2019 Annual Groundwater Monitoring and Corrective Action Report

M.L. Kapp Generating Station
3301 Highway 67 S
Clinton, Iowa 52732

Prepared for:

Alliant Energy

Interstate Power and Light Company
4902 N. Biltmore Lane
Madison, Wisconsin 53718

SCS ENGINEERS

25220077.00 | August 3, 2020

2830 Dairy Drive
Madison, WI 53718-6751
608-224-2830

Table of Contents

Section Page

Tables

Figures

Appendices

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1.0 INTRODUCTION

This 2019 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the "Coal Combustion Residuals (CCR) Final Rule" published by the U.S. 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) and subsequent amendments. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.100 and 40 CFR 257.90(e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2019 Annual Groundwater Monitoring and Corrective Action Report for the CCR unit.

This report covers the period of groundwater monitoring from January 1, 2019, through December 31, 2019.

The groundwater monitoring system for the M.L. Kapp Generating Station (KAP) monitors a single CCR unit:

- Kapp Main Ash Pond (inactive surface impoundment – closed January 2018)

The system is designed to detect monitored constituents at the waste boundary of the KAP CCR unit as required by 40 CFR 257.91(d). The groundwater monitoring system consists of one upgradient and five downgradient monitoring wells.

2.0 257.100(E)(5) GROUNDWATER MONITORING AND CORRECTIVE ACTION FOR INACTIVE CCR SURFACE IMPOUNDMENTS

The owner or operator of the inactive CCR surface impoundments must: (i) No later than April 17, 2019, comply with groundwater monitoring requirements set forth in §§ 257.90(b) and 257.94(b); and (ii) No later than August 1, 2019, prepare the initial groundwater monitoring and corrective action report as set forth in § 257.90(e).

This report is submitted to fulfill the report requirement.

3.0 §257.90(E) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. 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:

3.1 §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 map of the location of the site is provided as **Figure 1**. A map showing the site layout and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 2**.

3.2 §257.90(E)(2) MONITORING SYSTEM CHANGES

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

No new monitoring wells were installed and no wells were decommissioned as part of the groundwater monitoring programs for the CCR unit in 2019. Efforts to identify a location for a new background well were made in 2019, but the installation was delayed to 2020 due to construction of a substation on the property where the well was to be installed.

3.3 §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;

Six sampling events occurred throughout 2019 at KAP. Two background sampling events occurred in January and February 2019, which completed the eight rounds of required background sampling for the site. Two semiannual monitoring events were completed in April 2019 and October 2019. A resampling event for well MW-305 was also completed in September 2019. As described in **Section 3.4** and **Section 3.5**, the site transitioned to an assessment monitoring program in 2019. The first round of assessment monitoring sampling was completed in December 2019.

Groundwater samples collected in April 2019 and October 2019 were analyzed for Appendix III parameters. The groundwater sample from September 2019 was analyzed for boron and fluoride. The groundwater samples collected in December 2019 were analyzed for both Appendix III and Appendix IV constituents. A summary including the number of groundwater samples that were collected in 2019 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 is included in **Table 1**. The results of the analytical laboratory analyses are provided in the laboratory reports in **Appendix A1** through **Appendix A6**.

3.4 §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);

Detection monitoring for KAP was initiated in April 2019. The statistical evaluation of the April 2019 detection monitoring results completed on July 15, 2019, identified statistically significant increases (SSIs) in detection monitoring constituents at the downgradient wells. An SSI was identified for

fluoride at one or more wells based in the Aril 2019 detection monitoring event and was confirmed with a September 2019 resample. Interstate Power and Light Company (IPL) collected the first round of assessment monitoring samples in December 2019 and established an assessment monitoring program on January 13, 2020, in accordance with §257.95(b).

3.5 §257.90(E)(5) OTHER REQUIREMENTS

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

Additional potentially applicable requirements for the annual report, and the location of the requirement within the Rule, are provided in the following sections. For each cited section of the Rule, the portion referencing the annual report requirement is provided below in *italics*, followed by applicable information relative to the 2019 Annual Groundwater Monitoring and Corrective Action Report for the CCR unit.

3.5.1 §257.90(e) General Requirements

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.

Status of Groundwater Monitoring and Corrective Action Program. The groundwater monitoring and corrective action program transitioned from detection monitoring to assessment monitoring in 2019.

Summary of Key Actions Completed.

- Background monitoring program sampling events (January and February 2019).
- Statistical evaluation and determination of SSIs for the April 2019 monitoring event completed on July 15, 2019.
- First annual groundwater monitoring and corrective action report completed on August 1, 2019.
- Two semiannual detection monitoring sampling and analysis events (April and October 2019).
- Resampling event completed in September 2019.
- First assessment monitoring sampling and analysis event (December 2019).

Description of Any Problems Encountered. No problems were encountered in 2019.

Discussion of Actions to Resolve the Problems. Not applicable.

Projection of Key Activities for the Upcoming Year (2020):

- Transmittal of results for the October 2019 detection monitoring event and initial round of assessment monitoring sampling in December 2019 (January 13, 2020).

- Establishment of assessment monitoring program (January 13, 2020).
- Establishment of groundwater protection standards (April 2020).
- Statistical evaluation and determination of any SSIs exceeding the GPS for the December 2019, February 2020, and April 2020 monitoring events (July 13, 2020).
- If one or more Appendix IV constituents is detected at a statistically significant level above the GPS, within 30 days IPL will prepare a notification in accordance with §257.95(g) and within 90 days complete an alternative source demonstration or initiate an assessment of corrective measures (§257.95(g)(3)). IPL will also characterize the release (§257.95(g)(1)) and notify property owners (§257.95(g)(2)).
- Installation of a new, off-site background monitoring well.

3.5.2 Two Semiannual Groundwater Sampling and Analysis Events (May and October 2020) §257.94(d) Alternative Detection Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. No alternative frequency proposed.

3.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. No alternative source demonstration was completed in 2019.

3.5.4 §257.95(c) Alternative Assessment Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. No alternative assessment monitoring frequency has been proposed.

3.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. Although the first round of assessment monitoring samples was collected in December 2019, the complete results were received and the assessment monitoring program was established in January 2020. The requirements of §257.95(d)(1)-(2) must be met by April 15, 2020, and included in the 2020 annual groundwater monitoring and corrective action report to be completed in 2021.

3.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not Applicable. No alternative source demonstration for assessment monitoring was completed in 2019.

3.5.7 §257.96(a) Extension of Time for Corrective Measures Assessment

The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measure due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not Applicable. Corrective measures assessment has not been initiated.

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Table 1

CCR Rule Groundwater Samples Summary

Table 1. CCR Rule Groundwater Samples Summary
M.L. Kapp Generating Station / SCS Engineers Project #25220077.00

Sample Dates	Downgradient Wells					Background Well
	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306
1/10/2019	B	B	B	B	B	B
2/13/2019	B	B	B	B	B	B
4/9/2019	D	D	D	D	D	D
9/10/2019	--	--	--	--	R	--
10/7/2019	D	D	D	D	D	D
12/10/2019	A	A	A	A	A	A
Total Samples	5	5	5	5	6	5

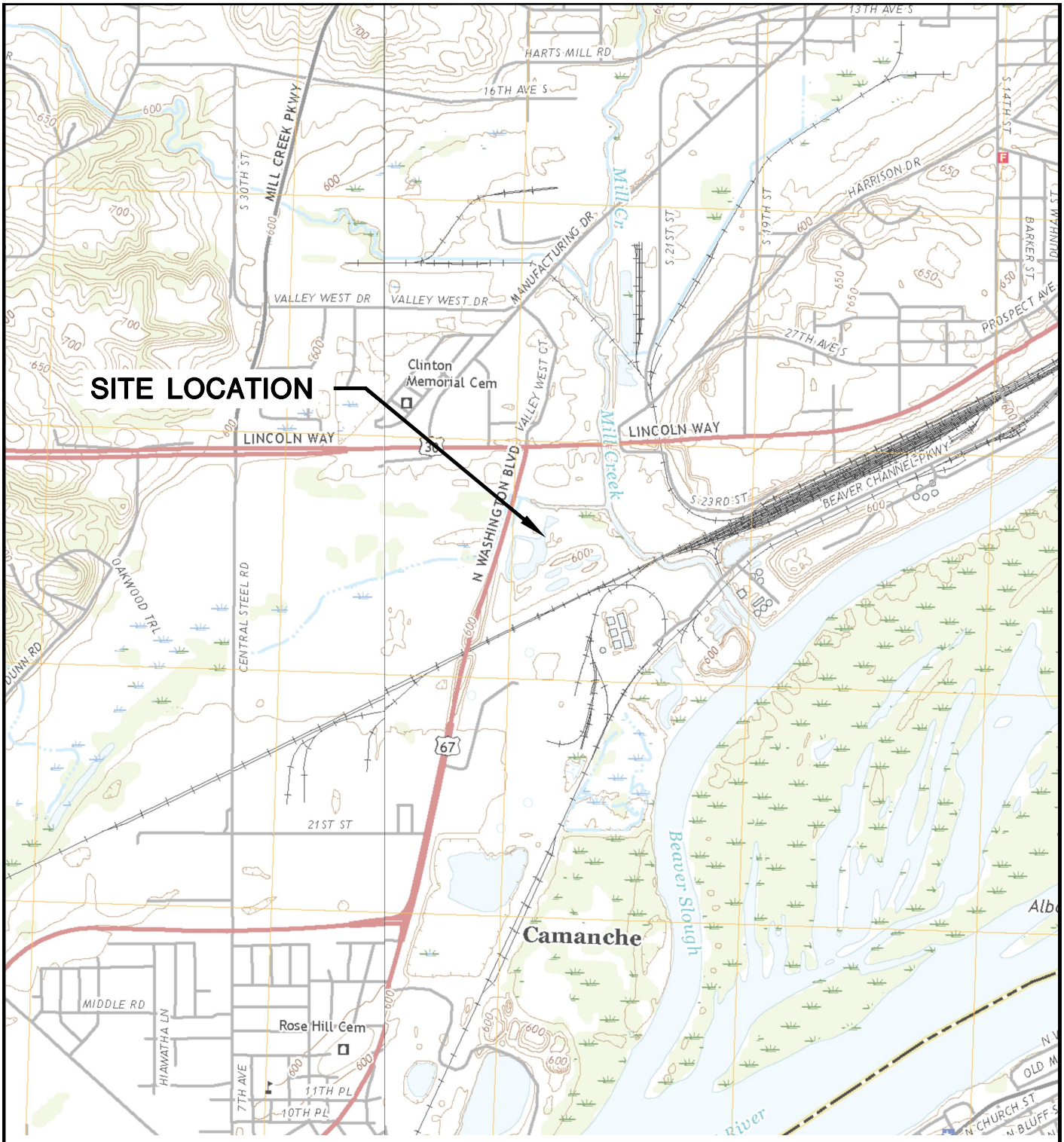
Abbreviations:
B = Background Monitoring Program
D = Detection Monitoring Program
A = Assessment Monitoring Program
R = Resampling event
-- = Not Applicable

Note: Detection monitoring will be initiated after completion of background monitoring.

Created by:	JR	Date:	6/5/2019
Last revision by:	NDK	Date:	7/5/2020
Checked by:	MDB	Date:	7/6/2020

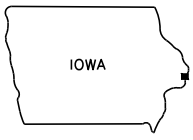
I:\25220077.00\Deliverables\2019 Federal Annual Report\Tables\[Table 1 GW_Samples_Summary_Table_2019.xlsx]GW Summary

Figures



N

CLINTON QUADRANGLE
IOWA–ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'



CLIENT	ALLIANT ENERGY ML-KAPP GENERATING STATION 2001 BEAVER CHANNEL PKWY CLINTON, IA 52732	SITE	ALLIANT ENERGY M.L. KAPP GENERATING STATION CLINTON, IA

SITE LOCATION MAP

PROJECT NO.	25219077.00	DRAWN BY:	BSS
DRAWN:	11/20/2019	CHECKED BY:	MDB
REVISED:	01/13/2020	APPROVED BY:	

ENGINEER

SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

FIGURE
1

I:\25219077.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/13/2020 11:42:30 AM

LEGEND

- PROJECT BOUNDARY
- MOUND BOUNDARIES
- MONITORING WELL
- CCR UNIT

NOTES:

1. 2018 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
2. MONITORING WELLS MW-301 THROUGH MW-306 WERE INSTALLED BY DIRECT PUSH ANALYTICAL FEBRUARY 7 AND 8, 2018.
3. CCR UNIT LIMITS ARE APPROXIMATE.

N

200 0 200

SCALE: 1" = 200'

SITE PLAN AND MONITORING WELL LOCATIONS

SITE

ALLIANT ENERGY
M.L. KAPP GENERATING STATION
CLINTON, IA

CLIENT

ALLIANT ENERGY
M.L. KAPP GENERATING STATION
2001 BEAVER CHANNEL PKWY
CLINTON, IA 52732

FIGURE 2

SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

ENGINEER

DRAWN BY:	BSS
CHECKED BY:	MDB
APPROVED BY:	
PROJECT NO.	25219077.00
DRAWN:	11/20/2019
REVISED:	01/13/2020

I:\25219077.00\Drawings\CCR 2019 Annual Report\Site Plan and Monitoring Well Locations.dwg, 1/13/2020 11:41:55 AM

Appendix A

Analytical Laboratory Reports

A1 January 2019 Background Monitoring Program

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 23, 2019

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on January 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Arkansas Drinking Water
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60291692001	**MW-301**	Water	01/10/19 14:13	01/11/19 08:40
60291692002	**MW-302**	Water	01/10/19 10:04	01/11/19 08:40
60291692003	**MW-303**	Water	01/10/19 10:53	01/11/19 08:40
60291692004	**MW-304**	Water	01/10/19 11:39	01/11/19 08:40
60291692005	**MW-305**	Water	01/10/19 12:18	01/11/19 08:40
60291692006	**MW-306**	Water	01/10/19 13:02	01/11/19 08:40
60291692007	**FIELD BLANK**	Water	01/10/19 23:59	01/11/19 08:40

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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60291692001	**MW-301**	EPA 6010	EMR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60291692002	**MW-302**	EPA 6010	EMR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60291692003	**MW-303**	EPA 6010	EMR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60291692004	**MW-304**	EPA 6010	EMR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60291692005	**MW-305**	EPA 6010	EMR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60291692006	**MW-306**	EPA 6010	EMR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60291692007	**FIELD BLANK**	EPA 6010	EMR	3	PASI-K

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	LDF	1	PASI-K
		EPA 9040	RMT	1	PASI-K
		EPA 9056	MGS	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
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(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: MW-301 **Lab ID: 60291692001** Collected: 01/10/19 14:13 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		01/10/19 14:13		
Field pH	**6.95**	Std. Units	0.10	0.050	1		01/10/19 14:13		
Field Temperature	**12.65**	deg C	0.50	0.25	1		01/10/19 14:13		
Field Specific Conductance	**725**	umhos/cm	1.0	1.0	1		01/10/19 14:13		
Field Oxidation Potential	**0.0**	mV			1		01/10/19 14:13		
Oxygen, Dissolved	**0.20**	mg/L			1		01/10/19 14:13	7782-44-7	
Turbidity	**1.75**	NTU	1.0	1.0	1		01/10/19 14:13		
Groundwater Elevation	**577.36**	feet			1		01/10/19 14:13		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**13000**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 10:43	7440-42-8	
Calcium	**140**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 10:43	7440-70-2	
Lithium	**4.9J**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 10:43	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.17J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:50	7440-36-0	
Arsenic	**0.94J**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 14:50	7440-38-2	
Barium	**149**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 14:50	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 14:50	7440-41-7	
Cadmium	**0.11J**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 14:50	7440-43-9	
Chromium	**0.35J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:50	7440-47-3	B
Cobalt	**3.6**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 14:50	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 14:50	7439-92-1	
Molybdenum	**294**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 14:50	7439-98-7	
Selenium	**0.12J**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 14:50	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 14:50	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 11:40	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**892**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**6.6**	Std. Units	0.10	0.10	1		01/14/19 11:58		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**23.0**	mg/L	5.0	1.4	5		01/18/19 17:35	16887-00-6	
Fluoride	**0.22**	mg/L	0.20	0.19	1		01/21/19 11:24	16984-48-8	
Sulfate	**418**	mg/L	50.0	12.0	50		01/18/19 17:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: MW-302 **Lab ID: 60291692002** Collected: 01/10/19 10:04 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		01/10/19 10:04		
Field pH	**8.51**	Std. Units	0.10	0.050	1		01/10/19 10:04		
Field Temperature	**12.23**	deg C	0.50	0.25	1		01/10/19 10:04		
Field Specific Conductance	**503**	umhos/cm	1.0	1.0	1		01/10/19 10:04		
Field Oxidation Potential	**-75.9**	mV			1		01/10/19 10:04		
Oxygen, Dissolved	**0.33**	mg/L			1		01/10/19 10:04	7782-44-7	
Turbidity	**1.37**	NTU	1.0	1.0	1		01/10/19 10:04		
Groundwater Elevation	**577.05**	feet			1		01/10/19 10:04		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**5940**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 10:45	7440-42-8	
Calcium	**77.4**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 10:45	7440-70-2	
Lithium	**21.0**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 10:45	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.37J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:52	7440-36-0	
Arsenic	**7.7**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 14:52	7440-38-2	
Barium	**55.7**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 14:52	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 14:52	7440-41-7	
Cadmium	**0.087J**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 14:52	7440-43-9	
Chromium	**0.64J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:52	7440-47-3	B
Cobalt	**0.14J**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 14:52	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 14:52	7439-92-1	
Molybdenum	**214**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 14:52	7439-98-7	
Selenium	**2.9**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 14:52	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 14:52	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 11:47	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**534**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**7.5**	Std. Units	0.10	0.10	1		01/14/19 11:45		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**13.9**	mg/L	1.0	0.29	1		01/21/19 12:06	16887-00-6	
Fluoride	**0.19J**	mg/L	0.20	0.19	1		01/21/19 12:06	16984-48-8	
Sulfate	**214**	mg/L	50.0	12.0	50		01/18/19 19:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: MW-303 **Lab ID: 60291692003** Collected: 01/10/19 10:53 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		01/10/19 10:53		
Field pH	**7.39**	Std. Units	0.10	0.050	1		01/10/19 10:53		
Field Temperature	**12.82**	deg C	0.50	0.25	1		01/10/19 10:53		
Field Specific Conductance	**948**	umhos/cm	1.0	1.0	1		01/10/19 10:53		
Field Oxidation Potential	**13.8**	mV			1		01/10/19 10:53		
Oxygen, Dissolved	**0.47**	mg/L			1		01/10/19 10:53	7782-44-7	
Turbidity	**6.53**	NTU	1.0	1.0	1		01/10/19 10:53		
Groundwater Elevation	**579.06**	feet			1		01/10/19 10:53		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**3720**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 10:47	7440-42-8	
Calcium	**213**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 10:47	7440-70-2	
Lithium	**23.6**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 10:47	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.23J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:54	7440-36-0	
Arsenic	**4.1**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 14:54	7440-38-2	
Barium	**64.0**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 14:54	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 14:54	7440-41-7	
Cadmium	**0.044J**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 14:54	7440-43-9	
Chromium	**0.38J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:54	7440-47-3	B
Cobalt	**0.47J**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 14:54	7440-48-4	
Lead	**1.4**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 14:54	7439-92-1	
Molybdenum	**55.9**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 14:54	7439-98-7	
Selenium	**0.69J**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 14:54	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 14:54	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 11:49	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1080**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**7.0**	Std. Units	0.10	0.10	1		01/14/19 11:47		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**7.3**	mg/L	1.0	0.29	1		01/21/19 13:03	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		01/21/19 13:03	16984-48-8	
Sulfate	**644**	mg/L	50.0	12.0	50		01/18/19 19:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: MW-304 **Lab ID: 60291692004** Collected: 01/10/19 11:39 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		01/10/19 11:39		
Field pH	**7.34**	Std. Units	0.10	0.050	1		01/10/19 11:39		
Field Temperature	**12.68**	deg C	0.50	0.25	1		01/10/19 11:39		
Field Specific Conductance	**630**	umhos/cm	1.0	1.0	1		01/10/19 11:39		
Field Oxidation Potential	**34.9**	mV			1		01/10/19 11:39		
Oxygen, Dissolved	**0.20**	mg/L			1		01/10/19 11:39	7782-44-7	
Turbidity	**3.65**	NTU	1.0	1.0	1		01/10/19 11:39		
Groundwater Elevation	**578.56**	feet			1		01/10/19 11:39		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**8920**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 10:49	7440-42-8	
Calcium	**85.0**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 10:49	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 10:49	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.082J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:56	7440-36-0	
Arsenic	**3.8**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 14:56	7440-38-2	
Barium	**78.1**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 14:56	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 14:56	7440-41-7	
Cadmium	**0.19J**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 14:56	7440-43-9	
Chromium	**0.23J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:56	7440-47-3	B
Cobalt	**0.75J**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 14:56	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 14:56	7439-92-1	
Molybdenum	**778**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 14:56	7439-98-7	
Selenium	**0.14J**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 14:56	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 14:56	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 11:56	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**645**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**6.8**	Std. Units	0.10	0.10	1		01/14/19 11:48		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**25.6**	mg/L	2.0	0.58	2		01/21/19 13:32	16887-00-6	
Fluoride	**0.31**	mg/L	0.20	0.19	1		01/21/19 13:17	16984-48-8	
Sulfate	**349**	mg/L	20.0	4.8	20		01/18/19 20:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: MW-305 **Lab ID: 60291692005** Collected: 01/10/19 12:18 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		01/10/19 12:18		
Field pH	**7.38**	Std. Units	0.10	0.050	1		01/10/19 12:18		
Field Temperature	**12.30**	deg C	0.50	0.25	1		01/10/19 12:18		
Field Specific Conductance	**958**	umhos/cm	1.0	1.0	1		01/10/19 12:18		
Field Oxidation Potential	**30.3**	mV			1		01/10/19 12:18		
Oxygen, Dissolved	**0.27**	mg/L			1		01/10/19 12:18	7782-44-7	
Turbidity	**2.91**	NTU	1.0	1.0	1		01/10/19 12:18		
Groundwater Elevation	**578.84**	feet			1		01/10/19 12:18		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**18800**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 10:52	7440-42-8	
Calcium	**172**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 10:52	7440-70-2	
Lithium	**18.1**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 10:52	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:58	7440-36-0	
Arsenic	**1.4**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 14:58	7440-38-2	
Barium	**97.8**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 14:58	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 14:58	7440-41-7	
Cadmium	**0.21J**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 14:58	7440-43-9	
Chromium	**0.24J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 14:58	7440-47-3	B
Cobalt	**0.54J**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 14:58	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 14:58	7439-92-1	
Molybdenum	**663**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 14:58	7439-98-7	
Selenium	**0.094J**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 14:58	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 14:58	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 11:59	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1140**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**7.4**	Std. Units	0.10	0.10	1		01/14/19 11:54		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**15.7**	mg/L	1.0	0.29	1		01/21/19 13:46	16887-00-6	
Fluoride	**0.36**	mg/L	0.20	0.19	1		01/21/19 13:46	16984-48-8	
Sulfate	**689**	mg/L	50.0	12.0	50		01/21/19 14:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: MW-306 **Lab ID: 60291692006** Collected: 01/10/19 13:02 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		01/10/19 13:02		
Field pH	**7.46**	Std. Units	0.10	0.050	1		01/10/19 13:02		
Field Temperature	**11.78**	deg C	0.50	0.25	1		01/10/19 13:02		
Field Specific Conductance	**980**	umhos/cm	1.0	1.0	1		01/10/19 13:02		
Field Oxidation Potential	**34.7**	mV			1		01/10/19 13:02		
Oxygen, Dissolved	**0.29**	mg/L			1		01/10/19 13:02	7782-44-7	
Turbidity	**0.44**	NTU	1.0	1.0	1		01/10/19 13:02		
Groundwater Elevation	**579.47**	feet			1		01/10/19 13:02		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**17300**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 10:54	7440-42-8	
Calcium	**152**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 10:54	7440-70-2	
Lithium	**76.9**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 10:54	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.24J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 15:04	7440-36-0	
Arsenic	**0.65J**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 15:04	7440-38-2	
Barium	**57.9**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 15:04	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 15:04	7440-41-7	
Cadmium	**0.094J**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 15:04	7440-43-9	
Chromium	**0.30J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 15:04	7440-47-3	B
Cobalt	**0.24J**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 15:04	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 15:04	7439-92-1	
Molybdenum	**97.6**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 15:04	7439-98-7	
Selenium	**0.73J**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 15:04	7782-49-2	
Thallium	**0.13J**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 15:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 12:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1110**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**7.4**	Std. Units	0.10	0.10	1		01/14/19 11:55		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**97.4**	mg/L	5.0	1.4	5		01/18/19 22:39	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		01/18/19 22:23	16984-48-8	
Sulfate	**452**	mg/L	50.0	12.0	50		01/21/19 14:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Sample: FIELD BLANK **Lab ID: 60291692007** Collected: 01/10/19 23:59 Received: 01/11/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**89.9J**	ug/L	100	12.5	1	01/14/19 16:19	01/15/19 11:00	7440-42-8	
Calcium	**0.13J**	mg/L	0.20	0.054	1	01/14/19 16:19	01/15/19 11:00	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	01/14/19 16:19	01/15/19 11:00	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 15:11	7440-36-0	
Arsenic	**<0.065**	ug/L	1.0	0.065	1	01/15/19 11:50	01/16/19 15:11	7440-38-2	
Barium	**0.31J**	ug/L	1.0	0.28	1	01/15/19 11:50	01/16/19 15:11	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	01/15/19 11:50	01/16/19 15:11	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	01/15/19 11:50	01/16/19 15:11	7440-43-9	
Chromium	**0.19J**	ug/L	1.0	0.078	1	01/15/19 11:50	01/16/19 15:11	7440-47-3	B
Cobalt	**<0.062**	ug/L	1.0	0.062	1	01/15/19 11:50	01/16/19 15:11	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	01/15/19 11:50	01/16/19 15:11	7439-92-1	
Molybdenum	**<0.57**	ug/L	1.0	0.57	1	01/15/19 11:50	01/16/19 15:11	7439-98-7	
Selenium	**<0.085**	ug/L	1.0	0.085	1	01/15/19 11:50	01/16/19 15:11	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	01/15/19 11:50	01/16/19 15:11	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	01/14/19 10:00	01/15/19 12:03	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		01/16/19 09:45		
9040 pH	Analytical Method: EPA 9040								
pH	**6.1**	Std. Units	0.10	0.10	1		01/14/19 11:59		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**<0.29**	mg/L	1.0	0.29	1		01/18/19 23:12	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		01/18/19 23:12	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		01/18/19 23:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

QC Batch: 564429 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

METHOD BLANK: 2315938 Matrix: Water
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.090	0.20	0.090	01/15/19 11:10	

LABORATORY CONTROL SAMPLE: 2315939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	80-120	

SAMPLE DUPLICATE: 2317238

Parameter	Units	60291692003 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	ug/L	<0.090	<0.090		20	

SAMPLE DUPLICATE: 2317240

Parameter	Units	60291692003 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	ug/L	<0.090	<0.18		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

QC Batch: 564601 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

METHOD BLANK: 2316524 Matrix: Water
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<12.5	100	12.5	01/15/19 10:31	
Calcium	mg/L	<0.054	0.20	0.054	01/15/19 10:31	
Lithium	ug/L	<4.6	10.0	4.6	01/15/19 10:31	

LABORATORY CONTROL SAMPLE: 2316525

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	954	95	80-120	
Calcium	mg/L	10	10.2	102	80-120	
Lithium	ug/L	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2316526 2316527

Parameter	Units	60291692006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	17300	1000	1000	18400	18300	109	98	75-125	1	20	
Calcium	mg/L	152	10	10	162	161	100	84	75-125	1	20	
Lithium	ug/L	76.9	1000	1000	1120	1100	104	102	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

QC Batch: 564704 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

METHOD BLANK: 2316939 Matrix: Water
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.078	1.0	0.078	01/16/19 14:47	
Arsenic	ug/L	<0.065	1.0	0.065	01/16/19 14:47	
Barium	ug/L	<0.28	1.0	0.28	01/16/19 14:47	
Beryllium	ug/L	<0.089	0.50	0.089	01/16/19 14:47	
Cadmium	ug/L	<0.033	0.50	0.033	01/16/19 14:47	
Chromium	ug/L	0.18J	1.0	0.078	01/16/19 14:47	
Cobalt	ug/L	<0.062	1.0	0.062	01/16/19 14:47	
Lead	ug/L	<0.13	1.0	0.13	01/16/19 14:47	
Molybdenum	ug/L	<0.57	1.0	0.57	01/16/19 14:47	
Selenium	ug/L	<0.085	1.0	0.085	01/16/19 14:47	
Thallium	ug/L	<0.099	1.0	0.099	01/16/19 14:47	

LABORATORY CONTROL SAMPLE: 2316940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.9	100	80-120	
Arsenic	ug/L	40	39.7	99	80-120	
Barium	ug/L	40	39.9	100	80-120	
Beryllium	ug/L	40	39.2	98	80-120	
Cadmium	ug/L	40	39.8	100	80-120	
Chromium	ug/L	40	40.5	101	80-120	
Cobalt	ug/L	40	40.6	101	80-120	
Lead	ug/L	40	40.5	101	80-120	
Molybdenum	ug/L	40	41.0	103	80-120	
Selenium	ug/L	40	37.7	94	80-120	
Thallium	ug/L	40	38.7	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2316941 2316942

Parameter	Units	60291692005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.078	40	40	39.9	39.4	99	98	75-125	1	20	
Arsenic	ug/L	1.4	40	40	42.5	42.6	103	103	75-125	0	20	
Barium	ug/L	97.8	40	40	140	138	105	102	75-125	1	20	
Beryllium	ug/L	<0.089	40	40	36.0	36.5	90	91	75-125	1	20	
Cadmium	ug/L	0.21J	40	40	37.5	37.3	93	93	75-125	0	20	
Chromium	ug/L	0.24J	40	40	36.7	36.7	91	91	75-125	0	20	
Cobalt	ug/L	0.54J	40	40	40.7	40.4	100	100	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2316941 2316942

Parameter	Units	60291692005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	<0.13	40	40	42.8	42.6	107	106	75-125	0	20	
Molybdenum	ug/L	663	40	40	710	710	118	119	75-125	0	20	
Selenium	ug/L	0.094J	40	40	35.1	35.3	87	88	75-125	1	20	
Thallium	ug/L	<0.099	40	40	40.9	40.9	102	102	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

QC Batch: 564893 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

METHOD BLANK: 2317749 Matrix: Water
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	01/16/19 09:45	

LABORATORY CONTROL SAMPLE: 2317750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 2317751

Parameter	Units	60291692001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	892	901	1	10	

SAMPLE DUPLICATE: 2317753

Parameter	Units	60291850003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1470	1330	10	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

QC Batch: 565285 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692006, 60291692007

METHOD BLANK: 2319405 Matrix: Water
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006, 60291692007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.29	1.0	0.29	01/18/19 12:54	
Fluoride	mg/L	<0.19	0.20	0.19	01/18/19 12:54	
Sulfate	mg/L	<0.24	1.0	0.24	01/18/19 12:54	

LABORATORY CONTROL SAMPLE: 2319406

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	80-120	
Fluoride	mg/L	2.5	2.4	96	80-120	
Sulfate	mg/L	5	4.9	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2319407 2319408

Parameter	Units	60291585004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	24.6	25	25	52.5	50.7	112	105	80-120	3	15	

SAMPLE DUPLICATE: 2319409

Parameter	Units	60291585005 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	482	454	6	15	

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QUALITY CONTROL DATA

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

QC Batch: 565524 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006

METHOD BLANK: 2320338 Matrix: Water
Associated Lab Samples: 60291692001, 60291692002, 60291692003, 60291692004, 60291692005, 60291692006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.29	1.0	0.29	01/21/19 09:33	
Fluoride	mg/L	<0.19	0.20	0.19	01/21/19 09:33	
Sulfate	mg/L	<0.24	1.0	0.24	01/21/19 09:33	

LABORATORY CONTROL SAMPLE: 2320339

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	80-120	
Fluoride	mg/L	2.5	2.6	104	80-120	
Sulfate	mg/L	5	5.1	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2320340 2320341

Parameter	Units	60291692001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.22	2.5	2.5	3.0	3.0	110	110	80-120	0	15	

SAMPLE DUPLICATE: 2320342

Parameter	Units	60291692002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	13.9	14.0	1	15	
Fluoride	mg/L	0.19J	<0.19		15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60291692001	**MW-301**		565420		
60291692002	**MW-302**		565420		
60291692003	**MW-303**		565420		
60291692004	**MW-304**		565420		
60291692005	**MW-305**		565420		
60291692006	**MW-306**		565420		
60291692001	**MW-301**	EPA 3010	564601	EPA 6010	564643
60291692002	**MW-302**	EPA 3010	564601	EPA 6010	564643
60291692003	**MW-303**	EPA 3010	564601	EPA 6010	564643
60291692004	**MW-304**	EPA 3010	564601	EPA 6010	564643
60291692005	**MW-305**	EPA 3010	564601	EPA 6010	564643
60291692006	**MW-306**	EPA 3010	564601	EPA 6010	564643
60291692007	**FIELD BLANK**	EPA 3010	564601	EPA 6010	564643
60291692001	**MW-301**	EPA 3010	564704	EPA 6020	564738
60291692002	**MW-302**	EPA 3010	564704	EPA 6020	564738
60291692003	**MW-303**	EPA 3010	564704	EPA 6020	564738
60291692004	**MW-304**	EPA 3010	564704	EPA 6020	564738
60291692005	**MW-305**	EPA 3010	564704	EPA 6020	564738
60291692006	**MW-306**	EPA 3010	564704	EPA 6020	564738
60291692007	**FIELD BLANK**	EPA 3010	564704	EPA 6020	564738
60291692001	**MW-301**	EPA 7470	564429	EPA 7470	564479
60291692002	**MW-302**	EPA 7470	564429	EPA 7470	564479
60291692003	**MW-303**	EPA 7470	564429	EPA 7470	564479
60291692004	**MW-304**	EPA 7470	564429	EPA 7470	564479
60291692005	**MW-305**	EPA 7470	564429	EPA 7470	564479
60291692006	**MW-306**	EPA 7470	564429	EPA 7470	564479
60291692007	**FIELD BLANK**	EPA 7470	564429	EPA 7470	564479
60291692001	**MW-301**	SM 2540C	564893		
60291692002	**MW-302**	SM 2540C	564893		
60291692003	**MW-303**	SM 2540C	564893		
60291692004	**MW-304**	SM 2540C	564893		
60291692005	**MW-305**	SM 2540C	564893		
60291692006	**MW-306**	SM 2540C	564893		
60291692007	**FIELD BLANK**	SM 2540C	564893		
60291692001	**MW-301**	EPA 9040	564474		
60291692002	**MW-302**	EPA 9040	564474		
60291692003	**MW-303**	EPA 9040	564474		
60291692004	**MW-304**	EPA 9040	564474		
60291692005	**MW-305**	EPA 9040	564474		
60291692006	**MW-306**	EPA 9040	564474		
60291692007	**FIELD BLANK**	EPA 9040	564474		
60291692001	**MW-301**	EPA 9056	565285		
60291692001	**MW-301**	EPA 9056	565524		
60291692002	**MW-302**	EPA 9056	565285		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: M.L. KAPP ASH POND
Pace Project No.: 60291692

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60291692002	**MW-302**	EPA 9056	565524		
60291692003	**MW-303**	EPA 9056	565285		
60291692003	**MW-303**	EPA 9056	565524		
60291692004	**MW-304**	EPA 9056	565285		
60291692004	**MW-304**	EPA 9056	565524		
60291692005	**MW-305**	EPA 9056	565524		
60291692006	**MW-306**	EPA 9056	565285		
60291692006	**MW-306**	EPA 9056	565524		
60291692007	**FIELD BLANK**	EPA 9056	565285		

HWK

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Sample Condition Upon Receipt

WO# : 60291692

60291692

Client Name: SCS

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 7849 1354 4591 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ XPK

Thermometer Used: T299 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 2.7 **Corr. Factor** +0.1 **Corrected** 2.8

Date and initials of person examining contents: 1-11-19 HF

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	DH
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☑No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☑No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: HWK Date: 1-11-2019

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company:	SCS Engineers
Address:	2830 Dairy Drive
	Madison WI 53718
Email To:	mblodgett@scsengineers.com
Phone: 608-216-7362	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Meghan Blodgett
Copy To:	Tom Karwaski
Purchase Order No.:	
Project Name:	M.L. Kapp Ash Pond
Project Number:	25218061.00.

Section C Invoice Information:

Attention:	Meghan Blodgett/Jess Valcheff
Company Name:	SCS Engineers
Address:	
Pace Quote Reference:	
Pace Project Manager:	Hank Kapka 913-563-1404
Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	6010 Total Metals: B-Ca-Li	6020 Total Metals *	7470 Total Mercury	9056 Chloride-Fluoride-Sulfate	9040 pH	2540C TDS	Field Data (Client Provided)							Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N													40291692
1	MW-301	WT	G	xxx	xxx	1-10-19	1443		3	1		2							X	X	X	X	X	X	X	BPIU 2BP3N						001
2	MW-302	WT	G	xxx	xxx	1-10-19	1004		3	1		2							X	X	X	X	X	X	X							002
3	MW-303	WT	G	xxx	xxx	1.10.19	1053		3	1		2							X	X	X	X	X	X	X							003
4	MW-304	WT	G	xxx	xxx	1-10-19	1139		3	1		2							X	X	X	X	X	X	X							004
5	MW-305	WT	G	xxx	xxx	1.10.19	1218		3	1		2							X	X	X	X	X	X	X							005
6	MW-306	WT	G	xxx	xxx	1.10.19	1302		3	1		2							X	X	X	X	X	X	X							006
7	FIELD BLANK	WT	G	xxx	xxx	1.10.19	2359		3	1		2							X	X	X	X	X	X								007
8																																
9																																
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	SCS	1/10/19	1650	Holly Fourkiotis	1/11/19	0840	2.8	Y	Y	Y
* As-Ba-Be-Cd-Cr-Co-Pb-Mo-Sb-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 29, 2019

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on January 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

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CERTIFICATIONS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60291697001	**MW-301**	Water	01/10/19 14:13	01/11/19 08:40
60291697002	**MW-302**	Water	01/10/19 10:04	01/11/19 08:40
60291697003	**MW-303**	Water	01/10/19 10:53	01/11/19 08:40
60291697004	**MW-304**	Water	01/10/19 11:39	01/11/19 08:40
60291697005	**MW-305**	Water	01/10/19 12:18	01/11/19 08:40
60291697006	**MW-306**	Water	01/10/19 13:02	01/11/19 08:40
60291697007	**FIELD BLANK**	Water	01/10/19 23:59	01/11/19 08:40

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

SAMPLE ANALYTE COUNT

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60291697001	**MW-301**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60291697002	**MW-302**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60291697003	**MW-303**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60291697004	**MW-304**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60291697005	**MW-305**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60291697006	**MW-306**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60291697007	**FIELD BLANK**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: MW-301 **Lab ID: 60291697001** Collected: 01/10/19 14:13 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.01 ± 0.590 (0.748) C:NA T:93%**	pCi/L	01/25/19 19:58	13982-63-3	
Radium-228	EPA 904.0	**0.978 ± 0.457 (0.779) C:71% T:93%**	pCi/L	01/23/19 15:43	15262-20-1	
Total Radium	Total Radium Calculation	**1.99 ± 1.05 (1.53)**	pCi/L	01/28/19 14:24	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: MW-302 **Lab ID: 60291697002** Collected: 01/10/19 10:04 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.887 ± 0.542 (0.666) C:NA T:89%**	pCi/L	01/25/19 19:58	13982-63-3	
Radium-228	EPA 904.0	**0.802 ± 0.471 (0.875) C:74% T:81%**	pCi/L	01/23/19 15:43	15262-20-1	
Total Radium	Total Radium Calculation	**1.69 ± 1.01 (1.54)**	pCi/L	01/28/19 14:24	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: MW-303 **Lab ID: 60291697003** Collected: 01/10/19 10:53 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0957 ± 0.351 (0.675) C:NA T:97%**	pCi/L	01/25/19 19:58	13982-63-3	
Radium-228	EPA 904.0	**0.394 ± 0.368 (0.753) C:74% T:95%**	pCi/L	01/23/19 15:43	15262-20-1	
Total Radium	Total Radium Calculation	**0.490 ± 0.719 (1.43)**	pCi/L	01/28/19 14:24	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: MW-304 **Lab ID: 60291697004** Collected: 01/10/19 11:39 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.392 (0.814) C:NA T:83%**	pCi/L	01/25/19 19:58	13982-63-3	
Radium-228	EPA 904.0	**0.978 ± 0.422 (0.685) C:81% T:88%**	pCi/L	01/23/19 15:43	15262-20-1	
Total Radium	Total Radium Calculation	**0.978 ± 0.814 (1.50)**	pCi/L	01/28/19 14:24	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: MW-305 **Lab ID: 60291697005** Collected: 01/10/19 12:18 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.417 ± 0.459 (0.734) C:NA T:94%**	pCi/L	01/25/19 20:15	13982-63-3	
Radium-228	EPA 904.0	**0.570 ± 0.398 (0.768) C:75% T:88%**	pCi/L	01/23/19 15:43	15262-20-1	
Total Radium	Total Radium Calculation	**0.987 ± 0.857 (1.50)**	pCi/L	01/29/19 14:03	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: MW-306 **Lab ID: 60291697006** Collected: 01/10/19 13:02 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.417 ± 0.436 (0.683) C:NA T:91%**	pCi/L	01/25/19 20:15	13982-63-3	
Radium-228	EPA 904.0	**0.585 ± 0.408 (0.790) C:75% T:87%**	pCi/L	01/23/19 15:43	15262-20-1	
Total Radium	Total Radium Calculation	**1.00 ± 0.844 (1.47)**	pCi/L	01/29/19 14:03	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Sample: FIELD BLANK **Lab ID: 60291697007** Collected: 01/10/19 23:59 Received: 01/11/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.195 ± 0.384 (0.689) C:NA T:98%**	pCi/L	01/25/19 20:15	13982-63-3	
Radium-228	EPA 904.0	**0.360 ± 0.295 (0.581) C:76% T:88%**	pCi/L	01/23/19 15:42	15262-20-1	
Total Radium	Total Radium Calculation	**0.555 ± 0.679 (1.27)**	pCi/L	01/29/19 14:03	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

QC Batch: 327041 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60291697001, 60291697002, 60291697003, 60291697004, 60291697005, 60291697006, 60291697007

METHOD BLANK: 1592367 Matrix: Water
Associated Lab Samples: 60291697001, 60291697002, 60291697003, 60291697004, 60291697005, 60291697006, 60291697007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.175 ± 0.301 (0.656) C:82% T:81%	pCi/L	01/23/19 15:41	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

QC Batch: 327039 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60291697001, 60291697002, 60291697003, 60291697004, 60291697005, 60291697006, 60291697007

METHOD BLANK: 1592365 Matrix: Water
Associated Lab Samples: 60291697001, 60291697002, 60291697003, 60291697004, 60291697005, 60291697006, 60291697007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.108 ± 0.246 (0.579) C:NA T:95%	pCi/L	01/25/19 19:44	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: M.L. KAPP ASH POND
Pace Project No.: 60291697

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60291697001	**MW-301**	EPA 903.1	327039		
60291697002	**MW-302**	EPA 903.1	327039		
60291697003	**MW-303**	EPA 903.1	327039		
60291697004	**MW-304**	EPA 903.1	327039		
60291697005	**MW-305**	EPA 903.1	327039		
60291697006	**MW-306**	EPA 903.1	327039		
60291697007	**FIELD BLANK**	EPA 903.1	327039		
60291697001	**MW-301**	EPA 904.0	327041		
60291697002	**MW-302**	EPA 904.0	327041		
60291697003	**MW-303**	EPA 904.0	327041		
60291697004	**MW-304**	EPA 904.0	327041		
60291697005	**MW-305**	EPA 904.0	327041		
60291697006	**MW-306**	EPA 904.0	327041		
60291697007	**FIELD BLANK**	EPA 904.0	327041		
60291697001	**MW-301**	Total Radium Calculation	328301		
60291697002	**MW-302**	Total Radium Calculation	328301		
60291697003	**MW-303**	Total Radium Calculation	328301		
60291697004	**MW-304**	Total Radium Calculation	328301		
60291697005	**MW-305**	Total Radium Calculation	328458		
60291697006	**MW-306**	Total Radium Calculation	328458		
60291697007	**FIELD BLANK**	Total Radium Calculation	328458		

HWIC

WO#: 60291697

60291697

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

Client Name: SCS Engineers

Courier: FedEx ☒ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 477687395341 Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☐ No ☒ Seals intact: Yes ☐ No ☒

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☒ Ziplc

Thermometer Used: T300 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 0.8 **Corr. Factor** +0.2 **Corrected** 1.0

Date and initials of person examining contents: 1-11-19 HZ

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: HWK Date: 1-11-2019

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	SCS Engineers	Report To:	Meghan Blodgett	Attention:	Meghan Blodgett/Jess Valcheff
Address:	2830 Dairy Drive	Copy To:	Tom Karwaski	Company Name:	SCS Engineers
	Madison WI 53718			Address:	
Email To:	mblodgett@scsengineers.com	Purchase Order No.:		Pace Quote Reference:	
Phone: 608-216-7362	Fax:	Project Name:	M.L. Kapp Ash Pond	Pace Project Manager:	Hank Kapka 913-563-1404
Requested Due Date/TAT:		Project Number:	25218061.00	Pace Profile #:	6696 Line 4

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	903.1 Radium-226	904.0 Radium-228	Total Radium									Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-301	WT	G	xxx	xxx	1-10-19	1413		2			2							X	X	X	2BPIN									001
2	MW-302	WT	G	xxx	xxx	1-10-19	1004		2			2							X	X	X											002
3	MW-303	WT	G	xxx	xxx	1-10-19	1053		2			2							X	X	X											003
4	MW-304	WT	G	xxx	xxx	1-10-19	1139		2			2							X	X	X											004
5	MW-305	WT	G	xxx	xxx	1-10-19	1238		2			2							X	X	X											005
6	MW-306	WT	G	xxx	xxx	1-10-19	1302		2			2							X	X	X											006
7	FIELD BLANK	WT	G	xxx	xxx	1-10-19	2359		2			2							X	X	X											007
8																															
9																															
10																															
11																															
12																															

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	SCS	1-10-19	1650	UZipf Flasi	1-11-19	0840	1.0	Y	N	Y

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:					
SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY):				

Page 17 of 19

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Chain of Custody

Pace Analytical®
www.pacelabs.com

☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: IA
Cert. Needed: ☐ Yes ☐ No
Owner Received Date: 1/11/2019 Results Requested By: 2/1/2019

Workorder: 60291697 **Workorder Name:** M.L. KAPP ASH POND

Report To	Subcontract To
Hank Kapka Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO# : 30276854

30276854

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3	Requested Analysis: Combined Ra	Ra 226/228	LAB USE ONLY
1	MW-301	PS	1/10/2019 14:13	60291697001	Water	2	X	X	001
2	MW-302	PS	1/10/2019 10:04	60291697002	Water	2	X	X	002
3	MW-303	PS	1/10/2019 10:53	60291697003	Water	2	X	X	003
4	MW-304	PS	1/10/2019 11:39	60291697004	Water	2	X	X	004
5	MW-305	PS	1/10/2019 12:18	60291697005	Water	2	X	X	005
6	MW-306	PS	1/10/2019 13:02	60291697006	Water	2	X	X	006
7	FIELD BLANK	PS	1/10/2019 23:59	60291697007	Water	2	X	X	007

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler PASI	1-14-19 1800	[signature]	1-15-19 1000
2				
3				

Comments

Cooler Temperature on Receipt 4.4 °C | Custody Seal Y or (N) | Received on Ice (Y) or N | Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Pace KS

Project # # 30276854

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label ET

Tracking #: 4746 8746 0881

LIMS Login ET

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 4.3 °c Correction Factor: +0.1 °c Final Temp: 4.4 °c

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot# 10D3581 / Date and Initials of person examining contents: ET 1-15-19
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics	✓			16. pH<2 Initial when completed ET Date/time of preservation Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present: Trip Blank Custody Seals Present		✓		18.
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: ET Date: 1-15-19

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

A2 February 2019 Background Monitoring Program

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

March 05, 2019

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on February 15, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60294493001	**MW-301**	Water	02/13/19 12:40	02/15/19 08:20
60294493002	**MW-302**	Water	02/13/19 13:20	02/15/19 08:20
60294493003	**MW-303**	Water	02/13/19 14:45	02/15/19 08:20
60294493004	**MW-304**	Water	02/13/19 15:35	02/15/19 08:20
60294493005	**MW-305**	Water	02/13/19 16:10	02/15/19 08:20
60294493006	**MW-306**	Water	02/13/19 16:50	02/15/19 08:20
60294493007	**FIELD BLANK**	Water	02/13/19 15:25	02/15/19 08:20

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SAMPLE ANALYTE COUNT

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60294493001	**MW-301**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60294493002	**MW-302**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60294493003	**MW-303**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60294493004	**MW-304**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60294493005	**MW-305**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60294493006	**MW-306**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60294493007	**FIELD BLANK**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: MW-301 **Lab ID: 60294493001** Collected: 02/13/19 12:40 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.390 ± 0.365 (0.517) C:NA T:88%**	pCi/L	03/01/19 22:06	13982-63-3	
Radium-228	EPA 904.0	**0.576 ± 0.423 (0.828) C:78% T:72%**	pCi/L	03/04/19 10:59	15262-20-1	
Total Radium	Total Radium Calculation	**0.966 ± 0.788 (1.35)**	pCi/L	03/05/19 13:30	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: MW-302 **Lab ID: 60294493002** Collected: 02/13/19 13:20 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.499 ± 0.427 (0.579) C:NA T:87%**	pCi/L	03/01/19 22:06	13982-63-3	
Radium-228	EPA 904.0	**0.164 ± 0.444 (0.987) C:72% T:90%**	pCi/L	02/27/19 12:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.663 ± 0.871 (1.57)**	pCi/L	03/04/19 13:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: MW-303 **Lab ID: 60294493003** Collected: 02/13/19 14:45 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.566 ± 0.449 (0.584) C:NA T:84%**	pCi/L	03/01/19 22:06	13982-63-3	
Radium-228	EPA 904.0	**0.470 ± 0.483 (1.01) C:70% T:78%**	pCi/L	02/27/19 12:45	15262-20-1	
Total Radium	Total Radium Calculation	**1.04 ± 0.932 (1.59)**	pCi/L	03/04/19 13:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: MW-304 **Lab ID: 60294493004** Collected: 02/13/19 15:35 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.588 ± 0.500 (0.703) C:NA T:83%**	pCi/L	03/01/19 22:06	13982-63-3	
Radium-228	EPA 904.0	**0.281 ± 0.507 (1.11) C:69% T:73%**	pCi/L	02/27/19 12:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.869 ± 1.01 (1.81)**	pCi/L	03/04/19 13:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: MW-305 **Lab ID: 60294493005** Collected: 02/13/19 16:10 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.178 ± 0.309 (0.552) C:NA T:89%**	pCi/L	03/01/19 22:20	13982-63-3	
Radium-228	EPA 904.0	**0.639 ± 0.554 (1.13) C:67% T:77%**	pCi/L	02/27/19 12:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.817 ± 0.863 (1.68)**	pCi/L	03/04/19 13:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: MW-306 **Lab ID: 60294493006** Collected: 02/13/19 16:50 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.221 ± 0.253 (0.149) C:NA T:91%**	pCi/L	03/01/19 22:20	13982-63-3	
Radium-228	EPA 904.0	**-0.115 ± 0.461 (1.07) C:70% T:87%**	pCi/L	02/27/19 12:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.221 ± 0.714 (1.22)**	pCi/L	03/04/19 13:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Sample: FIELD BLANK **Lab ID: 60294493007** Collected: 02/13/19 15:25 Received: 02/15/19 08:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.241 ± 0.291 (0.444) C:NA T:87%**	pCi/L	03/01/19 22:20	13982-63-3	
Radium-228	EPA 904.0	**0.219 ± 0.413 (0.906) C:73% T:81%**	pCi/L	02/27/19 12:56	15262-20-1	
Total Radium	Total Radium Calculation	**0.460 ± 0.704 (1.35)**	pCi/L	03/04/19 13:01	7440-14-4	

Pace Analytical Services, LLC
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QUALITY CONTROL - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

QC Batch: 330932 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60294493001

METHOD BLANK: 1610100 Matrix: Water
Associated Lab Samples: 60294493001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.143 ± 0.301 (0.736) C:74% T:85%	pCi/L	02/27/19 11:19	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

QC Batch: 330963 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60294493001, 60294493002, 60294493003, 60294493004, 60294493005, 60294493006, 60294493007

METHOD BLANK: 1610263 Matrix: Water
Associated Lab Samples: 60294493001, 60294493002, 60294493003, 60294493004, 60294493005, 60294493006, 60294493007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.108 ± 0.246 (0.146) C:NA T:93%	pCi/L	03/01/19 21:52	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

QC Batch: 330964 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60294493002, 60294493003, 60294493004, 60294493005, 60294493006, 60294493007

METHOD BLANK: 1610264 Matrix: Water
Associated Lab Samples: 60294493002, 60294493003, 60294493004, 60294493005, 60294493006, 60294493007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.426 ± 0.317 (0.614) C:76% T:89%	pCi/L	02/27/19 12:58	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: M.L. KAPP ASH POND 25218061.00
Pace Project No.: 60294493

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60294493001	**MW-301**	EPA 903.1	330963		
60294493002	**MW-302**	EPA 903.1	330963		
60294493003	**MW-303**	EPA 903.1	330963		
60294493004	**MW-304**	EPA 903.1	330963		
60294493005	**MW-305**	EPA 903.1	330963		
60294493006	**MW-306**	EPA 903.1	330963		
60294493007	**FIELD BLANK**	EPA 903.1	330963		
60294493001	**MW-301**	EPA 904.0	330932		
60294493002	**MW-302**	EPA 904.0	330964		
60294493003	**MW-303**	EPA 904.0	330964		
60294493004	**MW-304**	EPA 904.0	330964		
60294493005	**MW-305**	EPA 904.0	330964		
60294493006	**MW-306**	EPA 904.0	330964		
60294493007	**FIELD BLANK**	EPA 904.0	330964		
60294493001	**MW-301**	Total Radium Calculation	332313		
60294493002	**MW-302**	Total Radium Calculation	332094		
60294493003	**MW-303**	Total Radium Calculation	332094		
60294493004	**MW-304**	Total Radium Calculation	332094		
60294493005	**MW-305**	Total Radium Calculation	332094		
60294493006	**MW-306**	Total Radium Calculation	332094		
60294493007	**FIELD BLANK**	Total Radium Calculation	332094		

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Sample Condition Upon Receipt

WO# : 60294493

60294493

Client Name: SCS

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: N7N6 8741 2068 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ Zip IC

Thermometer Used: T299 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 14.3 **Corr. Factor** +0.4 **Corrected** 14.7

Date and initials of person examining contents: 2/15/19 HF

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☑No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☑No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Hank 10:27 am,Feb 18,2019 Kapka Date: _____

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company:	SCS Engineers
Address:	2830 Dairy Drive
	Madison WI 53718
Email To:	mblodgett@scsengineers.com
Phone: 608-216-7362	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Meghan Blodgett
Copy To:	Tom Karwaski
Purchase Order No.:	
Project Name:	M.L. Kapp Ash Pond
Project Number:	25218061.00.

Section C Invoice Information:

Attention:	Meghan Blodgett/Jess Valcheff
Company Name:	SCS Engineers
Address:	
Pace Quote Reference:	
Pace Project Manager:	Hank Kapka 913-563-1404
Pace Profile #:	6696 Line 4

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	903.1 Radium-226	904.0 Radium-228	Total Radium		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-301	WT	G	xxx	xxx	2-13-19	12:40	11.5	2			2						X	X	X	2BPIN			60294493 001
2	MW-302	WT	G	xxx	xxx		13:20	10.9	2			2						X	X	X				002
3	MW-303	WT	G	xxx	xxx		14:45	12.1	2			2						X	X	X				003
4	MW-304	WT	G	xxx	xxx		15:35	12.7	2			2						X	X	X				004
5	MW-305	WT	G	xxx	xxx		16:10	11.3	2			2						X	X	X				005
6	MW-306	WT	G	xxx	xxx		16:50	10.4	2			2						X	X	X				006
7	FIELD BLANK	WT	G	xxx	xxx		15:25	NR	2			2						X	X	X				007
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	Paul A. Lawler	2/14/19	19:30	Henry Fowler DOSI	2/15/19	0820	14.7	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: IA
Cert. Needed: ☐ Yes ☐ No
Owner Received Date: 2/15/2019 **Results Requested By:** 3/8/2019

Pace Analytical
www.pacelabs.com

Workorder: 60294493 **Workorder Name:** M.L. KAPP ASH POND 25218061.00

Report To	Subcontract To
Hank Kapka Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO# : 30280736
30280736

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3						Combined Ra	Ra 226 / 228										LAB USE ONLY
1	MW-301	PS	2/13/2019 12:40	60294493001	Water	2						X	X										001
2	MW-302	PS	2/13/2019 13:20	60294493002	Water	2						X	X										002
3	MW-303	PS	2/13/2019 14:45	60294493003	Water	2						X	X										003
4	MW-304	PS	2/13/2019 15:35	60294493004	Water	2						X	X										004
5	MW-305	PS	2/13/2019 16:10	60294493005	Water	2						X	X										005
6	MW-306	PS	2/13/2019 16:50	60294493006	Water	2						X	X										006
7	FIELD BLANK	PS	2/13/2019 15:25	60294493007	Water	2						X	X										007

Transfers	Released By	Date/Time	Received By	Date/Time
1	EBrackett Pace	2/18/19 1800	Emily Jr	2-19-19 0950
2				
3				

Comments

Cooler Temperature on Receipt N/A °C	Custody Seal Y or (N)	Received on Ice Y or (N)	Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Paceks

Project #: 30280736

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label ET
LIMS Login ET

Tracking #: 474608741 9490

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used N/A Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

pH paper Lot# 10D29481 Date and Initials of person examining contents: ET 2-19-19

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics	✓ ✓			16. pH<2
				Initial when completed: ET Date/time of preservation:
				Lot # of added preservative:
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present: Trip Blank Custody Seals Present		✓	✓	18.
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: ET Date: 2-19-19

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

February 27, 2019

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on February 15, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60294515001	**MW-301**	Water	02/13/19 12:40	02/15/19 08:20
60294515002	**MW-302**	Water	02/13/19 13:20	02/15/19 08:20
60294515003	**MW-303**	Water	02/13/19 14:45	02/15/19 08:20
60294515004	**MW-304**	Water	02/13/19 15:35	02/15/19 08:20
60294515005	**MW-305**	Water	02/13/19 16:10	02/15/19 08:20
60294515006	**MW-306**	Water	02/13/19 16:50	02/15/19 08:20
60294515007	**Field Blank**	Water	02/13/19 15:25	02/15/19 08:20

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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60294515001	MW-301	EPA 6010	JDE	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60294515002	MW-302	EPA 6010	JDE	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60294515003	MW-303	EPA 6010	JDE	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60294515004	MW-304	EPA 6010	JDE	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60294515005	MW-305	EPA 6010	JDE	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60294515006	MW-306	EPA 6010	JDE	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K
60294515007	Field Blank	EPA 6010	JDE	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	JGP	11	PASI-K
		EPA 7470	HKC	1	PASI-K
		SM 2540C	JES	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	MGS	3	PASI-K

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: MW-301 **Lab ID: 60294515001** Collected: 02/13/19 12:40 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		02/13/19 12:40		
Collected Date	**02/13/2019**				1		02/13/19 12:40		
Collected Time	**12:40**				1		02/13/19 12:40		
Field pH	**6.52**	Std. Units	0.10	0.050	1		02/13/19 12:40		
Field Temperature	**11.50**	deg C	0.50	0.25	1		02/13/19 12:40		
Field Specific Conductance	**938**	umhos/cm	1.0	1.0	1		02/13/19 12:40		
Field Oxidation Potential	**-33.2**	mV			1		02/13/19 12:40		
Oxygen, Dissolved	**0.09**	mg/L			1		02/13/19 12:40	7782-44-7	
Turbidity	**6.68**	NTU	1.0	1.0	1		02/13/19 12:40		
Groundwater Elevation	**577.23**	feet			1		02/13/19 12:40		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**13800**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:03	7440-42-8	
Calcium	**137**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:03	7440-70-2	
Lithium	**8.7J**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:03	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.086J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:28	7440-36-0	B
Arsenic	**0.76J**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:28	7440-38-2	
Barium	**119**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:28	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:28	7440-41-7	
Cadmium	**0.15J**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:28	7440-43-9	
Chromium	**0.14J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:28	7440-47-3	
Cobalt	**4.7**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:28	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:28	7439-92-1	
Molybdenum	**242**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:28	7439-98-7	
Selenium	**<0.085**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:28	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:28	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 09:59	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**826**	mg/L	5.0	5.0	1		02/18/19 10:38		
9040 pH	Analytical Method: EPA 9040								
pH	**6.8**	Std. Units	0.10	0.10	1		02/19/19 10:21		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**25.6**	mg/L	5.0	1.4	5		02/25/19 18:50	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.19	1		02/25/19 18:36	16984-48-8	
Sulfate	**450**	mg/L	50.0	12.0	50		02/25/19 19:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: MW-302 **Lab ID: 60294515002** Collected: 02/13/19 13:20 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		02/13/19 13:20		
Collected Date	**02/13/2019**				1		02/13/19 13:20		
Collected Time	**13:20**				1		02/13/19 13:20		
Field pH	**7.75**	Std. Units	0.10	0.050	1		02/13/19 13:20		
Field Temperature	**10.80**	deg C	0.50	0.25	1		02/13/19 13:20		
Field Specific Conductance	**713**	umhos/cm	1.0	1.0	1		02/13/19 13:20		
Field Oxidation Potential	**-62.4**	mV			1		02/13/19 13:20		
Oxygen, Dissolved	**0.61**	mg/L			1		02/13/19 13:20	7782-44-7	
Turbidity	**5.54**	NTU	1.0	1.0	1		02/13/19 13:20		
Groundwater Elevation	**576.51**	feet			1		02/13/19 13:20		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**6420**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:12	7440-42-8	
Calcium	**94.5**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:12	7440-70-2	
Lithium	**31.8**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:12	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.35J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:30	7440-36-0	B
Arsenic	**7.1**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:30	7440-38-2	
Barium	**63.1**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:30	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:30	7440-41-7	
Cadmium	**0.14J**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:30	7440-43-9	
Chromium	**0.36J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:30	7440-47-3	
Cobalt	**0.29J**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:30	7440-48-4	
Lead	**0.38J**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:30	7439-92-1	
Molybdenum	**127**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:30	7439-98-7	
Selenium	**8.1**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:30	7782-49-2	
Thallium	**0.12J**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:30	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 10:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**564**	mg/L	5.0	5.0	1		02/18/19 10:38		
9040 pH	Analytical Method: EPA 9040								
pH	**7.8**	Std. Units	0.10	0.10	1		02/19/19 10:24		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**10.9**	mg/L	1.0	0.29	1		02/25/19 19:43	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		02/25/19 19:43	16984-48-8	
Sulfate	**211**	mg/L	50.0	12.0	50		02/25/19 20:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: MW-303 **Lab ID: 60294515003** Collected: 02/13/19 14:45 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		02/13/19 14:45		
Collected Date	**02/13/2019**				1		02/13/19 14:45		
Collected Time	**14:45**				1		02/13/19 14:45		
Field pH	**8.54**	Std. Units	0.10	0.050	1		02/13/19 14:45		
Field Temperature	**12.10**	deg C	0.50	0.25	1		02/13/19 14:45		
Field Specific Conductance	**1092**	umhos/cm	1.0	1.0	1		02/13/19 14:45		
Field Oxidation Potential	**-160.8**	mV			1		02/13/19 14:45		
Oxygen, Dissolved	**0.10**	mg/L			1		02/13/19 14:45	7782-44-7	
Turbidity	**6.13**	NTU	1.0	1.0	1		02/13/19 14:45		
Groundwater Elevation	**578.90**	feet			1		02/13/19 14:45		
6010 MET ICP	Analytical Method: EPA 6010	Preparation Method: EPA 3010							
Boron	**3780**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:14	7440-42-8	
Calcium	**198**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:14	7440-70-2	
Lithium	**24.4**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:14	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020	Preparation Method: EPA 3010							
Antimony	**0.22J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:32	7440-36-0	B
Arsenic	**4.4**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:32	7440-38-2	
Barium	**53.8**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:32	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:32	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:32	7440-43-9	
Chromium	**0.15J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:32	7440-47-3	
Cobalt	**0.41J**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:32	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:32	7439-92-1	
Molybdenum	**67.1**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:32	7439-98-7	
Selenium	**0.86J**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:32	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470	Preparation Method: EPA 7470							
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 10:08	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**968**	mg/L	5.0	5.0	1		02/18/19 10:38		
9040 pH	Analytical Method: EPA 9040								
pH	**8.5**	Std. Units	0.10	0.10	1		02/20/19 10:08		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**8.4**	mg/L	1.0	0.29	1		02/25/19 20:22	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		02/25/19 20:22	16984-48-8	
Sulfate	**659**	mg/L	50.0	12.0	50		02/25/19 20:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: MW-304 **Lab ID: 60294515004** Collected: 02/13/19 15:35 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		02/13/19 15:35		
Collected Date	**02/13/2019**				1		02/13/19 15:35		
Collected Time	**15:35**				1		02/13/19 15:35		
Field pH	**7.24**	Std. Units	0.10	0.050	1		02/13/19 15:35		
Field Temperature	**12.20**	deg C	0.50	0.25	1		02/13/19 15:35		
Field Specific Conductance	**757**	umhos/cm	1.0	1.0	1		02/13/19 15:35		
Field Oxidation Potential	**-36.8**	mV			1		02/13/19 15:35		
Oxygen, Dissolved	**0.06**	mg/L			1		02/13/19 15:35	7782-44-7	
Turbidity	**4.16**	NTU	1.0	1.0	1		02/13/19 15:35		
Groundwater Elevation	**578.26**	feet			1		02/13/19 15:35		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**9920**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:16	7440-42-8	
Calcium	**79.3**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:16	7440-70-2	
Lithium	**5.8J**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:16	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:34	7440-36-0	
Arsenic	**3.1**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:34	7440-38-2	
Barium	**64.6**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:34	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:34	7440-41-7	
Cadmium	**0.29J**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:34	7440-43-9	
Chromium	**0.18J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:34	7440-47-3	
Cobalt	**0.83J**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:34	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:34	7439-92-1	
Molybdenum	**640**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:34	7439-98-7	
Selenium	**<0.085**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:34	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:34	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 10:10	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**602**	mg/L	5.0	5.0	1		02/18/19 10:38		
9040 pH	Analytical Method: EPA 9040								
pH	**7.3**	Std. Units	0.10	0.10	1		02/20/19 10:19		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**26.5**	mg/L	10.0	2.9	10		02/25/19 21:15	16887-00-6	
Fluoride	**0.20J**	mg/L	0.20	0.19	1		02/25/19 21:02	16984-48-8	
Sulfate	**319**	mg/L	20.0	4.8	20		02/25/19 21:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: MW-305 **Lab ID: 60294515005** Collected: 02/13/19 16:10 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		02/13/19 16:10		
Collected Date	**02/13/2019**				1		02/13/19 16:10		
Collected Time	**16:10**				1		02/13/19 16:10		
Field pH	**7.12**	Std. Units	0.10	0.050	1		02/13/19 16:10		
Field Temperature	**11.30**	deg C	0.50	0.25	1		02/13/19 16:10		
Field Specific Conductance	**1272**	umhos/cm	1.0	1.0	1		02/13/19 16:10		
Field Oxidation Potential	**-47.7**	mV			1		02/13/19 16:10		
Oxygen, Dissolved	**0.09**	mg/L			1		02/13/19 16:10	7782-44-7	
Turbidity	**5.26**	NTU	1.0	1.0	1		02/13/19 16:10		
Groundwater Elevation	**578.45**	feet			1		02/13/19 16:10		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**18700**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:19	7440-42-8	
Calcium	**167**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:19	7440-70-2	
Lithium	**23.4**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:19	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:36	7440-36-0	
Arsenic	**1.3**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:36	7440-38-2	
Barium	**92.6**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:36	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:36	7440-41-7	
Cadmium	**0.26J**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:36	7440-43-9	
Chromium	**0.45J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:36	7440-47-3	
Cobalt	**0.61J**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:36	7440-48-4	
Lead	**0.14J**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:36	7439-92-1	
Molybdenum	**468**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:36	7439-98-7	
Selenium	**0.13J**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:36	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 10:13	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1110**	mg/L	5.0	5.0	1		02/18/19 10:38		
9040 pH	Analytical Method: EPA 9040								
pH	**7.3**	Std. Units	0.10	0.10	1		02/20/19 10:22		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**16.9**	mg/L	1.0	0.29	1		02/25/19 22:08	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.19	1		02/25/19 22:08	16984-48-8	
Sulfate	**619**	mg/L	50.0	12.0	50		02/27/19 03:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: MW-306 **Lab ID: 60294515006** Collected: 02/13/19 16:50 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		02/13/19 16:50		
Collected Date	**02/13/2019**				1		02/13/19 16:50		
Collected Time	**16:50**				1		02/13/19 16:50		
Field pH	**7.25**	Std. Units	0.10	0.050	1		02/13/19 16:50		
Field Temperature	**10.40**	deg C	0.50	0.25	1		02/13/19 16:50		
Field Specific Conductance	**1344**	umhos/cm	1.0	1.0	1		02/13/19 16:50		
Field Oxidation Potential	**-12.2**	mV			1		02/13/19 16:50		
Oxygen, Dissolved	**0.07**	mg/L			1		02/13/19 16:50	7782-44-7	
Turbidity	**4.61**	NTU	1.0	1.0	1		02/13/19 16:50		
Groundwater Elevation	**579.40**	feet			1		02/13/19 16:50		
6010 MET ICP	Analytical Method: EPA 6010	Preparation Method: EPA 3010							
Boron	**18900**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:21	7440-42-8	
Calcium	**154**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:21	7440-70-2	
Lithium	**81.4**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:21	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020	Preparation Method: EPA 3010							
Antimony	**0.12J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:38	7440-36-0	B
Arsenic	**0.37J**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:38	7440-38-2	
Barium	**55.9**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:38	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:38	7440-41-7	
Cadmium	**0.050J**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:38	7440-43-9	
Chromium	**0.16J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:38	7440-47-3	
Cobalt	**0.19J**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:38	7440-48-4	
Lead	**0.19J**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:38	7439-92-1	
Molybdenum	**89.5**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:38	7439-98-7	
Selenium	**0.68J**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:38	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:38	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470	Preparation Method: EPA 7470							
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 10:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1070**	mg/L	5.0	5.0	1		02/18/19 10:38		
9040 pH	Analytical Method: EPA 9040								
pH	**7.4**	Std. Units	0.10	0.10	1		02/20/19 10:26		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**93.5**	mg/L	10.0	2.9	10		02/27/19 04:17	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		02/25/19 22:48	16984-48-8	
Sulfate	**457**	mg/L	50.0	12.0	50		02/26/19 00:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Sample: Field Blank **Lab ID: 60294515007** Collected: 02/13/19 15:25 Received: 02/15/19 08:20 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**71.6J**	ug/L	100	12.5	1	02/21/19 10:01	02/21/19 17:23	7440-42-8	
Calcium	**0.099J**	mg/L	0.20	0.054	1	02/21/19 10:01	02/21/19 17:23	7440-70-2	
Lithium	**5.5J**	ug/L	10.0	4.6	1	02/21/19 10:01	02/21/19 17:23	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:46	7440-36-0	
Arsenic	**<0.065**	ug/L	1.0	0.065	1	02/25/19 09:04	02/27/19 12:46	7440-38-2	
Barium	**0.49J**	ug/L	1.0	0.28	1	02/25/19 09:04	02/27/19 12:46	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	02/25/19 09:04	02/27/19 12:46	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	02/25/19 09:04	02/27/19 12:46	7440-43-9	
Chromium	**0.099J**	ug/L	1.0	0.078	1	02/25/19 09:04	02/27/19 12:46	7440-47-3	
Cobalt	**<0.062**	ug/L	1.0	0.062	1	02/25/19 09:04	02/27/19 12:46	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	02/25/19 09:04	02/27/19 12:46	7439-92-1	
Molybdenum	**<0.57**	ug/L	1.0	0.57	1	02/25/19 09:04	02/27/19 12:46	7439-98-7	
Selenium	**<0.085**	ug/L	1.0	0.085	1	02/25/19 09:04	02/27/19 12:46	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	02/25/19 09:04	02/27/19 12:46	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.037**	ug/L	0.20	0.037	1	02/19/19 14:12	02/21/19 10:17	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		02/20/19 14:42		
9040 pH	Analytical Method: EPA 9040								
pH	**6.9**	Std. Units	0.10	0.10	1		02/20/19 10:14		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**<0.29**	mg/L	1.0	0.29	1		02/26/19 08:45	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		02/26/19 08:45	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		02/26/19 08:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 569955 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

METHOD BLANK: 2337077 Matrix: Water
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.037	0.20	0.037	02/21/19 09:29	

LABORATORY CONTROL SAMPLE: 2337078

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2337079 2337080

Parameter	Units	60294514001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.037	5	5	5.0	4.9	101	98	75-125	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 570263 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

METHOD BLANK: 2338303 Matrix: Water
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<12.5	100	12.5	02/21/19 16:34	
Calcium	mg/L	<0.054	0.20	0.054	02/21/19 16:34	
Lithium	ug/L	<4.6	10.0	4.6	02/21/19 16:34	

LABORATORY CONTROL SAMPLE: 2338304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	990	99	80-120	
Calcium	mg/L	10	10.2	102	80-120	
Lithium	ug/L	1000	1000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2338305 2338306

Parameter	Units	60294514003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	737	1000	1000	1730	1760	99	102	75-125	1	20	
Calcium	mg/L	160	10	10	166	167	63	71	75-125	0	20	M1
Lithium	ug/L	36.5	1000	1000	1030	1040	100	101	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 570357 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

METHOD BLANK: 2338631 Matrix: Water
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	0.087J	1.0	0.078	02/27/19 12:04	
Arsenic	ug/L	<0.065	1.0	0.065	02/27/19 12:04	
Barium	ug/L	<0.28	1.0	0.28	02/27/19 12:04	
Beryllium	ug/L	<0.089	0.50	0.089	02/27/19 12:04	
Cadmium	ug/L	<0.033	0.50	0.033	02/27/19 12:04	
Chromium	ug/L	<0.078	1.0	0.078	02/27/19 12:04	
Cobalt	ug/L	<0.062	1.0	0.062	02/27/19 12:04	
Lead	ug/L	<0.13	1.0	0.13	02/27/19 12:04	
Molybdenum	ug/L	<0.57	1.0	0.57	02/27/19 12:04	
Selenium	ug/L	<0.085	1.0	0.085	02/27/19 12:04	
Thallium	ug/L	<0.099	1.0	0.099	02/27/19 12:04	

LABORATORY CONTROL SAMPLE: 2338632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	37.9	95	80-120	
Arsenic	ug/L	40	37.4	94	80-120	
Barium	ug/L	40	37.6	94	80-120	
Beryllium	ug/L	40	37.1	93	80-120	
Cadmium	ug/L	40	37.3	93	80-120	
Chromium	ug/L	40	38.2	96	80-120	
Cobalt	ug/L	40	37.6	94	80-120	
Lead	ug/L	40	37.6	94	80-120	
Molybdenum	ug/L	40	40.9	102	80-120	
Selenium	ug/L	40	36.5	91	80-120	
Thallium	ug/L	40	36.0	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2338633 2338634

Parameter	Units	60294514003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.10J	40	40	37.5	37.4	93	93	75-125	0	20	
Arsenic	ug/L	1.1	40	40	38.9	38.7	95	94	75-125	1	20	
Barium	ug/L	57.7	40	40	94.1	94.5	91	92	75-125	0	20	
Beryllium	ug/L	<0.089	40	40	36.1	35.8	90	89	75-125	1	20	
Cadmium	ug/L	0.037J	40	40	36.3	36.2	91	90	75-125	0	20	
Chromium	ug/L	0.62J	40	40	38.6	38.5	95	95	75-125	0	20	
Cobalt	ug/L	1.4	40	40	36.7	36.7	88	88	75-125	0	20	

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2338633 2338634

Parameter	Units	60294514003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	0.35J	40	40	36.0	35.6	89	88	75-125	1	20	
Molybdenum	ug/L	20.9	40	40	60.4	59.9	99	97	75-125	1	20	
Selenium	ug/L	0.097J	40	40	35.7	35.1	89	87	75-125	2	20	
Thallium	ug/L	<0.099	40	40	35.3	34.7	88	87	75-125	2	20	

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 569648 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006

METHOD BLANK: 2336013 Matrix: Water
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	5.0	5.0	5.0	02/18/19 10:38	

LABORATORY CONTROL SAMPLE: 2336014

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	990	99	80-120	

SAMPLE DUPLICATE: 2336015

Parameter	Units	60294196001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3430	3510	2	10	

SAMPLE DUPLICATE: 2336016

Parameter	Units	60294428003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	781	789	1	10	

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 570195 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60294515007

METHOD BLANK: 2337958 Matrix: Water
Associated Lab Samples: 60294515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	02/20/19 14:41	

LABORATORY CONTROL SAMPLE: 2337959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	983	98	80-120	

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 569836 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 60294515001, 60294515002

SAMPLE DUPLICATE: 2336669

Parameter	Units	60294514006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.7	7.8	1	10	H6

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 570056 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

SAMPLE DUPLICATE: 2337465

Parameter	Units	60294515003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	8.5	8.5	0	10	H6

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 570727 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

METHOD BLANK: 2340347 Matrix: Water
Associated Lab Samples: 60294515001, 60294515002, 60294515003, 60294515004, 60294515005, 60294515006, 60294515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.29	1.0	0.29	02/25/19 08:57	
Fluoride	mg/L	<0.19	0.20	0.19	02/25/19 08:57	
Sulfate	mg/L	<0.24	1.0	0.24	02/25/19 08:57	

LABORATORY CONTROL SAMPLE: 2340348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	99	80-120	
Fluoride	mg/L	2.5	2.6	102	80-120	
Sulfate	mg/L	5	5.2	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2340349 2340350

Parameter	Units	60294515006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	93.5			337	392				15	15	
Fluoride	mg/L	<0.19	2.5	2.5	2.6	2.6	100	100	80-120	0	15	
Sulfate	mg/L	457	250	250	726	751	108	118	80-120	3	15	

SAMPLE DUPLICATE: 2340351

Parameter	Units	60294515007 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	<0.29	<0.29		15	
Fluoride	mg/L	<0.19	<0.19		15	
Sulfate	mg/L	<0.24	<0.24		15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

QC Batch: 571058 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60294515005, 60294515006

METHOD BLANK: 2341248 Matrix: Water
Associated Lab Samples: 60294515005, 60294515006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.29	1.0	0.29	02/27/19 01:56	
Sulfate	mg/L	<0.24	1.0	0.24	02/27/19 01:56	

LABORATORY CONTROL SAMPLE: 2341249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	80-120	
Sulfate	mg/L	5	4.9	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2341250 2341251

Parameter	Units	60294514001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	42.1	100	100	136	135	94	93	80-120	1	15	

SAMPLE DUPLICATE: 2341252

Parameter	Units	60294515005 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	619	597	4	15	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60294515001	MW-301		569747		
60294515002	MW-302		569747		
60294515003	MW-303		569747		
60294515004	MW-304		569747		
60294515005	MW-305		569747		
60294515006	MW-306		569747		
60294515001	MW-301	EPA 3010	570263	EPA 6010	570332
60294515002	MW-302	EPA 3010	570263	EPA 6010	570332
60294515003	MW-303	EPA 3010	570263	EPA 6010	570332
60294515004	MW-304	EPA 3010	570263	EPA 6010	570332
60294515005	MW-305	EPA 3010	570263	EPA 6010	570332
60294515006	MW-306	EPA 3010	570263	EPA 6010	570332
60294515007	Field Blank	EPA 3010	570263	EPA 6010	570332
60294515001	MW-301	EPA 3010	570357	EPA 6020	570714
60294515002	MW-302	EPA 3010	570357	EPA 6020	570714
60294515003	MW-303	EPA 3010	570357	EPA 6020	570714
60294515004	MW-304	EPA 3010	570357	EPA 6020	570714
60294515005	MW-305	EPA 3010	570357	EPA 6020	570714
60294515006	MW-306	EPA 3010	570357	EPA 6020	570714
60294515007	Field Blank	EPA 3010	570357	EPA 6020	570714
60294515001	MW-301	EPA 7470	569955	EPA 7470	570119
60294515002	MW-302	EPA 7470	569955	EPA 7470	570119
60294515003	MW-303	EPA 7470	569955	EPA 7470	570119
60294515004	MW-304	EPA 7470	569955	EPA 7470	570119
60294515005	MW-305	EPA 7470	569955	EPA 7470	570119
60294515006	MW-306	EPA 7470	569955	EPA 7470	570119
60294515007	Field Blank	EPA 7470	569955	EPA 7470	570119
60294515001	MW-301	SM 2540C	569648		
60294515002	MW-302	SM 2540C	569648		
60294515003	MW-303	SM 2540C	569648		
60294515004	MW-304	SM 2540C	569648		
60294515005	MW-305	SM 2540C	569648		
60294515006	MW-306	SM 2540C	569648		
60294515007	Field Blank	SM 2540C	570195		
60294515001	MW-301	EPA 9040	569836		
60294515002	MW-302	EPA 9040	569836		
60294515003	MW-303	EPA 9040	570056		
60294515004	MW-304	EPA 9040	570056		
60294515005	MW-305	EPA 9040	570056		
60294515006	MW-306	EPA 9040	570056		
60294515007	Field Blank	EPA 9040	570056		
60294515001	MW-301	EPA 9056	570727		
60294515002	MW-302	EPA 9056	570727		
60294515003	MW-303	EPA 9056	570727		
60294515004	MW-304	EPA 9056	570727		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: M.L. Kapp Ash Pond 25218061.00
Pace Project No.: 60294515

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60294515005	**MW-305**	EPA 9056	570727		
60294515005	**MW-305**	EPA 9056	571058		
60294515006	**MW-306**	EPA 9056	570727		
60294515006	**MW-306**	EPA 9056	571058		
60294515007	**Field Blank**	EPA 9056	570727		

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Sample Condition Upon Receipt

WO# : 60294515

60294515

Client Name: ECS Engineers

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 477465741851 65 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☐

Thermometer Used: T-294 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 2.4 **Corr. Factor** 1.0 **Corrected** 1.4

Date and initials of person examining contents: 2/16/19 AR

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☑No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☑No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: HWK Date: 2-19-19

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company:	SCS Engineers
Address:	2830 Dairy Drive
	Madison WI 53718
Email To:	mblodgett@scsengineers.com
Phone: 608-216-7362	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Meghan Blodgett
Copy To:	Tom Karwaski
Purchase Order No.:	
Project Name:	M.L. Kapp Ash Pond
Project Number:	25218061.00.

Section C Invoice Information:

Attention:	Meghan Blodgett/Jess Valcheff
Company Name:	SCS Engineers
Address:	
Pace Quote Reference:	
Pace Project Manager:	Hank Kapka 913-563-1404
Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	6010 Total Metals: B-Ca-Li	6020 Total Metals *	7470 Total Mercury	9056 Chloride-Fluoride-Sulfate	9040 pH	2540C TDS	Field Data (Client Provided)					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N									60294515
1	MW-301	WT	G	xxx	xxx	2-13-19	12:40	11.5	3	1		2						X	X	X	X	X	X	X	BPU, BB3				2(2)	001
2	MW-302	WT	G	xxx	xxx		13:20	10.9	3	1		2						X	X	X	X	X	X	X						002
3	MW-303	WT	G	xxx	xxx		14:45	12.3	3	1		2						X	X	X	X	X	X	X						003
4	MW-304	WT	G	xxx	xxx		15:35	12.2	3	1		2						X	X	X	X	X	X	X						004
5	MW-305	WT	G	xxx	xxx		16:10	11.3	3	1		2						X	X	X	X	X	X	X						005
6	MW-306	WT	G	xxx	xxx		16:50	10.9	3	1		2						X	X	X	X	X	X	X						006
7	FIELD BLANK	WT	G	xxx	xxx		15:25	NR	3	1		2						X	X	X	X	X	X							007
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	Paul A. Lyon	2/14/19	19:30		2/15/19	0820	2.1	Y	Y	Y
* As-Ba-Be-Cd-Cr-Co-Pb-Mo-Sb-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

A3 April 2019 Detection Monitoring Program

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-153121-1
Laboratory Sample Delivery Group: 25219077.00
Client Project/Site: ML Kapp - 25219077.00
Revision: 2

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Sandie Fredrick

Authorized for release by:
5/23/2019 2:07:13 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Job ID: 310-153121-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-153121-1

Comments
REVISION: Client updated formatter.
REVISION: Client updated metals units to ug/L for all but Calcium

Receipt
The samples were received on 4/11/2019 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

HPLC/IC
Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-301 (310-153121-1), MW-302 (310-153121-2), MW-303 (310-153121-3), MW-304 (310-153121-4) and MW-306 (310-153121-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-153121-1	MW-301	Water	04/09/19 12:25	04/11/19 11:30	
310-153121-2	MW-302	Water	04/09/19 13:25	04/11/19 11:30	
310-153121-3	MW-303	Water	04/09/19 15:00	04/11/19 11:30	
310-153121-4	MW-304	Water	04/09/19 16:25	04/11/19 11:30	
310-153121-5	MW-305	Water	04/09/19 17:40	04/11/19 11:30	
310-153121-6	MW-306	Water	04/09/19 18:50	04/11/19 11:30	
310-153121-7	Field Blank	Water	04/09/19 15:00	04/11/19 11:30	

Detection Summary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-301 — Lab Sample ID: 310-153121-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	21		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	360		20	7.0	mg/L	20		9056A	Total/NA
Boron	15000		2000	1100	ug/L	10		6020A	Total/NA
Calcium	150		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	820		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1139				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.09				mg/L	1		Field Sampling	Total/NA
Field pH	6.66				SU	1		Field Sampling	Total/NA
Field Temperature	11.2				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	20.00				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	585.25				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-19.4				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW-302 — Lab Sample ID: 310-153121-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.9		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	200		5.0	1.8	mg/L	5		9056A	Total/NA
Boron	4700		800	440	ug/L	4		6020A	Total/NA
Calcium	120		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	620		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	870				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	1.99				mg/L	1		Field Sampling	Total/NA
Field pH	7.0				SU	1		Field Sampling	Total/NA
Field Temperature	9.9				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	11.89				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	585.29				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	116.5				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW-303 — Lab Sample ID: 310-153121-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	440		20	7.0	mg/L	20		9056A	Total/NA
Boron	2600		200	110	ug/L	1		6020A	Total/NA
Calcium	150		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	790		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1024				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.08				mg/L	1		Field Sampling	Total/NA
Field pH	7.43				SU	1		Field Sampling	Total/NA
Field Temperature	12.2				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	12.01				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	584.61				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-47.0				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW-304 — Lab Sample ID: 310-153121-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	28		5.0	1.5	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-304 (Continued) — Lab Sample ID: 310-153121-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	200		5.0	1.8	mg/L	5		9056A	Total/NA
Boron	10000		800	440	ug/L	4		6020A	Total/NA
Calcium	54		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	440		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	707				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.07				mg/L	1		Field Sampling	Total/NA
Field pH	7.97				SU	1		Field Sampling	Total/NA
Field Temperature	11.7				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	2.12				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	585.25				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	18.7				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW-305 — Lab Sample ID: 310-153121-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	2.3		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	480		20	7.0	mg/L	20		9056A	Total/NA
Boron	1600		200	110	ug/L	1		6020A	Total/NA
Calcium	170		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1100		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1425				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.08				mg/L	1		Field Sampling	Total/NA
Field pH	7.53				SU	1		Field Sampling	Total/NA
Field Temperature	10.5				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	4.23				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	585.23				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	115.9				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW-306 — Lab Sample ID: 310-153121-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	100		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	340		20	7.0	mg/L	20		9056A	Total/NA
Boron	14000		2000	1100	ug/L	10		6020A	Total/NA
Calcium	150		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1000		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1499				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.08				mg/L	1		Field Sampling	Total/NA
Field pH	7.64				SU	1		Field Sampling	Total/NA
Field Temperature	9.8				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	3.01				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	585.29				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	104.6				millivolts	1		Field Sampling	Total/NA

Client Sample ID: Field Blank — Lab Sample ID: 310-153121-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	5.7	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-301

Date Collected: 04/09/19 12:25
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21		5.0	1.5	mg/L			04/16/19 15:10	5
Fluoride	<0.23		0.50	0.23	mg/L			04/16/19 15:10	5
Sulfate	360		20	7.0	mg/L			04/16/19 19:42	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	15000		2000	1100	ug/L		04/15/19 08:00	04/25/19 11:27	10
Calcium	150		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	820		30	24	mg/L			04/12/19 11:57	1
pH	6.8	HF	0.1	0.1	SU			04/11/19 17:58	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1139				umhos/cm			04/09/19 12:25	1
Field Dissolved Oxygen	0.09				mg/L			04/09/19 12:25	1
Field pH	6.66				SU			04/09/19 12:25	1
Field Temperature	11.2				Degrees C			04/09/19 12:25	1
Field Turbidity	20.00				NTU			04/09/19 12:25	1
Groundwater Elevation (ft MSL)	585.25				ft			04/09/19 12:25	1
Oxidation Reduction Potential	-19.4				millivolts			04/09/19 12:25	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-302

Date Collected: 04/09/19 13:25
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.9		5.0	1.5	mg/L			04/16/19 15:26	5
Fluoride	<0.23		0.50	0.23	mg/L			04/16/19 15:26	5
Sulfate	200		5.0	1.8	mg/L			04/16/19 15:26	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4700		800	440	ug/L		04/15/19 08:00	04/25/19 11:30	4
Calcium	120		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	620		30	24	mg/L			04/12/19 11:57	1
pH	7.2	HF	0.1	0.1	SU			04/11/19 17:59	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	870				umhos/cm			04/09/19 13:25	1
Field Dissolved Oxygen	1.99				mg/L			04/09/19 13:25	1
Field pH	7.0				SU			04/09/19 13:25	1
Field Temperature	9.9				Degrees C			04/09/19 13:25	1
Field Turbidity	11.89				NTU			04/09/19 13:25	1
Groundwater Elevation (ft MSL)	585.29				ft			04/09/19 13:25	1
Oxidation Reduction Potential	116.5				millivolts			04/09/19 13:25	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-303

Date Collected: 04/09/19 15:00
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19		5.0	1.5	mg/L			04/16/19 16:13	5
Fluoride	<0.23		0.50	0.23	mg/L			04/16/19 16:13	5
Sulfate	440		20	7.0	mg/L			04/16/19 19:57	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2600		200	110	ug/L		04/15/19 08:00	04/25/19 11:34	1
Calcium	150		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	790		30	24	mg/L			04/12/19 13:49	1
pH	7.6	HF	0.1	0.1	SU			04/11/19 18:00	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1024				umhos/cm			04/09/19 15:00	1
Field Dissolved Oxygen	0.08				mg/L			04/09/19 15:00	1
Field pH	7.43				SU			04/09/19 15:00	1
Field Temperature	12.2				Degrees C			04/09/19 15:00	1
Field Turbidity	12.01				NTU			04/09/19 15:00	1
Groundwater Elevation (ft MSL)	584.61				ft			04/09/19 15:00	1
Oxidation Reduction Potential	-47.0				millivolts			04/09/19 15:00	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-304

Date Collected: 04/09/19 16:25
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28		5.0	1.5	mg/L			04/16/19 16:28	5
Fluoride	<0.23		0.50	0.23	mg/L			04/16/19 16:28	5
Sulfate	200		5.0	1.8	mg/L			04/16/19 16:28	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	10000		800	440	ug/L		04/15/19 08:00	04/25/19 11:37	4
Calcium	54		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	440		30	24	mg/L			04/12/19 13:49	1
pH	7.5	HF	0.1	0.1	SU			04/11/19 18:16	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	707				umhos/cm			04/09/19 16:25	1
Field Dissolved Oxygen	0.07				mg/L			04/09/19 16:25	1
Field pH	7.97				SU			04/09/19 16:25	1
Field Temperature	11.7				Degrees C			04/09/19 16:25	1
Field Turbidity	2.12				NTU			04/09/19 16:25	1
Groundwater Elevation (ft MSL)	585.25				ft			04/09/19 16:25	1
Oxidation Reduction Potential	18.7				millivolts			04/09/19 16:25	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-305

Date Collected: 04/09/19 17:40
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		5.0	1.5	mg/L			04/16/19 16:44	5
Fluoride	2.3		0.50	0.23	mg/L			04/16/19 16:44	5
Sulfate	480		20	7.0	mg/L			04/16/19 20:13	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1600		200	110	ug/L		04/15/19 08:00	04/25/19 11:41	1
Calcium	170		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	24	mg/L			04/12/19 13:49	1
pH	6.9	HF	0.1	0.1	SU			04/11/19 18:17	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1425				umhos/cm			04/09/19 17:40	1
Field Dissolved Oxygen	0.08				mg/L			04/09/19 17:40	1
Field pH	7.53				SU			04/09/19 17:40	1
Field Temperature	10.5				Degrees C			04/09/19 17:40	1
Field Turbidity	4.23				NTU			04/09/19 17:40	1
Groundwater Elevation (ft MSL)	585.23				ft			04/09/19 17:40	1
Oxidation Reduction Potential	115.9				millivolts			04/09/19 17:40	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-306

Date Collected: 04/09/19 18:50
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	100		5.0	1.5	mg/L			04/16/19 17:00	5
Fluoride	<0.23		0.50	0.23	mg/L			04/16/19 17:00	5
Sulfate	340		20	7.0	mg/L			04/16/19 20:28	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	14000		2000	1100	ug/L		04/15/19 08:00	04/25/19 12:25	10
Calcium	150		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	24	mg/L			04/12/19 13:49	1
pH	7.5	HF	0.1	0.1	SU			04/11/19 18:18	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1499				umhos/cm			04/09/19 18:50	1
Field Dissolved Oxygen	0.08				mg/L			04/09/19 18:50	1
Field pH	7.64				SU			04/09/19 18:50	1
Field Temperature	9.8				Degrees C			04/09/19 18:50	1
Field Turbidity	3.01				NTU			04/09/19 18:50	1
Groundwater Elevation (ft MSL)	585.29				ft			04/09/19 18:50	1
Oxidation Reduction Potential	104.6				millivolts			04/09/19 18:50	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: Field Blank

Date Collected: 04/09/19 15:00
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-7

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			04/16/19 17:15	1
Fluoride	<0.045		0.10	0.045	mg/L			04/16/19 17:15	1
Sulfate	<0.35		1.0	0.35	mg/L			04/16/19 17:15	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		04/15/19 08:00	04/25/19 11:57	1
Calcium	<0.10		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			04/12/19 13:49	1
pH	**5.7**	**HF**	0.1	0.1	SU			04/11/19 18:24	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-236282/3
Matrix: Water
Analysis Batch: 236282

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			04/16/19 09:42	1
Fluoride	<0.045		0.10	0.045	mg/L			04/16/19 09:42	1
Sulfate	<0.35		1.0	0.35	mg/L			04/16/19 09:42	1

Lab Sample ID: LCS 310-236282/4
Matrix: Water
Analysis Batch: 236282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.99		mg/L		100	90 - 110
Fluoride	2.00	2.00		mg/L		100	90 - 110
Sulfate	10.0	10.2		mg/L		102	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-235648/1-A
Matrix: Water
Analysis Batch: 237143

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.10		0.50	0.10	mg/L		04/15/19 08:00	04/24/19 21:16	1

Lab Sample ID: MB 310-235648/1-A
Matrix: Water
Analysis Batch: 237264

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		04/15/19 08:00	04/25/19 11:20	1

Lab Sample ID: LCS 310-235648/2-A
Matrix: Water
Analysis Batch: 237143

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	2.00	1.96		mg/L		98	80 - 120

Lab Sample ID: LCS 310-235648/2-A
Matrix: Water
Analysis Batch: 237264

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	880	827		ug/L		94	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-235636/1
Matrix: Water
Analysis Batch: 235636

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<30.0		30.0		mg/L			04/12/19 11:57	1

Lab Sample ID: LCS 310-235636/2
Matrix: Water
Analysis Batch: 235636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	996.0		mg/L		100	90 - 110

Lab Sample ID: MB 310-235657/1
Matrix: Water
Analysis Batch: 235657

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<30.0		30.0		mg/L			04/12/19 13:49	1

Lab Sample ID: LCS 310-235657/2
Matrix: Water
Analysis Batch: 235657

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	990.0		mg/L		99	90 - 110

Lab Sample ID: 310-153121-5 DU
Matrix: Water
Analysis Batch: 235657

Client Sample ID: MW-305
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1100		1060		mg/L		6	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-235535/26
Matrix: Water
Analysis Batch: 235535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: LCS 310-235535/52
Matrix: Water
Analysis Batch: 235535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	98 - 102

QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

HPLC/IC

Analysis Batch: 236282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	9056A	
310-153121-1	MW-301	Total/NA	Water	9056A	
310-153121-2	MW-302	Total/NA	Water	9056A	
310-153121-3	MW-303	Total/NA	Water	9056A	
310-153121-3	MW-303	Total/NA	Water	9056A	
310-153121-4	MW-304	Total/NA	Water	9056A	
310-153121-5	MW-305	Total/NA	Water	9056A	
310-153121-5	MW-305	Total/NA	Water	9056A	
310-153121-6	MW-306	Total/NA	Water	9056A	
310-153121-6	MW-306	Total/NA	Water	9056A	
310-153121-7	Field Blank	Total/NA	Water	9056A	
MB 310-236282/3	Method Blank	Total/NA	Water	9056A	
LCS 310-236282/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 235648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	3010A	
310-153121-2	MW-302	Total/NA	Water	3010A	
310-153121-3	MW-303	Total/NA	Water	3010A	
310-153121-4	MW-304	Total/NA	Water	3010A	
310-153121-5	MW-305	Total/NA	Water	3010A	
310-153121-6	MW-306	Total/NA	Water	3010A	
310-153121-7	Field Blank	Total/NA	Water	3010A	
MB 310-235648/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-235648/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 237143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	6020A	235648
310-153121-2	MW-302	Total/NA	Water	6020A	235648
310-153121-3	MW-303	Total/NA	Water	6020A	235648
310-153121-4	MW-304	Total/NA	Water	6020A	235648
310-153121-5	MW-305	Total/NA	Water	6020A	235648
310-153121-6	MW-306	Total/NA	Water	6020A	235648
310-153121-7	Field Blank	Total/NA	Water	6020A	235648
MB 310-235648/1-A	Method Blank	Total/NA	Water	6020A	235648
LCS 310-235648/2-A	Lab Control Sample	Total/NA	Water	6020A	235648

Analysis Batch: 237264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	6020A	235648
310-153121-2	MW-302	Total/NA	Water	6020A	235648
310-153121-3	MW-303	Total/NA	Water	6020A	235648
310-153121-4	MW-304	Total/NA	Water	6020A	235648
310-153121-5	MW-305	Total/NA	Water	6020A	235648
310-153121-6	MW-306	Total/NA	Water	6020A	235648
310-153121-7	Field Blank	Total/NA	Water	6020A	235648
MB 310-235648/1-A	Method Blank	Total/NA	Water	6020A	235648
LCS 310-235648/2-A	Lab Control Sample	Total/NA	Water	6020A	235648

QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

General Chemistry

Analysis Batch: 235535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-153121-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-153121-3	MW-303	Total/NA	Water	SM 4500 H+ B	
310-153121-4	MW-304	Total/NA	Water	SM 4500 H+ B	
310-153121-5	MW-305	Total/NA	Water	SM 4500 H+ B	
310-153121-6	MW-306	Total/NA	Water	SM 4500 H+ B	
310-153121-7	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-235535/26	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-235535/52	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 235636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	SM 2540C	
310-153121-2	MW-302	Total/NA	Water	SM 2540C	
MB 310-235636/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-235636/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 235657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-3	MW-303	Total/NA	Water	SM 2540C	
310-153121-4	MW-304	Total/NA	Water	SM 2540C	
310-153121-5	MW-305	Total/NA	Water	SM 2540C	
310-153121-6	MW-306	Total/NA	Water	SM 2540C	
310-153121-7	Field Blank	Total/NA	Water	SM 2540C	
MB 310-235657/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-235657/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-153121-5 DU	MW-305	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 236704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-153121-1	MW-301	Total/NA	Water	Field Sampling	
310-153121-2	MW-302	Total/NA	Water	Field Sampling	
310-153121-3	MW-303	Total/NA	Water	Field Sampling	
310-153121-4	MW-304	Total/NA	Water	Field Sampling	
310-153121-5	MW-305	Total/NA	Water	Field Sampling	
310-153121-6	MW-306	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-301
Date Collected: 04/09/19 12:25
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 15:10	MLU	TAL CF
Total/NA	Analysis	9056A		20	236282	04/16/19 19:42	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:23	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		10	237264	04/25/19 11:27	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235636	04/12/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 17:58	SAS	TAL CF
Total/NA	Analysis	Field Sampling		1	236704	04/09/19 12:25	ANO	TAL CF

Client Sample ID: MW-302
Date Collected: 04/09/19 13:25
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 15:26	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:26	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	237264	04/25/19 11:30	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235636	04/12/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 17:59	SAS	TAL CF
Total/NA	Analysis	Field Sampling		1	236704	04/09/19 13:25	ANO	TAL CF

Client Sample ID: MW-303
Date Collected: 04/09/19 15:00
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 16:13	MLU	TAL CF
Total/NA	Analysis	9056A		20	236282	04/16/19 19:57	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:29	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237264	04/25/19 11:34	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235657	04/12/19 13:49	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 18:00	SAS	TAL CF
Total/NA	Analysis	Field Sampling		1	236704	04/09/19 15:00	ANO	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: MW-304
Date Collected: 04/09/19 16:25
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 16:28	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:33	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	237264	04/25/19 11:37	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235657	04/12/19 13:49	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 18:16	SAS	TAL CF
Total/NA	Analysis	Field Sampling		1	236704	04/09/19 16:25	ANO	TAL CF

Client Sample ID: MW-305
Date Collected: 04/09/19 17:40
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 16:44	MLU	TAL CF
Total/NA	Analysis	9056A		20	236282	04/16/19 20:13	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:36	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237264	04/25/19 11:41	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235657	04/12/19 13:49	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 18:17	SAS	TAL CF
Total/NA	Analysis	Field Sampling		1	236704	04/09/19 17:40	ANO	TAL CF

Client Sample ID: MW-306
Date Collected: 04/09/19 18:50
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 17:00	MLU	TAL CF
Total/NA	Analysis	9056A		20	236282	04/16/19 20:28	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:39	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		10	237264	04/25/19 12:25	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235657	04/12/19 13:49	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 18:18	SAS	TAL CF
Total/NA	Analysis	Field Sampling		1	236704	04/09/19 18:50	ANO	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Client Sample ID: Field Blank

Date Collected: 04/09/19 15:00
Date Received: 04/11/19 11:30

Lab Sample ID: 310-153121-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	236282	04/16/19 17:15	MLU	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237143	04/24/19 21:53	SAD	TAL CF
Total/NA	Prep	3010A			235648	04/15/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	237264	04/25/19 11:57	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235657	04/12/19 13:49	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235535	04/11/19 18:24	SAS	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Laboratory: Eurofins TestAmerica, Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Iowa	State Program	7	007	12-01-19

Method Summary

Client: SCS Engineers
Project/Site: ML Kapp - 25219077.00

Job ID: 310-153121-1
SDG: 25219077.00

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
Field Sampling	Field Sampling	EPA	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-153121 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information					
Client: SCS Engineers					
City/State: CITY Madison	STATE WI		Project: ML Kapp		
Receipt Information					
Date/Time Received: DATE 4-11-19	TIME 1130		Received By: KP		
Delivery Type: ☐ UPS	☒ FedEx	☐ FedEx Ground	☐ US Mail	☐ Spee-Dee	
☐ Lab Courier	☐ TA Field Services	☐ Client Drop-off	☐ Other:_____		
Condition of Cooler/Containers					
Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:		
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # ____ of ____		
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact?	☒ Yes	☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact?	☐ Yes	☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓		
Temperature Record					
Coolant:	☒ Wet ice	☐ Blue ice	☐ Dry ice	☐ Other:_____	☐ NONE
Thermometer ID: J			Correction Factor (°C): +0.1		
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature					
Uncorrected Temp (°C): 1.6			Corrected Temp (°C): 1.7		
• **Sample Container Temperature**					
Container type(s) used:	CONTAINER 1		CONTAINER 2		
Uncorrected Temp (°C):	TEMP 1	TEMP 2	Corrected Temp (°C):	TEMP 1	TEMP 2
Exceptions Noted					
1) If temperature exceeds criteria, was sample(s) received same day of sampling?				☐ Yes	☐ No
a) *If yes:* Is there evidence that the chilling process began?				☐ Yes	☐ No
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?)				☐ Yes	☐ No
NOTE: If yes, contact PM before proceeding. If no, proceed with login					
Additional Comments					

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Lab Job #: _____

Chain of Custody Number: _____

Page _____ of _____

Temperature °C of Cooler: _____

(optional)

Report To
Contact: Meghan Blo
Company: SCS Engineers
Address: 2830 Dairy Dr.
Address: Madison WI 53718
Phone: 608-224-2830
Fax:
E-Mail:

(optional)

Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Client: SCS Engineers
Client Project #: 25219077.00
Project Name: ML Kapp
Project Location/State: Iowa
Lab Project #:
Sampler: Adam Watson
Lab PM:

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	Preservative: 8 / Parameter: Chloride, Fluoride, Sulfate, pH, TDS	3 / Calcium, Boron	B / Field data	8						Comments
		MW-301	4/9	12:25	4	W	X	X	X							
		MW-302	4/9	13:25	4	W	X	X								
		MW-303	4/9	15:00	4	W	X	X								
		MW-304	4/9	16:25	4	W	X	X								
		MW-305	4/9	17:40	4	W	X	X								
		MW-306	4/9	18:50	4	W	X	X								
		Field Blank	4/9	15:00	4	W	X	X								

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]		4-10-19	16:00				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	TRC	4/11/19	1130

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments

Lab Comments:

TAL-4124-500 (1209)

5/23/2019 (Rev. 2)

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-301	310-153121-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-302	310-153121-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-303	310-153121-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-304	310-153121-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-305	310-153121-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-306	310-153121-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-153121-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____

Groundwater Monitoring Results - Field Parameters
M.L. Kapp Generating Station / SCS Engineers Project #25219077
April 2019

Sample	Sample Date/Time	GW Elevation (ft amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (ms/cm)	ORP (mV)	Turbidity
MW-301	4-9-2019/1225	585.25	11.2	6.66	0.09	1139	-19.4	20.00
MW-302	4-9-2019/1325	585.29	9.9	7.0	1.99	870	116.5	11.89
MW-303	4-9-2019/1500	584.61	12.2	7.43	0.08	1024	-47.0	12.01
MW-304	4-9-2019/1625	585.25	11.7	7.97	0.07	707	18.7	2.12
MW-305	4-9-2019/1740	585.23	10.5	7.53	0.08	1425	115.9	4.23
MW-306	4-9-2019/1850	585.29	9.8	7.64	0.08	1499	104.6	3.01

Abbreviations:
mg/L = milligrams per liter mV = millivolts amsl = above mean sea level

Notes:
None

Created by: KAK Date: 4/2/2018
Last revision by: JR Date: 4/12/2019
Checked by: MDB Date: 4/12/2019

\\Mad-fs01\data\Projects\25219077.00\Data and Calculations\Tables\[1904_M.L. Kapp_CCR_Field.xlsx]GW Field Parameters

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-153121-1
SDG Number: 25219077.00

Login Number: 153121
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins TestAmerica, Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

A4 September 2019 Resampling Event

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-164300-1
Client Project/Site: M.L. Kapp 25219077
Revision: 1

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
9/12/2019 3:57:02 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

Table of Contents

Case Narrative

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Job ID: 310-164300-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-164300-1

Comments
REVISION: Updated field blank result for Boron after reanalysis.

Receipt
The samples were received on 9/7/2019 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-164300-1	MW305	Water	09/06/19 13:00	09/07/19 08:55	
310-164300-2	Field Blank	Water	09/06/19 13:00	09/07/19 08:55	

Detection Summary

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Client Sample ID: MW305 — Lab Sample ID: 310-164300-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	3.2		0.50	0.23	mg/L	5		9056A	Total/NA
Boron	17000		2000	1100	ug/L	10		6020A	Total/NA
Ground Water Elevation	577.42				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	157.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.39				mg/L	1		Field Sampling	Total/NA
pH, Field	8.02				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1590				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	15.3				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	19.31				NTU	1		Field Sampling	Total/NA
Well Depth	0				ft	1		Field Sampling	Total/NA

Client Sample ID: Field Blank — Lab Sample ID: 310-164300-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Client Sample ID: MW305

Date Collected: 09/06/19 13:00
Date Received: 09/07/19 08:55

Lab Sample ID: 310-164300-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.2		0.50	0.23	mg/L			09/10/19 13:18	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	17000		2000	1100	ug/L		09/10/19 07:59	09/11/19 13:22	10

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	577.42				ft			09/06/19 13:00	1
Oxidation Reduction Potential	157.0				millivolts			09/06/19 13:00	1
Oxygen, Dissolved, Client Supplied	0.39				mg/L			09/06/19 13:00	1
pH, Field	8.02				SU			09/06/19 13:00	1
Specific Conductance, Field	1590				umhos/cm			09/06/19 13:00	1
Temperature, Field	15.3				Degrees C			09/06/19 13:00	1
Turbidity, Field	19.31				NTU			09/06/19 13:00	1
Well Depth	0				ft			09/06/19 13:00	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Client Sample ID: Field Blank

Date Collected: 09/06/19 13:00
Date Received: 09/07/19 08:55

Lab Sample ID: 310-164300-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.045		0.10	0.045	mg/L			09/10/19 13:31	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		09/10/19 07:59	09/12/19 14:06	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-252443/3
Matrix: Water
Analysis Batch: 252443

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.045		0.10	0.045	mg/L			09/10/19 07:51	1

Lab Sample ID: LCS 310-252443/4
Matrix: Water
Analysis Batch: 252443

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			2.00	1.84		mg/L		92	90 - 110		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-252207/1-A
Matrix: Water
Analysis Batch: 252465

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 252207

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		09/10/19 07:59	09/11/19 12:39	1

Lab Sample ID: LCS 310-252207/2-A
Matrix: Water
Analysis Batch: 252465

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 252207

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Boron			880	835		ug/L		95	80 - 120		

Lab Sample ID: 310-164300-1 DU
Matrix: Water
Analysis Batch: 252465

Client Sample ID: MW305
Prep Type: Total/NA
Prep Batch: 252207

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Boron	17000			16200		ug/L				3	20

QC Association Summary

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

HPLC/IC

Analysis Batch: 252443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-164300-1	MW305	Total/NA	Water	9056A	
310-164300-2	Field Blank	Total/NA	Water	9056A	
MB 310-252443/3	Method Blank	Total/NA	Water	9056A	
LCS 310-252443/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 252207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-164300-1	MW305	Total/NA	Water	3010A	
310-164300-2	Field Blank	Total/NA	Water	3010A	
MB 310-252207/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-252207/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-164300-1 DU	MW305	Total/NA	Water	3010A	

Analysis Batch: 252465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-164300-1	MW305	Total/NA	Water	6020A	252207
MB 310-252207/1-A	Method Blank	Total/NA	Water	6020A	252207
LCS 310-252207/2-A	Lab Control Sample	Total/NA	Water	6020A	252207
310-164300-1 DU	MW305	Total/NA	Water	6020A	252207

Analysis Batch: 252627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-164300-2	Field Blank	Total/NA	Water	6020A	252207

Field Service / Mobile Lab

Analysis Batch: 252263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-164300-1	MW305	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Client Sample ID: MW305

Lab Sample ID: 310-164300-1

Date Collected: 09/06/19 13:00

Matrix: Water

Date Received: 09/07/19 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	252443	09/10/19 13:18	CJT	TAL CF
Total/NA	Prep	3010A			252207	09/10/19 07:59	HED	TAL CF
Total/NA	Analysis	6020A		10	252465	09/11/19 13:22	SAD	TAL CF
Total/NA	Analysis	Field Sampling		1	252263	09/06/19 13:00	EAR	TAL CF

Client Sample ID: Field Blank

Lab Sample ID: 310-164300-2

Date Collected: 09/06/19 13:00

Matrix: Water

Date Received: 09/07/19 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	252443	09/10/19 13:31	CJT	TAL CF
Total/NA	Prep	3010A			252207	09/10/19 07:59	HED	TAL CF
Total/NA	Analysis	6020A		1	252627	09/12/19 14:06	SAD	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Laboratory: Eurofins TestAmerica, Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State Program	007	12-01-19

Method Summary

Client: SCS Engineers
Project/Site: M.L. Kapp 25219077

Job ID: 310-164300-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
Field Sampling	Field Sampling	EPA	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing TestAmerica

310-164300 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Engineers

City/State: CITY Madison STATE WI

Project: ML Kopp 25219077

Receipt Information

Date/Time Received: DATE 9/7/19 TIME 0855

Received By: Ce

Delivery Type: ☐ UPS ☑ FedEx SAT ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: N

Correction Factor (°C): 0.0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.1

Corrected Temp (°C): 0.1

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

42897

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing TestAmerica

Client Information	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):
Client Contact: Meghan Blodgett	Phone:	E-Mail: sandie.fredrick@testamericainc.com	

COC No: 310-42897-13804.1
Page: Page 1 of 1
Job #:

Company: SCS Engineers
Address: 2830 Dairy Drive
City: Madison
State, Zip: WI, 53718
Phone:
Email: mblodgett@scsengineers.com
Project Name: M.L. Kapp 25219077
Site:

Due Date Requested:
TAT Requested (days):
PO #: 25219077
WO #:
Project #: 31011020
SSOW#:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A, 7470A	9056A_ORGFM_28D - Chloride, Fluoride and Sulfate	Total Number of containers	Special Instructions/Note:
				Preservation Code:			D	N		
~~MW-301~~ MW305	9/6/19	1300		Water			X	X		Rapid Turn around! Need immediate results!
~~MW-302~~ Field Blank	9/6/19	1300		Water			X	X		
~~MW-303~~				Water						

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)
Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	9/6/19 1600	SCS	[signature]	9/7/19 0855	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW305	310-164300-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-164300-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - M.L. Kapp Ash Pond/ SCS Engineers Project #25219077.00

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	Field Blank
Appendix III Parameters	Boron					x		x
	Calcium							
	Chloride							
	Fluoride					x		x
	pH							
	Sulfate							
	TDS							
Appendix IV Parameters	Antimony							
	Arsenic							
	Barium							
	Beryllium							
	Cadmium							
	Chromium							
	Cobalt							
	Fluoride							
	Lead							
	Lithium							
	Mercury							
	Molybdenum							
	Selenium							
	Thallium							
	Radium							
CCR Rule Field Parameters	Groundwater Elevation					x		
	pH (field)					x		
Low-Flow Sampling Field Parameters	Well Depth					x		
	Specific Conductance					x		
	Dissolved Oxygen					x		
	ORP					x		
	Temperature					x		
	Turbidity					x		
	Color					x		
	Odor					x		

I:\25219077.00\Data and Calculations\Field Work Requests\[IPL_M.L. Kapp_CCR_Rule_Sampling_1909.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-164300-1

Login Number: 164300
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins TestAmerica, Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

A5 October 2019 Detection Monitoring Program

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-166844-1
Client Project/Site: M.L.Kapp Ash Pond 25219077.00

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
10/18/2019 3:56:38 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Job ID: 310-166844-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-166844-1

Comments
No additional comments.

Receipt
The samples were received on 10/8/2019 5:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-166844-1	MW-301	Water	10/07/19 08:00	10/08/19 17:40	
310-166844-2	MW-302	Water	10/07/19 09:15	10/08/19 17:40	
310-166844-3	MW-303	Water	10/07/19 10:35	10/08/19 17:40	
310-166844-4	MW-304	Water	10/07/19 11:35	10/08/19 17:40	
310-166844-5	MW-305	Water	10/07/19 12:33	10/08/19 17:40	
310-166844-6	MW-306	Water	10/07/19 13:20	10/08/19 17:40	
310-166844-7	Field Blank	Water	10/07/19 23:59	10/08/19 17:40	

Detection Summary

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-301 — Lab Sample ID: 310-166844-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	28		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.32	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	350		20	7.0	mg/L	20		9056A	Total/NA
Boron	13000		1400	770	ug/L	7		6020A	Total/NA
Calcium	140		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	840		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	580.97				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-39.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.37				mg/L	1		Field Sampling	Total/NA
pH, Field	6.28				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1058				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.96				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.97				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302 — Lab Sample ID: 310-166844-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.33	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	180		5.0	1.8	mg/L	5		9056A	Total/NA
Boron	4600		800	440	ug/L	4		6020A	Total/NA
Calcium	75		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	510		30	24	mg/L	1		SM 2540C	Total/NA
pH	8.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	580.74				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	12.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.38				mg/L	1		Field Sampling	Total/NA
pH, Field	7.97				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	714				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.3				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.21				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303 — Lab Sample ID: 310-166844-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.6		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.32	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	480		20	7.0	mg/L	20		9056A	Total/NA
Boron	2900		200	110	ug/L	1		6020A	Total/NA
Calcium	200		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1000		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	581.39				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	39.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.32				mg/L	1		Field Sampling	Total/NA
pH, Field	6.76				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1220				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.11				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.91				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-304 — Lab Sample ID: 310-166844-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.34	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	330		20	7.0	mg/L	20		9056A	Total/NA
Boron	10000		800	440	ug/L	4		6020A	Total/NA
Calcium	92		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	660		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	581.62				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-37.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.25				mg/L	1		Field Sampling	Total/NA
pH, Field	7.08				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	909				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.62				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.5				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305 — Lab Sample ID: 310-166844-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.41	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	690		20	7.0	mg/L	20		9056A	Total/NA
Boron	20000		1400	770	ug/L	7		6020A	Total/NA
Calcium	210		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1300		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	581.88				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-41.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.33				mg/L	1		Field Sampling	Total/NA
pH, Field	7.04				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1604				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	15.33				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	5.04				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306 — Lab Sample ID: 310-166844-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	83		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.30	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	270		20	7.0	mg/L	20		9056A	Total/NA
Boron	12000		1400	770	ug/L	7		6020A	Total/NA
Calcium	160		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	910		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	582.28				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	19.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.30				mg/L	1		Field Sampling	Total/NA
pH, Field	7.01				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1290				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.56				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.57				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: Field Blank

Lab Sample ID: 310-166844-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	170	J	200	110	ug/L	1		6020A	Total/NA
pH	6.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Job ID: 310-166844-1
Project/Site: M.L.Kapp Ash Pond 25219077.00

Client Sample ID: MW-301
Lab Sample ID: 310-166844-1
Date Collected: 10/07/19 08:00
Matrix: Water
Date Received: 10/08/19 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28		5.0	1.5	mg/L			10/10/19 21:47	5
Fluoride	0.32	J	0.50	0.23	mg/L			10/10/19 21:47	5
Sulfate	350		20	7.0	mg/L			10/11/19 11:23	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	13000		1400	770	ug/L		10/10/19 07:56	10/14/19 13:02	7
Calcium	140		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	840		30	24	mg/L			10/10/19 11:57	1
pH	6.8	HF	0.1	0.1	SU			10/08/19 20:58	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	580.97				ft			10/07/19 08:00	1
Oxidation Reduction Potential	-39.5				millivolts			10/07/19 08:00	1
Oxygen, Dissolved, Client Supplied	0.37				mg/L			10/07/19 08:00	1
pH, Field	6.28				SU			10/07/19 08:00	1
Specific Conductance, Field	1058				umhos/cm			10/07/19 08:00	1
Temperature, Field	13.96				Degrees C			10/07/19 08:00	1
Turbidity, Field	2.97				NTU			10/07/19 08:00	1

Client Sample Results

Client: SCS Engineers
Job ID: 310-166844-1
Project/Site: M.L.Kapp Ash Pond 25219077.00

Client Sample ID: MW-302
Date Collected: 10/07/19 09:15
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-2
Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14		5.0	1.5	mg/L			10/10/19 22:03	5
Fluoride	0.33	J	0.50	0.23	mg/L			10/10/19 22:03	5
Sulfate	180		5.0	1.8	mg/L			10/10/19 22:03	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4600		800	440	ug/L		10/10/19 07:56	10/14/19 13:10	4
Calcium	75		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	510		30	24	mg/L			10/10/19 11:57	1
pH	8.2	HF	0.1	0.1	SU			10/08/19 20:59	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	580.74				ft			10/07/19 09:15	1
Oxidation Reduction Potential	12.3				millivolts			10/07/19 09:15	1
Oxygen, Dissolved, Client Supplied	0.38				mg/L			10/07/19 09:15	1
pH, Field	7.97				SU			10/07/19 09:15	1
Specific Conductance, Field	714				umhos/cm			10/07/19 09:15	1
Temperature, Field	14.3				Degrees C			10/07/19 09:15	1
Turbidity, Field	1.21				NTU			10/07/19 09:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-303

Date Collected: 10/07/19 10:35
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.6		5.0	1.5	mg/L			10/10/19 22:20	5
Fluoride	0.32	J	0.50	0.23	mg/L			10/10/19 22:20	5
Sulfate	480		20	7.0	mg/L			10/11/19 11:39	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2900		200	110	ug/L		10/10/19 07:56	10/11/19 19:37	1
Calcium	200		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	24	mg/L			10/10/19 11:57	1
pH	7.2	HF	0.1	0.1	SU			10/08/19 21:00	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	581.39				ft			10/07/19 10:35	1
Oxidation Reduction Potential	39.5				millivolts			10/07/19 10:35	1
Oxygen, Dissolved, Client Supplied	1.32				mg/L			10/07/19 10:35	1
pH, Field	6.76				SU			10/07/19 10:35	1
Specific Conductance, Field	1220				umhos/cm			10/07/19 10:35	1
Temperature, Field	14.11				Degrees C			10/07/19 10:35	1
Turbidity, Field	1.91				NTU			10/07/19 10:35	1

Client Sample Results

Client: SCS Engineers
Job ID: 310-166844-1
Project/Site: M.L.Kapp Ash Pond 25219077.00

Client Sample ID: MW-304
Lab Sample ID: 310-166844-4
Date Collected: 10/07/19 11:35
Matrix: Water
Date Received: 10/08/19 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24		5.0	1.5	mg/L			10/10/19 22:37	5
Fluoride	0.34	J	0.50	0.23	mg/L			10/10/19 22:37	5
Sulfate	330		20	7.0	mg/L			10/11/19 11:55	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	10000		800	440	ug/L		10/10/19 07:56	10/14/19 13:13	4
Calcium	92		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	660		30	24	mg/L			10/10/19 11:57	1
pH	7.3	HF	0.1	0.1	SU			10/08/19 21:01	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	581.62				ft			10/07/19 11:35	1
Oxidation Reduction Potential	-37.4				millivolts			10/07/19 11:35	1
Oxygen, Dissolved, Client Supplied	0.25				mg/L			10/07/19 11:35	1
pH, Field	7.08				SU			10/07/19 11:35	1
Specific Conductance, Field	909				umhos/cm			10/07/19 11:35	1
Temperature, Field	14.62				Degrees C			10/07/19 11:35	1
Turbidity, Field	3.5				NTU			10/07/19 11:35	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-305

Date Collected: 10/07/19 12:33
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14		5.0	1.5	mg/L			10/10/19 22:54	5
Fluoride	0.41	J	0.50	0.23	mg/L			10/10/19 22:54	5
Sulfate	690		20	7.0	mg/L			10/11/19 12:11	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	20000		1400	770	ug/L		10/10/19 07:56	10/14/19 13:16	7
Calcium	210		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1300		30	24	mg/L			10/10/19 11:57	1
pH	7.2	HF	0.1	0.1	SU			10/08/19 21:14	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	581.88				ft			10/07/19 12:33	1
Oxidation Reduction Potential	-41.8				millivolts			10/07/19 12:33	1
Oxygen, Dissolved, Client Supplied	0.33				mg/L			10/07/19 12:33	1
pH, Field	7.04				SU			10/07/19 12:33	1
Specific Conductance, Field	1604				umhos/cm			10/07/19 12:33	1
Temperature, Field	15.33				Degrees C			10/07/19 12:33	1
Turbidity, Field	5.04				NTU			10/07/19 12:33	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-306

Date Collected: 10/07/19 13:20
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	83		5.0	1.5	mg/L			10/10/19 23:44	5
Fluoride	0.30	J	0.50	0.23	mg/L			10/10/19 23:44	5
Sulfate	270		20	7.0	mg/L			10/11/19 00:01	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	12000		1400	770	ug/L		10/10/19 07:56	10/14/19 13:26	7
Calcium	160		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	910		30	24	mg/L			10/10/19 11:57	1
pH	7.3	HF	0.1	0.1	SU			10/08/19 21:18	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	582.28				ft			10/07/19 13:20	1
Oxidation Reduction Potential	19.7				millivolts			10/07/19 13:20	1
Oxygen, Dissolved, Client Supplied	0.30				mg/L			10/07/19 13:20	1
pH, Field	7.01				SU			10/07/19 13:20	1
Specific Conductance, Field	1290				umhos/cm			10/07/19 13:20	1
Temperature, Field	14.56				Degrees C			10/07/19 13:20	1
Turbidity, Field	0.57				NTU			10/07/19 13:20	1

Client: SCS Engineers
Job ID: 310-166844-1
Project/Site: M.L.Kapp Ash Pond 25219077.00

Client Sample ID: Field Blank
Lab Sample ID: 310-166844-7
Date Collected: 10/07/19 23:59
Matrix: Water
Date Received: 10/08/19 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			10/11/19 00:52	1
Fluoride	<0.045		0.10	0.045	mg/L			10/11/19 00:52	1
Sulfate	<0.35		1.0	0.35	mg/L			10/11/19 00:52	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**170**	**J**	200	110	ug/L		10/10/19 07:56	10/11/19 19:47	1
Calcium	<0.10		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			10/10/19 11:57	1
pH	**6.0**	**HF**	0.1	0.1	SU			10/08/19 21:22	1

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-166844-1
Project/Site: M.L.Kapp Ash Pond 25219077.00

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-256449/3
Matrix: Water
Analysis Batch: 256449

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			10/10/19 16:56	1
Fluoride	<0.045		0.10	0.045	mg/L			10/10/19 16:56	1
Sulfate	<0.35		1.0	0.35	mg/L			10/10/19 16:56	1

Lab Sample ID: LCS 310-256449/4
Matrix: Water
Analysis Batch: 256449

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.80		mg/L		98	90 - 110
Fluoride	2.00	1.89		mg/L		94	90 - 110
Sulfate	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: 310-166844-5 MS
Matrix: Water
Analysis Batch: 256449

Client Sample ID: MW-305
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.41	J	5.00	4.56		mg/L		83	80 - 120

Lab Sample ID: 310-166844-5 MSD
Matrix: Water
Analysis Batch: 256449

Client Sample ID: MW-305
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.41	J	5.00	4.53		mg/L		82	80 - 120	1	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-256149/1-A
Matrix: Water
Analysis Batch: 256598

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 256149

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		10/10/19 07:56	10/11/19 19:08	1
Calcium	<0.10		0.50	0.10	mg/L		10/10/19 07:56	10/11/19 19:08	1

Lab Sample ID: LCS 310-256149/2-A
Matrix: Water
Analysis Batch: 256598

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 256149

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	880	862		ug/L		98	80 - 120
Calcium	2.00	2.11		mg/L		105	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-166844-1 MS
Matrix: Water
Analysis Batch: 256598

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 256149

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	140		2.00	141	4	mg/L		-95	75 - 125

Lab Sample ID: 310-166844-1 MS
Matrix: Water
Analysis Batch: 256712

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 256149

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	13000		880	13500	4	ug/L		103	75 - 125

Lab Sample ID: 310-166844-1 MSD
Matrix: Water
Analysis Batch: 256598

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 256149

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	140		2.00	145	4	mg/L		129	75 - 125	3	20

Lab Sample ID: 310-166844-1 MSD
Matrix: Water
Analysis Batch: 256712

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 256149

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	13000		880	13400	4	ug/L		96	75 - 125	0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-256221/1
Matrix: Water
Analysis Batch: 256221

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			10/10/19 11:57	1

Lab Sample ID: LCS 310-256221/2
Matrix: Water
Analysis Batch: 256221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1020		mg/L		102	90 - 110

Lab Sample ID: 310-166844-2 DU
Matrix: Water
Analysis Batch: 256221

Client Sample ID: MW-302
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	510		540		mg/L		6	24

QC Sample Results

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-255965/1
Matrix: Water
Analysis Batch: 255965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.0		SU		100	98 - 102		

Lab Sample ID: 310-166844-5 DU
Matrix: Water
Analysis Batch: 255965

Client Sample ID: MW-305
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.2	HF		7.2		SU				0.3	20

HPLC/IC

Analysis Batch: 256449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	9056A	
310-166844-1	MW-301	Total/NA	Water	9056A	
310-166844-2	MW-302	Total/NA	Water	9056A	
310-166844-3	MW-303	Total/NA	Water	9056A	
310-166844-3	MW-303	Total/NA	Water	9056A	
310-166844-4	MW-304	Total/NA	Water	9056A	
310-166844-4	MW-304	Total/NA	Water	9056A	
310-166844-5	MW-305	Total/NA	Water	9056A	
310-166844-5	MW-305	Total/NA	Water	9056A	
310-166844-6	MW-306	Total/NA	Water	9056A	
310-166844-6	MW-306	Total/NA	Water	9056A	
310-166844-7	Field Blank	Total/NA	Water	9056A	
MB 310-256449/3	Method Blank	Total/NA	Water	9056A	
LCS 310-256449/4	Lab Control Sample	Total/NA	Water	9056A	
310-166844-5 MS	MW-305	Total/NA	Water	9056A	
310-166844-5 MSD	MW-305	Total/NA	Water	9056A	

Metals

Prep Batch: 256149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	3010A	
310-166844-2	MW-302	Total/NA	Water	3010A	
310-166844-3	MW-303	Total/NA	Water	3010A	
310-166844-4	MW-304	Total/NA	Water	3010A	
310-166844-5	MW-305	Total/NA	Water	3010A	
310-166844-6	MW-306	Total/NA	Water	3010A	
310-166844-7	Field Blank	Total/NA	Water	3010A	
MB 310-256149/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-256149/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-166844-1 MS	MW-301	Total/NA	Water	3010A	
310-166844-1 MSD	MW-301	Total/NA	Water	3010A	

Analysis Batch: 256598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	6020A	256149
310-166844-2	MW-302	Total/NA	Water	6020A	256149
310-166844-3	MW-303	Total/NA	Water	6020A	256149
310-166844-4	MW-304	Total/NA	Water	6020A	256149
310-166844-5	MW-305	Total/NA	Water	6020A	256149
310-166844-6	MW-306	Total/NA	Water	6020A	256149
310-166844-7	Field Blank	Total/NA	Water	6020A	256149
MB 310-256149/1-A	Method Blank	Total/NA	Water	6020A	256149
LCS 310-256149/2-A	Lab Control Sample	Total/NA	Water	6020A	256149
310-166844-1 MS	MW-301	Total/NA	Water	6020A	256149
310-166844-1 MSD	MW-301	Total/NA	Water	6020A	256149

Analysis Batch: 256712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	6020A	256149
310-166844-2	MW-302	Total/NA	Water	6020A	256149

Metals (Continued)

Analysis Batch: 256712 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-4	MW-304	Total/NA	Water	6020A	256149
310-166844-5	MW-305	Total/NA	Water	6020A	256149
310-166844-6	MW-306	Total/NA	Water	6020A	256149
310-166844-1 MS	MW-301	Total/NA	Water	6020A	256149
310-166844-1 MSD	MW-301	Total/NA	Water	6020A	256149

General Chemistry

Analysis Batch: 255965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-166844-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-166844-3	MW-303	Total/NA	Water	SM 4500 H+ B	
310-166844-4	MW-304	Total/NA	Water	SM 4500 H+ B	
310-166844-5	MW-305	Total/NA	Water	SM 4500 H+ B	
310-166844-6	MW-306	Total/NA	Water	SM 4500 H+ B	
310-166844-7	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-255965/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-166844-5 DU	MW-305	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 256221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	SM 2540C	
310-166844-2	MW-302	Total/NA	Water	SM 2540C	
310-166844-3	MW-303	Total/NA	Water	SM 2540C	
310-166844-4	MW-304	Total/NA	Water	SM 2540C	
310-166844-5	MW-305	Total/NA	Water	SM 2540C	
310-166844-6	MW-306	Total/NA	Water	SM 2540C	
310-166844-7	Field Blank	Total/NA	Water	SM 2540C	
MB 310-256221/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-256221/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-166844-2 DU	MW-302	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 257065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-166844-1	MW-301	Total/NA	Water	Field Sampling	
310-166844-2	MW-302	Total/NA	Water	Field Sampling	
310-166844-3	MW-303	Total/NA	Water	Field Sampling	
310-166844-4	MW-304	Total/NA	Water	Field Sampling	
310-166844-5	MW-305	Total/NA	Water	Field Sampling	
310-166844-6	MW-306	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-301
Date Collected: 10/07/19 08:00
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	256449	10/10/19 21:47	CJT	TAL CF
Total/NA	Analysis	9056A		20	256449	10/11/19 11:23	CJT	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:14	SAD	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		7	256712	10/14/19 13:02	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 20:58	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	257065	10/07/19 08:00	EAR	TAL CF

Client Sample ID: MW-302
Date Collected: 10/07/19 09:15
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	256449	10/10/19 22:03	CJT	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:34	SAD	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		4	256712	10/14/19 13:10	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 20:59	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	257065	10/07/19 09:15	EAR	TAL CF

Client Sample ID: MW-303
Date Collected: 10/07/19 10:35
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	256449	10/10/19 22:20	CJT	TAL CF
Total/NA	Analysis	9056A		20	256449	10/11/19 11:39	CJT	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:37	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 21:00	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	257065	10/07/19 10:35	EAR	TAL CF

Client Sample ID: MW-304
Date Collected: 10/07/19 11:35
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	256449	10/10/19 22:37	CJT	TAL CF
Total/NA	Analysis	9056A		20	256449	10/11/19 11:55	CJT	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: MW-304
Date Collected: 10/07/19 11:35
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:40	SAD	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		4	256712	10/14/19 13:13	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 21:01	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	257065	10/07/19 11:35	EAR	TAL CF

Client Sample ID: MW-305
Date Collected: 10/07/19 12:33
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	256449	10/10/19 22:54	CJT	TAL CF
Total/NA	Analysis	9056A		20	256449	10/11/19 12:11	CJT	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:42	SAD	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		7	256712	10/14/19 13:16	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 21:14	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	257065	10/07/19 12:33	EAR	TAL CF

Client Sample ID: MW-306
Date Collected: 10/07/19 13:20
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	256449	10/10/19 23:44	CJT	TAL CF
Total/NA	Analysis	9056A		20	256449	10/11/19 00:01	CJT	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:45	SAD	TAL CF
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		7	256712	10/14/19 13:26	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 21:18	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	257065	10/07/19 13:20	EAR	TAL CF

Client Sample ID: Field Blank
Date Collected: 10/07/19 23:59
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	256449	10/11/19 00:52	CJT	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Client Sample ID: Field Blank

Date Collected: 10/07/19 23:59
Date Received: 10/08/19 17:40

Lab Sample ID: 310-166844-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			256149	10/10/19 07:56	HED	TAL CF
Total/NA	Analysis	6020A		1	256598	10/11/19 19:47	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	256221	10/10/19 11:57	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	255965	10/08/19 21:22	JMH	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-166844-1
Project/Site: M.L.Kapp Ash Pond 25219077.00

Laboratory: Eurofins TestAmerica, Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State Program	007	12-01-19

Method Summary

Client: SCS Engineers
Project/Site: M.L.Kapp Ash Pond 25219077.00

Job ID: 310-166844-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
Field Sampling	Field Sampling	EPA	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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310-166844 Chain of Custody

Cooler/Sample Receipt and Temperature

Client Information

Client: SCS Engineers

City/State: CITY Madison STATE WI

Project: M.L Kapp Ash Pond

Receipt Information

Date/Time Received: DATE 10/8/19 TIME 1740

Received By: LAB

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: N

Correction Factor (°C): +0.0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.6

Corrected Temp (°C): 2.6

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

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43542

Client Information	Sampler: Louise Jennings	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-43542-12717.1
Client Contact: Meghan Blodgett	Phone: 608 509 8245	E-Mail: sandie.fredrick@testamericainc.com		Page: Page 1 of 1
Company: SCS Engineers				Job #:

Address: 2830 Dairy Drive	Due Date Requested:	Analysis Requested
City: Madison	TAT Requested (days): Standard	
State, Zip: WI, 53718	PO #: 25219077.00	
Phone:	WO #:	
Email: mblodgett@scsengineers.com	Project #: 31011020	
Project Name: M.L. Kapp Ash Pond 25219077.00	SSOW#:	
Site:		

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A, 7470A	2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+	903.0 - Radium 226	904.0 - Radium 228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	D		
MW-301	10.7.19	0900	G	Water			X	X				
MW-302		915		Water								
MW-303		1035		Water								
MW-304		1135		Water								
MW-305		1233		Water								
MW-306		1320		Water								
Field Blank		2359		Water								
				Water								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	L Jennings	10/7/19 1740			10/8/19 - 9:00AM	DAM
2	Relinquished by:	Date/Time:	Company	Received by: Lindsay Binder	10/8/19 1740	ETA-CF
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-301	310-166844-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-302	310-166844-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-303	310-166844-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-304	310-166844-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-305	310-166844-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-306	310-166844-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-166844-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - M.L. Kapp Ash Pond/ SCS Engineers Project #25219077.00

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	Field Blank
Appendix III Parameters	Boron	x	x	x	x	x	x	x
	Calcium	x	x	x	x	x	x	x
	Chloride	x	x	x	x	x	x	x
	Fluoride	x	x	x	x	x	x	x
	pH	x	x	x	x	x	x	x
	Sulfate	x	x	x	x	x	x	x
	TDS	x	x	x	x	x	x	x
Appendix IV Parameters	Antimony							
	Arsenic							
	Barium							
	Beryllium							
	Cadmium							
	Chromium							
	Cobalt							
	Fluoride							
	Lead							
	Lithium							
	Mercury							
	Molybdenum							
	Selenium							
	Thallium							
	Radium							
CCR Rule Field Parameters	Groundwater Elevation	x	x	x	x	x	x	
	pH (field)	x	x	x	x	x	x	
Low-Flow Sampling Field Parameters	Well Depth	x	x	x	x	x	x	
	Specific Conductance	x	x	x	x	x	x	
	Dissolved Oxygen	x	x	x	x	x	x	
	ORP	x	x	x	x	x	x	
	Temperature	x	x	x	x	x	x	
	Turbidity	x	x	x	x	x	x	
	Color	x	x	x	x	x	x	
	Odor	x	x	x	x	x	x	

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Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-166844-1

Login Number: 166844
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins TestAmerica, Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Groundwater Monitoring Results - Field Parameters
M.L. Kapp Generating Station / SCS Engineers Project #25219077.00
October 2019

Sample	Sample Date/Time	GW Elevation (ft amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (ms/cm)	ORP (mV)	Turbidity
MW-301	10.07.19/0800	580.97	13.96	6.28	0.37	1,058	-39.5	2.97
MW-302	10.07.19/0915	580.74	14.3	7.97	0.38	714	12.3	1.21
MW-303	10.07.19/1035	581.39	14.11	6.76	1.32	1,220	39.5	1.91
MW-304	10.07.19/1135	581.62	14.62	7.08	0.25	909	-37.4	3.5
MW-305	10.07.19/1233	581.88	15.33	7.04	0.33	1,604	-41.8	5.04
MW-306	10.07.19/1320	582.28	14.56	7.01	0.30	1,290	19.7	0.57

Abbreviations:
mg/L = milligrams per liter mV = millivolts amsl = above mean sea level

Notes:
None

Created by: KAK Date: 4/2/2018
Last revision by LWJ Date: 10/17/2019
Checked by: JSN Date: 10/18/2019

I:\25219077.00\Data and Calculations\Tables\[1910_M.L. Kapp_CCR_Field.xlsx]GW Field Parameters

A6 December 2019 Assessment Monitoring Program

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ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-171908-1
Client Project/Site: M.L. Kapp Ash Ponds - 25219077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
12/24/2019 8:01:36 AM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 310-171908-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-171908-1

Comments
No additional comments.

Receipt
The samples were received on 12/11/2019 5:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3º C.

HPLC/IC
Methods 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW-301 (310-171908-1), MW-302 (310-171908-2), MW-303 (310-171908-3), MW-304 (310-171908-4), MW-305 (310-171908-5) and MW-306 (310-171908-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: MW-301 (310-171908-1), MW-302 (310-171908-2), MW-304 (310-171908-4), MW-305 (310-171908-5) and MW-306 (310-171908-6).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-171908-1	MW-301	Water	12/10/19 11:35	12/11/19 17:25	
310-171908-2	MW-302	Water	12/10/19 13:05	12/11/19 17:25	
310-171908-3	MW-303	Water	12/10/19 14:20	12/11/19 17:25	
310-171908-4	MW-304	Water	12/10/19 15:10	12/11/19 17:25	
310-171908-5	MW-305	Water	12/10/19 16:15	12/11/19 17:25	
310-171908-6	MW-306	Water	12/10/19 16:55	12/11/19 17:25	
310-171908-7	Field Blank	Water	12/10/19 11:30	12/11/19 17:25	

Detection Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-301 — Lab Sample ID: 310-171908-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	37		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	320		10	3.5	mg/L	10		9056A	Total/NA
Barium	120		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	12000		800	440	ug/L	4		6020A	Total/NA
Cadmium	0.10		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	140		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	5.2		0.50	0.091	ug/L	1		6020A	Total/NA
Molybdenum	310		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	760		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	577.39				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-42.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.48				mg/L	1		Field Sampling	Total/NA
pH, Field	6.38				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1026				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.7				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	5.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302 — Lab Sample ID: 310-171908-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	240		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	6.7		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	80		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	6100		400	220	ug/L	2		6020A	Total/NA
Cadmium	0.13		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	70		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.67		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.60		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	19	J	20	5.4	ug/L	2		6020A	Total/NA
Molybdenum	260		4.0	2.2	ug/L	2		6020A	Total/NA
Total Dissolved Solids	530		30	24	mg/L	1		SM 2540C	Total/NA
pH	8.1	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	577.41				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	21.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.42				mg/L	1		Field Sampling	Total/NA
pH, Field	7.97				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	727				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	61.54				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303 — Lab Sample ID: 310-171908-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	350		10	3.5	mg/L	10		9056A	Total/NA
Arsenic	9.2		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	47		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	3200		200	110	ug/L	1		6020A	Total/NA
Cadmium	0.045	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	110		0.50	0.10	mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-303 (Continued)

Lab Sample ID: 310-171908-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.36	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.57		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	17		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	140		2.0	1.1	ug/L	1		6020A	Total/NA
Selenium	2.0	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	620		30	24	mg/L	1		SM 2540C	Total/NA
pH	9.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	578.9				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	42.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.47				mg/L	1		Field Sampling	Total/NA
pH, Field	9.35				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	861				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	30.09				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-171908-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	23		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	330		10	3.5	mg/L	10		9056A	Total/NA
Arsenic	4.5		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	86		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	10000		800	440	ug/L	4		6020A	Total/NA
Cadmium	0.28		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	89		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	1.1		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.40	J	0.50	0.27	ug/L	1		6020A	Total/NA
Molybdenum	820		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	660		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	578.85				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-42.				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.28				mg/L	1		Field Sampling	Total/NA
pH, Field	7.31				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	932				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	13.5				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-171908-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	17		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	620		20	7.0	mg/L	20		9056A	Total/NA
Arsenic	1.4	J	2.0	0.75	ug/L	1		6020A	Total/NA
Barium	92		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	15000		800	440	ug/L	4		6020A	Total/NA
Cadmium	0.25		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	160		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.57		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	19	J	40	11	ug/L	4		6020A	Total/NA
Molybdenum	650		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	1100		30	24	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-305 (Continued)

Lab Sample ID: 310-171908-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	578.89				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-67.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.83				mg/L	1		Field Sampling	Total/NA
pH, Field	7.19				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1391				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.8				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	11.4				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-171908-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	74		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	390		10	3.5	mg/L	10		9056A	Total/NA
Barium	49		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	15000		800	440	ug/L	4		6020A	Total/NA
Calcium	130		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.18	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	68		40	11	ug/L	4		6020A	Total/NA
Molybdenum	88		8.0	4.4	ug/L	4		6020A	Total/NA
Selenium	1.6	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	960		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	579.49				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	22.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.58				mg/L	1		Field Sampling	Total/NA
pH, Field	7.31				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1304				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.30				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.34				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-171908-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	170	J	200	110	ug/L	1		6020A	Total/NA
Calcium	0.13	J	0.50	0.10	mg/L	1		6020A	Total/NA
Lead	0.44	J	0.50	0.27	ug/L	1		6020A	Total/NA
pH	6.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-301

Date Collected: 12/10/19 11:35
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**37**		5.0	1.5	mg/L			12/12/19 17:30	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 11:59	5
Sulfate	**320**		10	3.5	mg/L			12/13/19 12:46	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<2.1		4.0	2.1	ug/L		12/13/19 07:50	12/19/19 11:51	4
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:15	1
Barium	**120**		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:15	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:15	1
Boron	**12000**		800	440	ug/L		12/13/19 07:50	12/19/19 11:51	4
Cadmium	**0.10**		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:15	1
Calcium	**140**		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:15	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:15	1
Cobalt	**5.2**		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:15	1
Lead	<0.27		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:15	1
Lithium	<11		40	11	ug/L		12/13/19 07:50	12/19/19 11:51	4
Molybdenum	**310**		8.0	4.4	ug/L		12/13/19 07:50	12/19/19 11:51	4
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:15	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:15	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**760**		30	24	mg/L			12/13/19 11:40	1
pH	**6.9**	**HF**	0.1	0.1	SU			12/11/19 22:31	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**577.39**				ft			12/10/19 11:35	1
Oxidation Reduction Potential	**-42.3**				millivolts			12/10/19 11:35	1
Oxygen, Dissolved, Client Supplied	**0.48**				mg/L			12/10/19 11:35	1
pH, Field	**6.38**				SU			12/10/19 11:35	1
Specific Conductance, Field	**1026**				umhos/cm			12/10/19 11:35	1
Temperature, Field	**11.7**				Degrees C			12/10/19 11:35	1
Turbidity, Field	**5.02**				NTU			12/10/19 11:35	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-302
Date Collected: 12/10/19 13:05
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-2
Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14**		5.0	1.5	mg/L			12/12/19 17:45	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 13:02	5
Sulfate	**240**		5.0	1.8	mg/L			12/12/19 17:45	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 11:54	2
Arsenic	**6.7**		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:18	1
Barium	**80**		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:18	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:18	1
Boron	**6100**		400	220	ug/L		12/13/19 07:50	12/19/19 11:54	2
Cadmium	**0.13**		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:18	1
Calcium	**70**		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:18	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:18	1
Cobalt	**0.67**		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:18	1
Lead	**0.60**		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:18	1
Lithium	**19**	**J**	20	5.4	ug/L		12/13/19 07:50	12/19/19 11:54	2
Molybdenum	**260**		4.0	2.2	ug/L		12/13/19 07:50	12/19/19 11:54	2
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:18	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:18	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**530**		30	24	mg/L			12/13/19 11:40	1
pH	**8.1**	**HF**	0.1	0.1	SU			12/11/19 22:34	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**577.41**				ft			12/10/19 13:05	1
Oxidation Reduction Potential	**21.1**				millivolts			12/10/19 13:05	1
Oxygen, Dissolved, Client Supplied	**0.42**				mg/L			12/10/19 13:05	1
pH, Field	**7.97**				SU			12/10/19 13:05	1
Specific Conductance, Field	**727**				umhos/cm			12/10/19 13:05	1
Temperature, Field	**12.**				Degrees C			12/10/19 13:05	1
Turbidity, Field	**61.54**				NTU			12/10/19 13:05	1

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-303

Date Collected: 12/10/19 14:20
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**16**		5.0	1.5	mg/L			12/12/19 18:01	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 13:17	5
Sulfate	**350**		10	3.5	mg/L			12/13/19 13:33	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 11:56	1
Arsenic	**9.2**		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:21	1
Barium	**47**		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:21	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:21	1
Boron	**3200**		200	110	ug/L		12/13/19 07:50	12/17/19 20:21	1
Cadmium	**0.045**	**J**	0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:21	1
Calcium	**110**		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:21	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:21	1
Cobalt	**0.36**	**J**	0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:21	1
Lead	**0.57**		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:21	1
Lithium	**17**		10	2.7	ug/L		12/13/19 07:50	12/19/19 11:56	1
Molybdenum	**140**		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 11:56	1
Selenium	**2.0**	**J**	5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:21	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**620**		30	24	mg/L			12/13/19 11:40	1
pH	**9.2**	**HF**	0.1	0.1	SU			12/11/19 22:35	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**578.9**				ft			12/10/19 14:20	1
Oxidation Reduction Potential	**42.3**				millivolts			12/10/19 14:20	1
Oxygen, Dissolved, Client Supplied	**0.47**				mg/L			12/10/19 14:20	1
pH, Field	**9.35**				SU			12/10/19 14:20	1
Specific Conductance, Field	**861**				umhos/cm			12/10/19 14:20	1
Temperature, Field	**12.**				Degrees C			12/10/19 14:20	1
Turbidity, Field	**30.09**				NTU			12/10/19 14:20	1

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-304

Date Collected: 12/10/19 15:10
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23**		5.0	1.5	mg/L			12/12/19 18:16	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 13:48	5
Sulfate	**330**		10	3.5	mg/L			12/13/19 14:04	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<2.1		4.0	2.1	ug/L		12/13/19 07:50	12/19/19 12:07	4
Arsenic	**4.5**		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:23	1
Barium	**86**		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:23	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:23	1
Boron	**10000**		800	440	ug/L		12/13/19 07:50	12/19/19 12:07	4
Cadmium	**0.28**		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:23	1
Calcium	**89**		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:23	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:23	1
Cobalt	**1.1**		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:23	1
Lead	**0.40**	**J**	0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:23	1
Lithium	<11		40	11	ug/L		12/13/19 07:50	12/19/19 12:07	4
Molybdenum	**820**		8.0	4.4	ug/L		12/13/19 07:50	12/19/19 12:07	4
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:23	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:23	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**660**		30	24	mg/L			12/13/19 11:40	1
pH	**7.3**	**HF**	0.1	0.1	SU			12/11/19 22:36	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**578.85**				ft			12/10/19 15:10	1
Oxidation Reduction Potential	**-42.**				millivolts			12/10/19 15:10	1
Oxygen, Dissolved, Client Supplied	**0.28**				mg/L			12/10/19 15:10	1
pH, Field	**7.31**				SU			12/10/19 15:10	1
Specific Conductance, Field	**932**				umhos/cm			12/10/19 15:10	1
Temperature, Field	**12.1**				Degrees C			12/10/19 15:10	1
Turbidity, Field	**13.5**				NTU			12/10/19 15:10	1

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-305

Date Collected: 12/10/19 16:15
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**17**		5.0	1.5	mg/L			12/12/19 18:32	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 14:20	5
Sulfate	**620**		20	7.0	mg/L			12/13/19 14:35	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<2.1		4.0	2.1	ug/L		12/13/19 07:50	12/19/19 12:09	4
Arsenic	**1.4**	**J**	2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:26	1
Barium	**92**		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:26	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:26	1
Boron	**15000**		800	440	ug/L		12/13/19 07:50	12/19/19 12:09	4
Cadmium	**0.25**		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:26	1
Calcium	**160**		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:26	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:26	1
Cobalt	**0.57**		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:26	1
Lead	<0.27		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:26	1
Lithium	**19**	**J**	40	11	ug/L		12/13/19 07:50	12/19/19 12:09	4
Molybdenum	**650**		8.0	4.4	ug/L		12/13/19 07:50	12/19/19 12:09	4
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:26	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:26	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1100**		30	24	mg/L			12/13/19 11:40	1
pH	**7.5**	**HF**	0.1	0.1	SU			12/11/19 22:37	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**578.89**				ft			12/10/19 16:15	1
Oxidation Reduction Potential	**-67.4**				millivolts			12/10/19 16:15	1
Oxygen, Dissolved, Client Supplied	**0.83**				mg/L			12/10/19 16:15	1
pH, Field	**7.19**				SU			12/10/19 16:15	1
Specific Conductance, Field	**1391**				umhos/cm			12/10/19 16:15	1
Temperature, Field	**11.8**				Degrees C			12/10/19 16:15	1
Turbidity, Field	**11.4**				NTU			12/10/19 16:15	1

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-306

Date Collected: 12/10/19 16:55
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**74**		5.0	1.5	mg/L			12/12/19 18:48	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 14:51	5
Sulfate	**390**		10	3.5	mg/L			12/13/19 15:06	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<2.1		4.0	2.1	ug/L		12/13/19 07:50	12/19/19 12:15	4
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:28	1
Barium	**49**		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:28	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:28	1
Boron	**15000**		800	440	ug/L		12/13/19 07:50	12/19/19 12:15	4
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:28	1
Calcium	**130**		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:28	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:28	1
Cobalt	**0.18**	**J**	0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:28	1
Lead	<0.27		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:28	1
Lithium	**68**		40	11	ug/L		12/13/19 07:50	12/19/19 12:15	4
Molybdenum	**88**		8.0	4.4	ug/L		12/13/19 07:50	12/19/19 12:15	4
Selenium	**1.6**	**J**	5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:28	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:28	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**960**		30	24	mg/L			12/13/19 11:40	1
pH	**7.6**	**HF**	0.1	0.1	SU			12/11/19 22:45	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**579.49**				ft			12/10/19 16:55	1
Oxidation Reduction Potential	**22.4**				millivolts			12/10/19 16:55	1
Oxygen, Dissolved, Client Supplied	**0.58**				mg/L			12/10/19 16:55	1
pH, Field	**7.31**				SU			12/10/19 16:55	1
Specific Conductance, Field	**1304**				umhos/cm			12/10/19 16:55	1
Temperature, Field	**11.30**				Degrees C			12/10/19 16:55	1
Turbidity, Field	**3.34**				NTU			12/10/19 16:55	1

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: Field Blank

Date Collected: 12/10/19 11:30
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-7

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			12/13/19 15:53	1
Fluoride	<0.045		0.10	0.045	mg/L			12/13/19 15:53	1
Sulfate	<0.35		1.0	0.35	mg/L			12/13/19 15:53	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 12:20	1
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:31	1
Barium	<0.84		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:31	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:31	1
Boron	**170**	**J**	200	110	ug/L		12/13/19 07:50	12/17/19 20:31	1
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:31	1
Calcium	**0.13**	**J**	0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:31	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:31	1
Cobalt	<0.091		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:31	1
Lead	**0.44**	**J**	0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:31	1
Lithium	<2.7		10	2.7	ug/L		12/13/19 07:50	12/19/19 12:20	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 12:20	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:31	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			12/13/19 11:40	1
pH	**6.6**	**HF**	0.1	0.1	SU			12/11/19 22:50	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-264765/3
Matrix: Water
Analysis Batch: 264765

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			12/12/19 14:07	1
Sulfate	<0.35		1.0	0.35	mg/L			12/12/19 14:07	1

Lab Sample ID: MB 310-264765/60
Matrix: Water
Analysis Batch: 264765

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.045		0.10	0.045	mg/L			12/13/19 16:40	1

Lab Sample ID: LCS 310-264765/4
Matrix: Water
Analysis Batch: 264765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.69		mg/L		97	90 - 110
Sulfate	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: LCS 310-264765/61
Matrix: Water
Analysis Batch: 264765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	2.00	1.98		mg/L		99	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-264522/1-A
Matrix: Water
Analysis Batch: 265032

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 19:44	1
Barium	<0.84		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 19:44	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 19:44	1
Boron	<110		200	110	ug/L		12/13/19 07:50	12/17/19 19:44	1
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 19:44	1
Calcium	<0.10		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 19:44	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 19:44	1
Cobalt	<0.091		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 19:44	1
Lead	<0.27		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 19:44	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/17/19 19:44	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 19:44	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 19:44	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 310-264522/1-A
Matrix: Water
Analysis Batch: 265426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 11:23	1
Lithium	<2.7		10	2.7	ug/L		12/13/19 07:50	12/19/19 11:23	1

Lab Sample ID: LCS 310-264522/2-A
Matrix: Water
Analysis Batch: 265032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	68.5		ug/L		86	80 - 120
Barium	80.0	76.1		ug/L		95	80 - 120
Beryllium	40.0	41.2		ug/L		103	80 - 120
Boron	1760	1520		ug/L		86	80 - 120
Cadmium	40.0	39.0		ug/L		98	80 - 120
Calcium	4.00	3.84		mg/L		96	80 - 120
Chromium	80.0	80.2		ug/L		100	80 - 120
Cobalt	40.0	41.3		ug/L		103	80 - 120
Lead	40.0	39.3		ug/L		98	80 - 120
Selenium	80.0	69.7		ug/L		87	80 - 120
Thallium	32.0	29.8		ug/L		93	80 - 120

Lab Sample ID: LCS 310-264522/2-A
Matrix: Water
Analysis Batch: 265426

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	200	198		ug/L		99	80 - 120

Lab Sample ID: LCS 310-264522/2-A
Matrix: Water
Analysis Batch: 265741

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	38.9		ug/L		97	80 - 120
Molybdenum	80.0	83.2		ug/L		104	80 - 120

Lab Sample ID: 310-171908-7 DU
Matrix: Water
Analysis Batch: 265032

Client Sample ID: Field Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	<0.75		<0.75		ug/L		NC	20
Barium	<0.84		<0.84		ug/L		NC	20
Beryllium	<0.27		<0.27		ug/L		NC	20
Boron	170	J	<110		ug/L		NC	20
Cadmium	<0.039		<0.039		ug/L		NC	20
Calcium	0.13	J	<0.10		mg/L		NC	20
Chromium	<0.98		<0.98		ug/L		NC	20
Cobalt	<0.091		<0.091		ug/L		NC	20
Lead	0.44	J	<0.27		ug/L		NC	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-171908-7 DU
Matrix: Water
Analysis Batch: 265032

Client Sample ID: Field Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Selenium	<1.0		<1.0		ug/L		NC	20
Thallium	<0.27		<0.27		ug/L		NC	20

Lab Sample ID: 310-171908-7 DU
Matrix: Water
Analysis Batch: 265426

Client Sample ID: Field Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.53		<0.53		ug/L		NC	20
Lithium	<2.7		<2.7		ug/L		NC	20
Molybdenum	<1.1		<1.1		ug/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-264564/1-A
Matrix: Water
Analysis Batch: 264800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 264564

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 12:54	1

Lab Sample ID: LCS 310-264564/2-A
Matrix: Water
Analysis Batch: 264800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.67	1.71		ug/L		102	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-264588/1
Matrix: Water
Analysis Batch: 264588

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			12/13/19 11:40	1

Lab Sample ID: LCS 310-264588/2
Matrix: Water
Analysis Batch: 264588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	954		mg/L		95	90 - 110

Lab Sample ID: 310-171908-2 DU
Matrix: Water
Analysis Batch: 264588

Client Sample ID: MW-302
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	530		520		mg/L		1	24

QC Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-264318/1
Matrix: Water
Analysis Batch: 264318

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.0		SU		100	98 - 102		

Lab Sample ID: 310-171908-6 DU
Matrix: Water
Analysis Batch: 264318

Client Sample ID: MW-306
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.6	HF		7.6		SU				0.1	20

QC Association Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

HPLC/IC

Analysis Batch: 264765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	9056A	
310-171908-1	MW-301	Total/NA	Water	9056A	
310-171908-1	MW-301	Total/NA	Water	9056A	
310-171908-2	MW-302	Total/NA	Water	9056A	
310-171908-2	MW-302	Total/NA	Water	9056A	
310-171908-3	MW-303	Total/NA	Water	9056A	
310-171908-3	MW-303	Total/NA	Water	9056A	
310-171908-3	MW-303	Total/NA	Water	9056A	
310-171908-4	MW-304	Total/NA	Water	9056A	
310-171908-4	MW-304	Total/NA	Water	9056A	
310-171908-4	MW-304	Total/NA	Water	9056A	
310-171908-5	MW-305	Total/NA	Water	9056A	
310-171908-5	MW-305	Total/NA	Water	9056A	
310-171908-5	MW-305	Total/NA	Water	9056A	
310-171908-6	MW-306	Total/NA	Water	9056A	
310-171908-6	MW-306	Total/NA	Water	9056A	
310-171908-6	MW-306	Total/NA	Water	9056A	
310-171908-7	Field Blank	Total/NA	Water	9056A	
MB 310-264765/3	Method Blank	Total/NA	Water	9056A	
MB 310-264765/60	Method Blank	Total/NA	Water	9056A	
LCS 310-264765/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 310-264765/61	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 264522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	3010A	
310-171908-2	MW-302	Total/NA	Water	3010A	
310-171908-3	MW-303	Total/NA	Water	3010A	
310-171908-4	MW-304	Total/NA	Water	3010A	
310-171908-5	MW-305	Total/NA	Water	3010A	
310-171908-6	MW-306	Total/NA	Water	3010A	
310-171908-7	Field Blank	Total/NA	Water	3010A	
MB 310-264522/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-171908-7 DU	Field Blank	Total/NA	Water	3010A	

Prep Batch: 264564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	7470A	
310-171908-2	MW-302	Total/NA	Water	7470A	
310-171908-3	MW-303	Total/NA	Water	7470A	
310-171908-4	MW-304	Total/NA	Water	7470A	
310-171908-5	MW-305	Total/NA	Water	7470A	
310-171908-6	MW-306	Total/NA	Water	7470A	
310-171908-7	Field Blank	Total/NA	Water	7470A	
MB 310-264564/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-264564/2-A	Lab Control Sample	Total/NA	Water	7470A	

Metals

Analysis Batch: 264800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	7470A	264564
310-171908-2	MW-302	Total/NA	Water	7470A	264564
310-171908-3	MW-303	Total/NA	Water	7470A	264564
310-171908-4	MW-304	Total/NA	Water	7470A	264564
310-171908-5	MW-305	Total/NA	Water	7470A	264564
310-171908-6	MW-306	Total/NA	Water	7470A	264564
310-171908-7	Field Blank	Total/NA	Water	7470A	264564
MB 310-264564/1-A	Method Blank	Total/NA	Water	7470A	264564
LCS 310-264564/2-A	Lab Control Sample	Total/NA	Water	7470A	264564

Analysis Batch: 265032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	6020A	264522
310-171908-2	MW-302	Total/NA	Water	6020A	264522
310-171908-3	MW-303	Total/NA	Water	6020A	264522
310-171908-4	MW-304	Total/NA	Water	6020A	264522
310-171908-5	MW-305	Total/NA	Water	6020A	264522
310-171908-6	MW-306	Total/NA	Water	6020A	264522
310-171908-7	Field Blank	Total/NA	Water	6020A	264522
MB 310-264522/1-A	Method Blank	Total/NA	Water	6020A	264522
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	6020A	264522
310-171908-7 DU	Field Blank	Total/NA	Water	6020A	264522

Analysis Batch: 265426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	6020A	264522
310-171908-2	MW-302	Total/NA	Water	6020A	264522
310-171908-3	MW-303	Total/NA	Water	6020A	264522
310-171908-4	MW-304	Total/NA	Water	6020A	264522
310-171908-5	MW-305	Total/NA	Water	6020A	264522
310-171908-6	MW-306	Total/NA	Water	6020A	264522
310-171908-7	Field Blank	Total/NA	Water	6020A	264522
MB 310-264522/1-A	Method Blank	Total/NA	Water	6020A	264522
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	6020A	264522
310-171908-7 DU	Field Blank	Total/NA	Water	6020A	264522

Analysis Batch: 265741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	6020A	264522

General Chemistry

Analysis Batch: 264318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-171908-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-171908-3	MW-303	Total/NA	Water	SM 4500 H+ B	
310-171908-4	MW-304	Total/NA	Water	SM 4500 H+ B	
310-171908-5	MW-305	Total/NA	Water	SM 4500 H+ B	
310-171908-6	MW-306	Total/NA	Water	SM 4500 H+ B	
310-171908-7	Field Blank	Total/NA	Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 264318 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-264318/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-171908-6 DU	MW-306	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 264588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	SM 2540C	
310-171908-2	MW-302	Total/NA	Water	SM 2540C	
310-171908-3	MW-303	Total/NA	Water	SM 2540C	
310-171908-4	MW-304	Total/NA	Water	SM 2540C	
310-171908-5	MW-305	Total/NA	Water	SM 2540C	
310-171908-6	MW-306	Total/NA	Water	SM 2540C	
310-171908-7	Field Blank	Total/NA	Water	SM 2540C	
MB 310-264588/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-264588/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-171908-2 DU	MW-302	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 265262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	Field Sampling	
310-171908-2	MW-302	Total/NA	Water	Field Sampling	
310-171908-3	MW-303	Total/NA	Water	Field Sampling	
310-171908-4	MW-304	Total/NA	Water	Field Sampling	
310-171908-5	MW-305	Total/NA	Water	Field Sampling	
310-171908-6	MW-306	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Client Sample ID: MW-301

Lab Sample ID: 310-171908-1
Date Collected: 12/10/19 11:35
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 17:30	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 11:59	ACJ	TAL CF
Total/NA	Analysis	9056A		10	264765	12/13/19 12:46	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:15	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		4	265426	12/19/19 11:51	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:21	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:31	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/10/19 11:35	EAR	TAL CF

Client Sample ID: MW-302

Lab Sample ID: 310-171908-2
Date Collected: 12/10/19 13:05
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 17:45	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 13:02	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:18	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		2	265426	12/19/19 11:54	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:19	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:34	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/10/19 13:05	EAR	TAL CF

Client Sample ID: MW-303

Lab Sample ID: 310-171908-3
Date Collected: 12/10/19 14:20
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 18:01	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 13:17	ACJ	TAL CF
Total/NA	Analysis	9056A		10	264765	12/13/19 13:33	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:21	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265426	12/19/19 11:56	SAD	TAL CF

Lab Chronicle

Client: SCS Engineers
Job ID: 310-171908-1
Project/Site: M.L. Kapp Ash Ponds - 25219077

Client Sample ID: MW-303
Lab Sample ID: 310-171908-3
Date Collected: 12/10/19 14:20
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:17	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:35	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/10/19 14:20	EAR	TAL CF

Client Sample ID: MW-304
Lab Sample ID: 310-171908-4
Date Collected: 12/10/19 15:10
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 18:16	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 13:48	ACJ	TAL CF
Total/NA	Analysis	9056A		10	264765	12/13/19 14:04	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:23	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		4	265426	12/19/19 12:07	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:15	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:36	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/10/19 15:10	EAR	TAL CF

Client Sample ID: MW-305
Lab Sample ID: 310-171908-5
Date Collected: 12/10/19 16:15
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 18:32	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 14:20	ACJ	TAL CF
Total/NA	Analysis	9056A		20	264765	12/13/19 14:35	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:26	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		4	265426	12/19/19 12:09	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:13	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:37	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/10/19 16:15	EAR	TAL CF

Lab Chronicle

Client: SCS Engineers
Job ID: 310-171908-1
Project/Site: M.L. Kapp Ash Ponds - 25219077

Client Sample ID: MW-306
Lab Sample ID: 310-171908-6
Date Collected: 12/10/19 16:55
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 18:48	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 14:51	ACJ	TAL CF
Total/NA	Analysis	9056A		10	264765	12/13/19 15:06	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:28	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		4	265426	12/19/19 12:15	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:11	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:45	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/10/19 16:55	EAR	TAL CF

Client Sample ID: Field Blank
Lab Sample ID: 310-171908-7
Date Collected: 12/10/19 11:30
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	264765	12/13/19 15:53	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:31	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265426	12/19/19 12:20	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:09	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:50	JMH	TAL CF

Laboratory References:
TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-171908-1
Project/Site: M.L. Kapp Ash Ponds - 25219077

Laboratory: Eurofins TestAmerica, Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State Program	007	12-01-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
Field Sampling	Field Sampling	EPA	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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310-171908 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Eng.

City/State: CITY Clive STATE IA Project: ML Kapp

Receipt Information

Date/Time Received: DATE 12-11-19 TIME 1725 Received By: LAB

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M Correction Factor (°C): -0.1

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.4 Corrected Temp (°C): 5.3

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Charlie Bills	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-45504-14479.1
Client Contact: Louise Jennings	Phone: (262) 518-4085	E-Mail: sandie.fredrick@testamericainc.com		Page: Page 1 of 1
Company: SCS Engineers				Job #:
Address: 8450 Hickman Road Suite 20	Due Date Requested:			
City: Clive	TAT Requested (days):			
State, Zip: IA, 50325				
Phone:	PO #: 25219077			
Email: ljennings@scsengineers.com	WO #:			
Project Name: M.L. Kapp Ash Ponds - 25219077	Project #: 31011020			
Site: M.L. Kapp	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0, 904.0	6020A, 7470A	2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+	F06	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N			
MW-301	12-10-19	1135	G	Water	N	N	X	X	X			
MW-302	12-10-19	1305	G	Water	N	N	X	X	X			
MW-303	12-10-19	1420	G	Water	N	N	X	X	X			
MW-304	12-10-19	1510	G	Water	N	N	X	X	X			
MW-305	12-10-19	1615	G	Water	N	N	X	X	X			
MW-306	12-10-19	1655	G	Water	N	N	X	X	X			
Field Blank	12-10-19	1130	G	Water	N	N	X	X	X			
				Water								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12-11-19 @ 1315	SCS	Lindsay Bindel	12-11-19 1725	FTA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-301	310-171908-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-301	310-171908-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-301	310-171908-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-171908-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-302	310-171908-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-171908-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-171908-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-303	310-171908-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-171908-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-171908-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-304	310-171908-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-171908-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-171908-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-305	310-171908-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-171908-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-171908-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-306	310-171908-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-171908-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-171908-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-171908-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-171908-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - M.L. Kapp Ash Pond/ SCS Engineers Project #25219077.00

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	Field Blank
Appendix III Parameters	Boron	x	x	x	x	x	x	x
	Calcium	x	x	x	x	x	x	x
	Chloride	x	x	x	x	x	x	x
	Fluoride	x	x	x	x	x	x	x
	pH	x	x	x	x	x	x	x
	Sulfate	x	x	x	x	x	x	x
	TDS	x	x	x	x	x	x	x
Appendix IV Parameters	Antimony	x	x	x	x	x	x	x
	Arsenic	x	x	x	x	x	x	x
	Barium	x	x	x	x	x	x	x
	Beryllium	x	x	x	x	x	x	x
	Cadmium	x	x	x	x	x	x	x
	Chromium	x	x	x	x	x	x	x
	Cobalt	x	x	x	x	x	x	x
	Fluoride	x	x	x	x	x	x	x
	Lead	x	x	x	x	x	x	x
	Lithium	x	x	x	x	x	x	x
	Mercury	x	x	x	x	x	x	x
	Molybdenum	x	x	x	x	x	x	x
	Selenium	x	x	x	x	x	x	x
	Thallium	x	x	x	x	x	x	x
	Radium	x	x	x	x	x	x	x
CCR Rule Field Parameters	Groundwater Elevation	x	x	x	x	x	x	
	pH (field)	x	x	x	x	x	x	
Low-Flow Sampling Field Parameters	Well Depth	x	x	x	x	x	x	
	Specific Conductance	x	x	x	x	x	x	
	Dissolved Oxygen	x	x	x	x	x	x	
	ORP	x	x	x	x	x	x	
	Temperature	x	x	x	x	x	x	
	Turbidity	x	x	x	x	x	x	
	Color	x	x	x	x	x	x	
	Odor	x	x	x	x	x	x	

C:\Users\FredrickS\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\L7YR5M9Z\[IPL_M

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-171908-1

Login Number: 171908
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins TestAmerica, Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-171908-2
Client Project/Site: M.L. Kapp Ash Ponds - 25219077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
1/9/2020 11:00:47 AM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

Table of Contents

Job ID: 310-171908-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-171908-2

Comments
No additional comments.

Receipt
The samples were received on 12/11/2019 5:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3º C.

RAD
Methods 903.0, 9315: Radium-226 Prep Batch 160-454413
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.
Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-171908-1), MW-302 (310-171908-2), MW-303 (310-171908-3), MW-304 (310-171908-4), MW-305 (310-171908-5), MW-306 (310-171908-6), Field Blank (310-171908-7), (LCS 160-454413/1-A), (MB 160-454413/19-A), (160-36692-D-1-A) and (160-36692-G-1-A DU)

Methods 904.0, 9320: Ra-228 Prep Batch 160-454426
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.
Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-171908-1), MW-302 (310-171908-2), MW-303 (310-171908-3), MW-304 (310-171908-4), MW-305 (310-171908-5), MW-306 (310-171908-6), Field Blank (310-171908-7) and (160-36692-D-1-B)

Methods 904.0, 9320: Radium-228 Prep Batch 160-455609
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.
Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-171908-1), MW-302 (310-171908-2), MW-303 (310-171908-3), MW-304 (310-171908-4), MW-305 (310-171908-5), MW-306 (310-171908-6), Field Blank (310-171908-7), (LCS 160-455609/1-A), (MB 160-455609/19-A), (160-36692-E-1-A) and (160-36692-D-1-D DU)

Method PrecSep_0: Radium 226 Prep Batch 160-454426: The following samples were prepared at a reduced aliquot due to a cloudy appearance: MW-302 (310-171908-2).

Method PrecSep_0: Radium 228 Prep Batch 160-455609: The following samples were prepared at a reduced aliquot due to limited volume because of re-prep: MW-301 (310-171908-1), MW-302 (310-171908-2), MW-303 (310-171908-3), MW-304 (310-171908-4), MW-305 (310-171908-5), MW-306 (310-171908-6) and Field Blank (310-171908-7)

Method PrecSep_0: Radium 228 Prep Batch 160-455609: The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: MW-302 (310-171908-2).Sample 310-171908-2 has a slight yellow discoloration and cloudy. Sample 680-178181-1 has a cloudy appearance

Method PrecSep-21: Radium 226 Prep Batch 160-454413: The following samples were prepared at a reduced aliquot due to a cloudy appearance: MW-302 (310-171908-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-171908-1	MW-301	Water	12/10/19 11:35	12/11/19 17:25	
310-171908-2	MW-302	Water	12/10/19 13:05	12/11/19 17:25	
310-171908-3	MW-303	Water	12/10/19 14:20	12/11/19 17:25	
310-171908-4	MW-304	Water	12/10/19 15:10	12/11/19 17:25	
310-171908-5	MW-305	Water	12/10/19 16:15	12/11/19 17:25	
310-171908-6	MW-306	Water	12/10/19 16:55	12/11/19 17:25	
310-171908-7	Field Blank	Water	12/10/19 11:30	12/11/19 17:25	

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Client Sample ID: MW-301
Date Collected: 12/10/19 11:35
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-1
Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0849	U	0.113	0.114	1.00	0.190	pCi/L	12/17/19 10:57	01/08/20 11:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*51.5*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:38*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.236	U	0.298	0.299	1.00	0.495	pCi/L	12/30/19 09:13	01/06/20 16:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*
Y Carrier	*93.5*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.321	U	0.319	0.320	5.00	0.495	pCi/L		01/09/20 10:15	1

Client Sample ID: MW-302
Lab Sample ID: 310-171908-2

Date Collected: 12/10/19 13:05
Matrix: Water

Date Received: 12/11/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.342**		0.135	0.139	1.00	0.150	pCi/L	12/17/19 10:57	01/08/20 11:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.6*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:38*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.317	U	0.309	0.311	1.00	0.501	pCi/L	12/30/19 09:13	01/06/20 16:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*
Y Carrier	*89.0*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	**0.659**		0.337	0.341	5.00	0.501	pCi/L		01/09/20 10:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Client Sample ID: MW-303

Date Collected: 12/10/19 14:20
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-3

Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.112	U	0.0863	0.0869	1.00	0.130	pCi/L	12/17/19 10:57	01/08/20 11:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:38*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.131	U	0.266	0.266	1.00	0.456	pCi/L	12/30/19 09:13	01/06/20 16:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.5*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*
Y Carrier	*90.5*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.242	U	0.280	0.280	5.00	0.456	pCi/L		01/09/20 10:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Client Sample ID: MW-304
Date Collected: 12/10/19 15:10
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-4
Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.277**		0.0978	0.101	1.00	0.103	pCi/L	12/17/19 10:57	01/08/20 11:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.1*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.155	U	0.285	0.285	1.00	0.484	pCi/L	12/30/19 09:13	01/06/20 16:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.2*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*
Y Carrier	*89.0*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.432	U	0.301	0.302	5.00	0.484	pCi/L		01/09/20 10:15	1

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Client Sample ID: MW-305

Date Collected: 12/10/19 16:15
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-5

Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0928	U	0.0790	0.0794	1.00	0.121	pCi/L	12/17/19 10:57	01/08/20 11:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.541	U	0.350	0.354	1.00	0.543	pCi/L	12/30/19 09:13	01/06/20 16:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*
Y Carrier	*87.8*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:06*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	**0.634**		0.359	0.363	5.00	0.543	pCi/L		01/09/20 10:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Client Sample ID: MW-306

Date Collected: 12/10/19 16:55
Date Received: 12/11/19 17:25

Lab Sample ID: 310-171908-6

Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0472	U	0.0572	0.0573	1.00	0.0937	pCi/L	12/17/19 10:57	01/08/20 11:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.563	U	0.410	0.414	1.00	0.649	pCi/L	12/30/19 09:13	01/06/20 16:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.3*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:10*	*1*
Y Carrier	*88.1*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:10*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.610	U	0.414	0.418	5.00	0.649	pCi/L		01/09/20 10:15	1

Client Sample ID: Field Blank
Lab Sample ID: 310-171908-7

Date Collected: 12/10/19 11:30
Matrix: Water

Date Received: 12/11/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0392	U	0.0417	0.0418	1.00	0.105	pCi/L	12/17/19 10:57	01/08/20 11:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.126	U	0.298	0.298	1.00	0.510	pCi/L	12/30/19 09:13	01/06/20 16:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:10*	*1*
Y Carrier	*90.8*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:10*	*1*

Method: Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.126	U	0.301	0.301	5.00	0.510	pCi/L		01/09/20 10:15	1

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-171908-2
Project/Site: M.L. Kapp Ash Ponds - 25219077

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-454413/19-A
Matrix: Water
Analysis Batch: 456197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 454413

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01090	U	0.0488	0.0488	1.00	0.104	pCi/L	12/17/19 10:57	01/08/20 11:41	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*12/17/19 10:57*	*01/08/20 11:41*	*1*

Lab Sample ID: LCS 160-454413/1-A
Matrix: Water
Analysis Batch: 456188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 454413

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.31		1.06	1.00	0.0975	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*96.3*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-455609/19-A
Matrix: Water
Analysis Batch: 455825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455609

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3254	U	0.297	0.299	1.00	0.479	pCi/L	12/30/19 09:13	01/06/20 16:11	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:11*	*1*
Y Carrier	*91.7*		*40 - 110*	*12/30/19 09:13*	*01/06/20 16:11*	*1*

Lab Sample ID: LCS 160-455609/1-A
Matrix: Water
Analysis Batch: 455823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455609

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.3	10.46		1.25	1.00	0.499	pCi/L	85	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*89.3*		*40 - 110*

QC Association Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Rad

Prep Batch: 454413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	PrecSep-21	
310-171908-2	MW-302	Total/NA	Water	PrecSep-21	
310-171908-3	MW-303	Total/NA	Water	PrecSep-21	
310-171908-4	MW-304	Total/NA	Water	PrecSep-21	
310-171908-5	MW-305	Total/NA	Water	PrecSep-21	
310-171908-6	MW-306	Total/NA	Water	PrecSep-21	
310-171908-7	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-454413/19-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-454413/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 455609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171908-1	MW-301	Total/NA	Water	PrecSep_0	
310-171908-2	MW-302	Total/NA	Water	PrecSep_0	
310-171908-3	MW-303	Total/NA	Water	PrecSep_0	
310-171908-4	MW-304	Total/NA	Water	PrecSep_0	
310-171908-5	MW-305	Total/NA	Water	PrecSep_0	
310-171908-6	MW-306	Total/NA	Water	PrecSep_0	
310-171908-7	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-455609/19-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-455609/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Job ID: 310-171908-2
Project/Site: M.L. Kapp Ash Ponds - 25219077

Client Sample ID: MW-301
Lab Sample ID: 310-171908-1
Date Collected: 12/10/19 11:35
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:38	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455823	01/06/20 16:06	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Client Sample ID: MW-302
Lab Sample ID: 310-171908-2
Date Collected: 12/10/19 13:05
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:38	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455823	01/06/20 16:06	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Client Sample ID: MW-303
Lab Sample ID: 310-171908-3
Date Collected: 12/10/19 14:20
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:38	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455823	01/06/20 16:06	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Client Sample ID: MW-304
Lab Sample ID: 310-171908-4
Date Collected: 12/10/19 15:10
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:39	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455823	01/06/20 16:06	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Lab Chronicle

Client: SCS Engineers
Job ID: 310-171908-2
Project/Site: M.L. Kapp Ash Ponds - 25219077

Client Sample ID: MW-305
Lab Sample ID: 310-171908-5
Date Collected: 12/10/19 16:15
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:39	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455823	01/06/20 16:06	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Client Sample ID: MW-306
Lab Sample ID: 310-171908-6
Date Collected: 12/10/19 16:55
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:39	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455825	01/06/20 16:10	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Client Sample ID: Field Blank
Lab Sample ID: 310-171908-7
Date Collected: 12/10/19 11:30
Matrix: Water
Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			454413	12/17/19 10:57	MNH	TAL SL
Total/NA	Analysis	903.0		1	456188	01/08/20 11:39	AJD	TAL SL
Total/NA	Prep	PrecSep_0			455609	12/30/19 09:13	RBR	TAL SL
Total/NA	Analysis	904.0		1	455825	01/06/20 16:10	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	456329	01/09/20 10:15	SMP	TAL SL

Laboratory References:
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-171908-2
Project/Site: M.L. Kapp Ash Ponds - 25219077

Laboratory: Eurofins TestAmerica, Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State Program	007	12-01-19 *

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: SCS Engineers
Job ID: 310-171908-2
Project/Site: M.L. Kapp Ash Ponds - 25219077

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228 Pos	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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310-171908 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Eng.

City/State: CITY Clive STATE IA Project: ML Kapp

Receipt Information

Date/Time Received: DATE 12-11-19 TIME 1725 Received By: LAB

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M Correction Factor (°C): -0.1

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.4 Corrected Temp (°C): 5.3

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

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Client Information	Sampler: Charlie Bills	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-45504-14479.1
Client Contact: Louise Jennings	Phone: (262) 518-4085	E-Mail: sandie.fredrick@testamericainc.com		Page: Page 1 of 1
Company: SCS Engineers				Job #:
Address: 8450 Hickman Road Suite 20	Due Date Requested:			
City: Clive	TAT Requested (days):			
State, Zip: IA, 50325				
Phone:	PO #: 25219077			
Email: ljennings@scsengineers.com	WO #:			
Project Name: M.L. Kapp Ash Ponds - 25219077	Project #: 31011020			
Site: M.L. Kapp	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0, 904.0	6020A, 7470A	2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+	F06	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N			
MW-301	12-10-19	1135	G	Water	N	N	X	X	X			
MW-302	12-10-19	1305	G	Water	N	N	X	X	X			
MW-303	12-10-19	1420	G	Water	N	N	X	X	X			
MW-304	12-10-19	1510	G	Water	N	N	X	X	X			
MW-305	12-10-19	1615	G	Water	N	N	X	X	X			
MW-306	12-10-19	1655	G	Water	N	N	X	X	X			
Field Blank	12-10-19	1130	G	Water	N	N	X	X	X			
				Water								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12-11-19 @ 1315	SCS	Lindsay Bindet	12-11-19 1725	FTA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW-301	310-171908-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-301	310-171908-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-301	310-171908-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-171908-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-302	310-171908-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-171908-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-171908-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-303	310-171908-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-171908-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-171908-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-304	310-171908-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-171908-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-171908-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-305	310-171908-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-171908-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-171908-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-306	310-171908-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-171908-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-171908-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-171908-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-171908-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-171908-2

Login Number: 171908
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins TestAmerica, Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-171908-2

Login Number: 171908
List Number: 2
Creator: Harris, Lorin C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 12/13/19 01:31 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: M.L. Kapp Ash Ponds - 25219077

Job ID: 310-171908-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
310-171908-1	MW-301	51.5
310-171908-2	MW-302	83.6
310-171908-3	MW-303	90.7
310-171908-4	MW-304	98.1
310-171908-5	MW-305	90.4
310-171908-6	MW-306	88.0
310-171908-7	Field Blank	94.1
LCS 160-454413/1-A	Lab Control Sample	96.3
MB 160-454413/19-A	Method Blank	93.2

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-171908-1	MW-301	97.6	93.5
310-171908-2	MW-302	99.7	89.0
310-171908-3	MW-303	94.5	90.5
310-171908-4	MW-304	95.2	89.0
310-171908-5	MW-305	101	87.8
310-171908-6	MW-306	93.3	88.1
310-171908-7	Field Blank	104	90.8
LCS 160-455609/1-A	Lab Control Sample	101	89.3
MB 160-455609/19-A	Method Blank	104	91.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier