statistical analyses were not completed in 2017. Statistical analyses of background sampling events were completed following data verification in 2018.

ATTACHMENT 3

Groundwater Potentiometric Surface Maps

- June 2016 – First background sampling event.
- August 2016 – Second background sampling event.
- October 2016 - Third background sampling event.
- December 2016 - Fourth background sampling event.
- February 2017 - Fifth background sampling event.
- April 2017 - Sixth background sampling event.
- June 2017 - Seventh background sampling event.
- August 2017 - Eighth background sampling event.
- October 2017 – Fall semiannual detection monitoring sampling event.

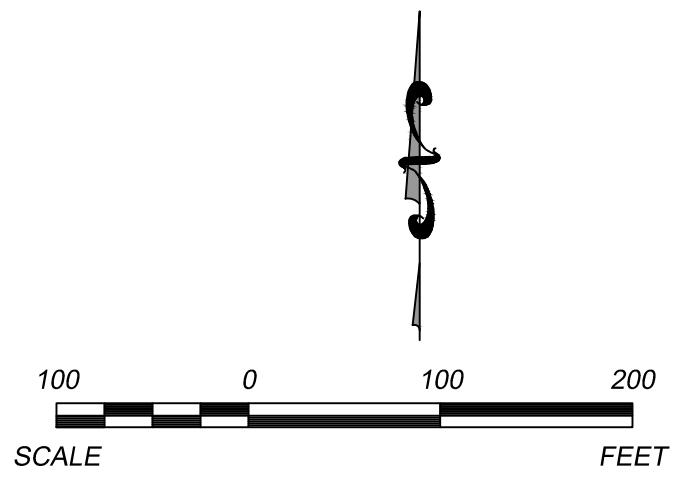


LEGEND

- CCR UNIT BOUNDARY (APPROXIMATE LIMITS)
- MW-704 (869.52) CCR GROUNDWATER MONITORING SYSTEM WELLS (GROUNDWATER ELEVATION)
- 875- GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS
- 16 FT/YR DIRECTION OF GROUNDWATER FLOW AND CALCULATED GROUNDWATER FLOW RATE (FEET/YEAR)

NOTES:

1. KDHE FACILITY PERMIT AND LANDFILL PERMIT BOUNDARIES VARY FROM THAT SHOWN.
2. GOOGLE EARTH IMAGE DATED OCTOBER 2014. BOUNDARY AND MONITOR WELL LOCATIONS ARE APPROXIMATE.
3. BOUNDARY AND MONITOR WELL LOCATIONS ARE PROVIDED BY AECOM.
4. WATER LEVEL MEASUREMENTS COMPLETED ON DECEMBER 9 AND 12, 2016



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SHEET TITLE		POTENTIOMETRIC SURFACE MAP		
		(DECEMBER 2016) BOTTOM ASH IMPOUNDMENT		
PROJECT TITLE		2017 GROUNDWATER MONITORING AND		
		CORRECTIVE ACTION REPORT ADDENDUM		
EVERGY METRO, INC LA CYGNE GENERATING STATION LA CYGNE, KANSAS				
SCS ENGINEERS 6575 W. 110th St. Ste. 100 Overland Park, MO 66210 PH: (813) 681-0030 FAX: (813) 681-0012 PROJ. NO. 27217233.1B DSK: BT DAW DWN: BT DAW CHK: BT JRR Q/A: RW: JRR PHOT: MR: JRF				
CADD FILE: LA CYGNE BA IMPOUNDMENT 2016-12/20				
DATE: 12/1/22				
FIGURE NO. 4				

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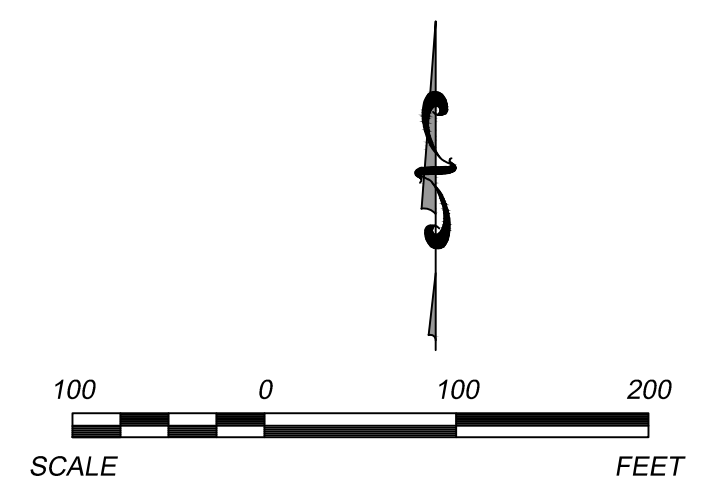


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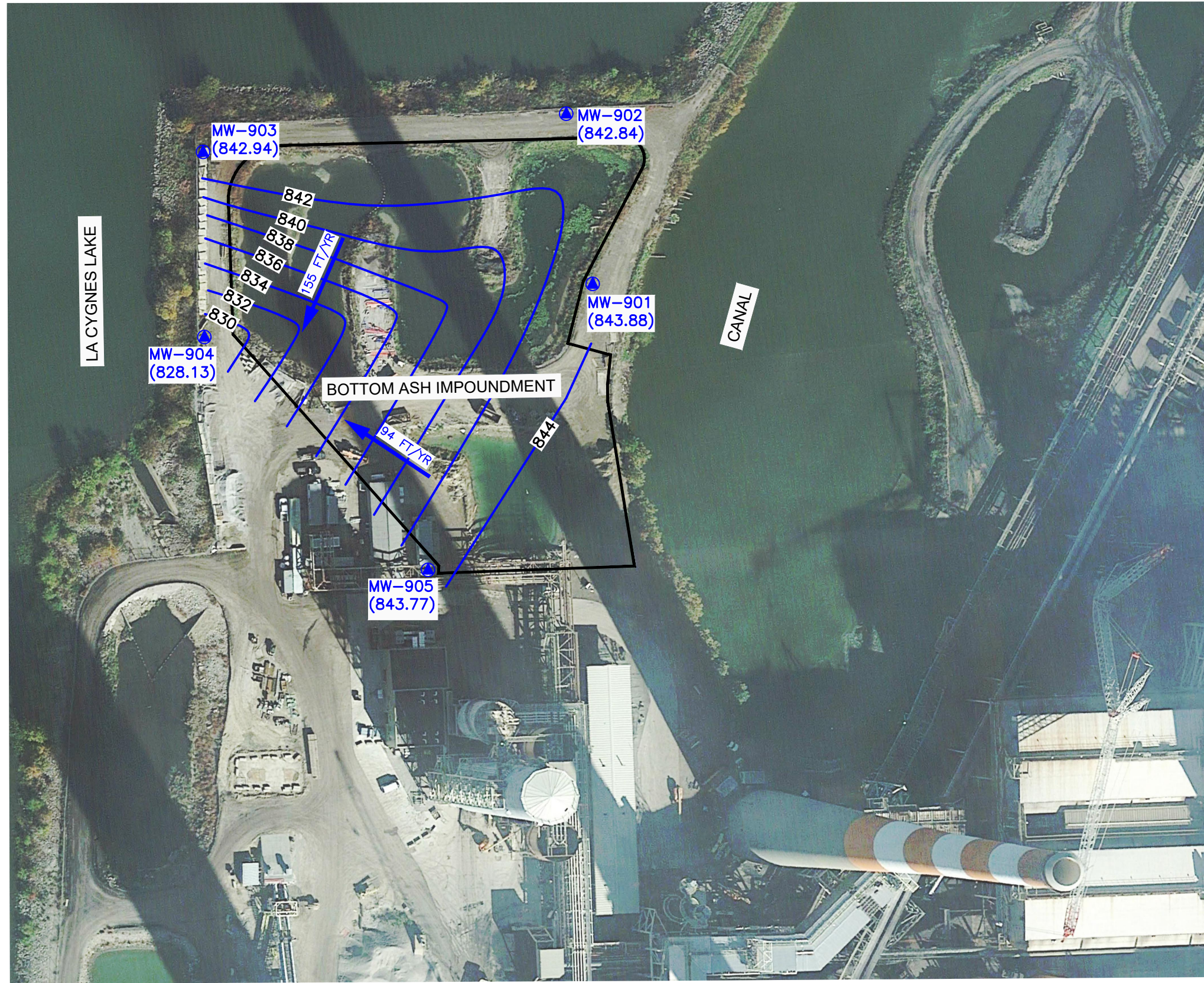
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4. WATER LEVEL MEASUREMENTS COMPLETED ON JUNE 12, 14-16, 2017



<p>SCS ENGINEERS 6575 W. 110th St. Ste. 100 Overland Park, MO 66210 PH: (813) 681-0030 FAX: (813) 681-0012</p> <p>PROJ. NO. 27217233.1B DSK: BT DAW DWN: BT DAW CHK: BT JRR Q/A: RWB JRR PROJ. MGR: JRF</p>	<p>CLIENT</p> <p>EVERGY METRO, INC LA CYGNE GENERATING STATION LA CYGNE, KANSAS</p>	<p>SHEET TITLE</p> <p>POTENTIOMETRIC SURFACE MAP (JUNE 2017) BOTTOM ASH IMPOUNDMENT</p>	<p>REV. DATE</p> <p>△ △ △ △ △ △ △ △ △ △</p>	<p>CK. BY</p> <p>— — — — —</p>
	<p>PROJECT TITLE</p> <p>2017 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM</p>	<p>CADD FILE:</p> <p>LA CYGNE BA IMPOUNDMENT 2017-6.DWG</p>	<p>DATE:</p> <p>12/2/22</p>	<p>FIGURE NO.</p> <p>7</p>

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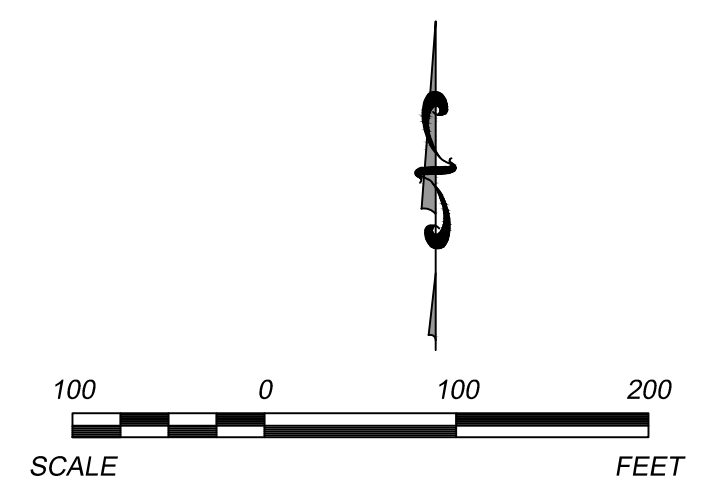


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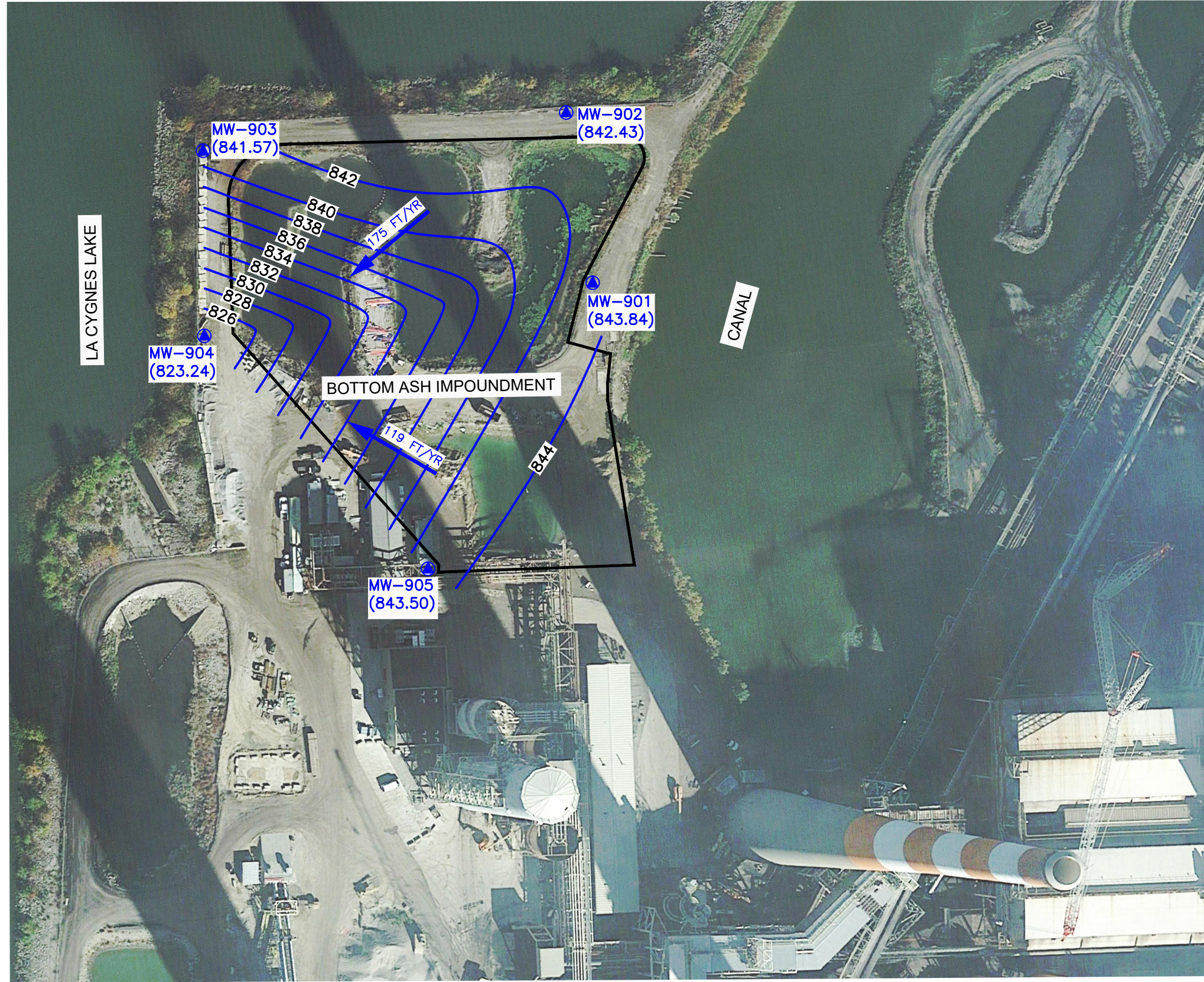
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<p>SCS ENGINEERS 6575 W. 110th St. Ste. 100 Overland Park, MO 66210 PH: (813) 681-0030 FAX: (813) 681-0012</p> <p>PROJ. NO. 27217233.1B DSK: BT DAW DWN: BT DAW CHK: BT JRR Q/A: RWB JRR PROJ. MGR: JRF</p>	<p>CLIENT</p> <p>EVERGY METRO, INC LA CYGNE GENERATING STATION LA CYGNE, KANSAS</p>	<p>SHEET TITLE</p> <p>POTENTIOMETRIC SURFACE MAP (AUGUST 2017) BOTTOM ASH IMPOUNDMENT</p> <p>PROJECT TITLE</p> <p>2017 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV.</th> <th>DATE</th> <th>CHK.</th> <th>BY</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV.	DATE	CHK.	BY																
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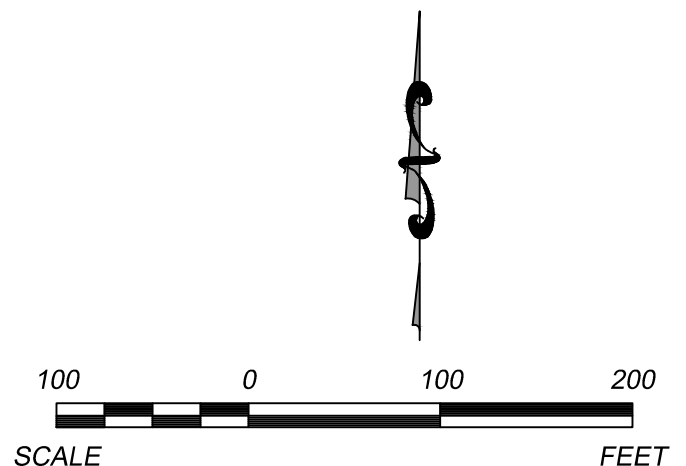


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4. WATER LEVEL MEASUREMENTS COMPLETED ON OCTOBER 3, AND 5, 2017



<p>SCS ENGINEERS 6575 W. 110th St. Ste. 100 Overland Park, MO 66210 PH: (813) 681-0030 FAX: (813) 681-0012</p> <p>PROJ. NO. 27217233.1B DSK: BT DAW DWN: BT DAW CHK: BT JRR Q/A: RWB JRR PROJ. MGR: JRF</p>	<p>CLIENT</p> <p>EVERGY METRO, INC LA CYGNE GENERATING STATION LA CYGNE, KANSAS</p>	<p>SHEET TITLE</p> <p>POTENTIOMETRIC SURFACE MAP (OCTOBER 2017) BOTTOM ASH IMPOUNDMENT</p> <p>PROJECT TITLE</p> <p>2017 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT ADDENDUM</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV.</th> <th>DATE</th> <th>CK.</th> <th>BY</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV.	DATE	CK.	BY																
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