

2020 Annual Groundwater Monitoring and Corrective Action Report

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

Prepared for:



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SCS ENGINEERS

25221077.00 | June 14, 2021

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OVERVIEW OF CURRENT STATUS

M.L. Kapp Generating Station 2020 Annual Report

In accordance with §257.90(e)(6), this section at the beginning of the annual report provides an overview of the current status of groundwater monitoring and corrective action programs for the coal combustion residual (CCR) unit. The groundwater monitoring system for the capped inactive impoundments at the M.L. Kapp Generating Station (KAP) monitors a capped and closed main ash pond. Supporting information is provided in the text of the annual report.

Category	Rule Requirement	Site Status
Monitoring Status – Start of Year	(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Assessment
Monitoring Status – End of Year	(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Assessment
Statistically Significant Increases (SSIs)	(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III to this part pursuant to §257.94(e):	
	(A) Identify those constituents listed in Appendix III to this part and the names of the monitoring wells associated with such an increase; and	<p><u>April 2020</u> Calcium: MW-303, MW-305</p> <p>Field pH: MW-302</p> <p>Sulfate: MW-305</p> <p>Total Dissolved Solids: MW-305</p> <p><u>October 2020</u> Calcium: MW-305</p> <p>Fluoride: MW-303</p> <p>Field pH: MW-302, MW-303</p> <p>Sulfate: MW-305</p> <p>Total Dissolved Solids: MW-305</p>

Category	Rule Requirement	Site Status
		Note: See Table 5 for complete results from 2020.
	(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	January 13, 2020
Statistically Significant Levels (SSL) Above Groundwater Protection Standard (GPS)	(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in Appendix IV to this part pursuant to §257.95(g) include all of the following:	
	(A) Identify those constituents listed in Appendix IV to this part and the names of the monitoring wells associated with such an increase;	<u>April 2020</u> Molybdenum: MW-301, MW-302, MW-304, MW-305 <u>October 2020</u> Molybdenum: MW-302, MW-304, MW-305 Note: See Table 5 for complete results from 2020.
	(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	October 12, 2020
	(C) Provide the date when the public meeting will be held for the assessment of corrective measures for the CCR unit; and	To Be Determined
	(D) Provide the date when the assessment of corrective measures will be completed for the CCR unit.	March 11, 2021
Selection of Remedy	(v) Whether a remedy was selected pursuant to §257.97 during the current annual reporting period and, if so, the date of remedy selection; and	Not applicable – Selection of remedy not yet completed
Corrective Action	(vi) Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.	Not applicable – remedial activities not yet initiated

Table of Contents

Section	Page
OVERVIEW OF CURRENT STATUS	i
1.0 Introduction.....	1
2.0 Background.....	1
2.1 Geologic and Hydrogeologic Setting.....	1
2.1.1 Regional Geologic Information	1
2.1.2 Site Information.....	2
2.2 CCR Rule Monitoring System.....	2
3.0 257.100(e)(5) Groundwater Monitoring and Corrective Action for Inactive CCR Surface Impoundments.....	2
4.0 §257.90(e) Annual Report Requirements.....	3
4.1 §257.90(e)(1) Site Map.....	3
4.2 §257.90(e)(2) Monitoring System Changes.....	3
4.3 §257.90(e)(3) Summary of Sampling Events.....	4
4.4 §257.90(e)(4) Monitoring Transition Narrative.....	4
4.5 §257.90(e)(5) Other Requirements.....	5
4.5.1 §257.90(e) General Requirements.....	5
4.5.2 §257.94(d) Alternative Detection Monitoring Frequency.....	7
4.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring	7
4.5.4 §257.95(c) Alternative Assessment Monitoring Frequency.....	7
4.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards	7
4.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring ..	7
4.5.7 §257.96(a) Extension of Time for Corrective Measures Assessment	8
5.0 §257.90(e)(6) Overview.....	8
6.0 References.....	8

Tables

Table 1.	Groundwater Monitoring Well Network
Table 2.	Groundwater Sample Summary
Table 3.	Groundwater Elevation Summary
Table 4.	Groundwater Gradients and Average Linear Velocities
Table 5.	2020 Groundwater Analytical Results Summary
Table 6.	2020 Groundwater Field Data Summary

Figures

Figure 1.	Site Location Map
Figure 2.	Monitoring Well Location Map
Figure 3.	Water Table Map - April 2020
Figure 4.	Water Table Map - October 2020

Appendices

Appendix A	Summary of Regional Hydrogeologic Stratigraphy
Appendix B	Boring Logs and Well Construction Documentation
Appendix C	Laboratory Reports
	C1 February 2020 Assessment Monitoring
	C2 April 2020 Assessment Monitoring
	C3 July 2020 Assessment Monitoring
	C4 August 2020 Assessment Monitoring
	C5 October 2020 Assessment Monitoring
Appendix D	Historical Monitoring Results
Appendix E	Statistical Evaluation

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1.0 INTRODUCTION

This 2020 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 2020 Annual Groundwater Monitoring and Corrective Action Report for the CCR unit.

This report covers the period of groundwater monitoring from January 1, 2020, through December 31, 2020.

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 two upgradient and five downgradient monitoring wells (**Table 1**, **Figure 1**, and **Figure 2**)

2.0 BACKGROUND

To provide context for the annual report, the following background information is provided in this section of the report, prior to the annual report requirement sections:

- Geologic and hydrogeologic setting
- CCR Rule monitoring system

2.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

2.1.1 Regional Geologic Information

The uppermost geologic formation beneath KAP that meets the definition of the “uppermost aquifer,” as defined under 40 CFR 257.53, is the surficial alluvial aquifer. The alluvial aquifer is composed of glacial drift, sand, silt, and clay. Immediately underlying the surficial alluvial aquifer is the Silurian bedrock aquifer which consists of limestone and dolomite (Wahl et al., 1978). A map of the regional geology in the area is included in **Appendix A**.

The Mississippi River and associated alluvial aquifers are a major source of surface water and shallow groundwater in the area.

Regional information indicates that groundwater flow within the Silurian dolomite and limestone is to the south-southeast. A map of regional flow is included in **Appendix A**.

2.1.2 Site Information

Soils at the site are primarily sand, silt, and clay to a depth of approximately 25 feet and overlie weathered limestone bedrock. During drilling of CCR wells MW-301 through MW-306, the unconsolidated materials were identified as consisting primarily of sand, lean clay, and sandy silt. During drilling of CCR background monitoring well MW-307, installed in April 2020, the unconsolidated materials were identified as primarily clayey sand, silty sand, and silty clay. Limestone bedrock was encountered at MW-306 at a depth of 10 feet below ground surface (bgs). The boring logs for the KAP monitoring wells MW-301 through MW-307 are provided in **Appendix B**.

Shallow groundwater at the site generally flows to the east; however, historically the groundwater flow direction has been variable and the hydraulic gradient at the water table is generally relatively flat. Shallow groundwater flow on the site is influenced by water levels in a ditch to the south of the pond closure area and a small creek to the east, as well as the Mississippi River water level. The groundwater flow patterns for April 2020 and October 2020 are shown on **Figures 3 and 4**, respectively. In April 2020, the groundwater flow direction was away from the river due to high river levels. In October 2020, the groundwater flow direction was toward the river. The October 2020 water table map includes new upgradient monitoring well MW-307, which was installed in April 2020.

The groundwater monitoring well network summary is provided in **Table 1**. The sampling event summary is provided in **Table 2**, and the groundwater elevation data for the CCR monitoring wells is provided in **Table 3**. Estimated horizontal gradients and flow velocities for flow at the shallow and deep levels within the aquifer are provided in **Table 4**.

2.2 CCR RULE MONITORING SYSTEM

The original groundwater monitoring system established in accordance with the CCR Rule consists of one upgradient (background) monitoring well and five downgradient monitoring wells. The background well is MW-306. The five downgradient wells are MW-301, MW-302, MW-303, MW-304, and MW-305. Monitoring wells MW-301 through MW-306 were installed in February 2018. One additional upgradient monitoring well, MW-307, was installed in April 2020 because the analytical results to date for the on-site upgradient well (MW-306) suggested that this well may not represent natural background groundwater conditions at the site. The new well also provides additional information on groundwater flow direction in the site vicinity. The CCR Rule wells were installed in the upper portion of the surficial alluvial aquifer. Well depths range from approximately 17 to 25.5 feet bgs.

3.0 257.100(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.

4.0 §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:

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

4.2 §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;

One new background monitoring well, MW-307, was installed on April 15, 2020. The new background well was added because the analytical results to date for the on-site upgradient well (MW-306) suggest that that this well may not represent natural background groundwater conditions at the site. The new well also provides additional information on groundwater flow direction in the site vicinity.

The initial results from new well MW-307 appear to indicate that the water quality at MW-306 may be affected by CCR management and not representative of natural background conditions. For example, boron, sulfate, and molybdenum concentrations at new monitoring well MW-307 are lower than at existing background well MW-306. For most sampling dates since monitoring began, water levels have indicated that MW-306 is upgradient from the ash pond closure area; however, the flow direction is variable. Water levels measured in June and October 2018 indicated that MW-306 was in a side-gradient position relative to the closure area. The analytical results suggest that this location may have been at least occasionally downgradient from the ash pond in the past. This may have occurred periodically before 2015 when there was active sluicing and the discharge to the pond may have created localized radial flow. The plant ceased coal combustion and discharges to the pond in early 2015.

Based on this information, we anticipate that new background upper prediction limits (UPLs) will be calculated based on monitoring results from MW-307 after four rounds of background monitoring have been completed. Beginning with the October 2020 event, we have revised the Groundwater Protection Standards (GPSs) for lithium and molybdenum to equal the values from 40 CFR 257.95(h)(2), rather than the previously established GPS values based on results from MW-306. This change in GPS values does not result in the identification of additional parameters at statistically significant levels (SSLs) above the GPS for the downgradient compliance wells. In 2020, MW-306

continued to be evaluated as a background well, pending completion of additional background monitoring at new upgradient well MW-307.

4.3 §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;

Five groundwater sampling events were completed for the KAP CCR unit in 2020. In February 2020, the second round of initial assessment monitoring was completed at MW-301 through MW-306. Two semiannual sampling events were completed in April and October 2020, as required by the assessment monitoring program. A resampling event occurred at MW-304 in July 2020, which coincided with the first assessment monitoring event at the new background well MW-307. An additional assessment monitoring sampling event occurred at MW-307 in August 2020. 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 or assessment monitoring program is included in **Table 2**.

Groundwater samples collected in the February, April, July, August, and October sampling events were analyzed for both Appendix III and Appendix IV constituents. The sample collected at MW-304 in the July resampling event was analyzed for field pH and arsenic.

The sampling results for Appendix III and Appendix IV parameters in 2020 are summarized in **Table 5**. Field parameter results for the 2020 sampling events are provided in **Table 6**. The analytical laboratory reports for 2020 are provided in **Appendix C**. Historical results for each monitoring well are summarized in **Appendix D**.

4.4 §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);

Assessment monitoring for KAP was initiated in January 2020. The statistical evaluation of the April 2019 detection monitoring results, completed on July 16, 2019, identified a statistically significant increase (SSI) in fluoride at monitoring well MW-305. 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).

The statistical evaluation of the October 2019 results was completed in January 2020. The initial evaluation of assessment groundwater monitoring performed at KAP includes the December 2019, February 2020, and April 2020 results and was completed in July 2020.

The evaluation of the July and August assessment monitoring and resampling events was completed in October 2020. Evaluation of the October 2020 results was completed in January 2021.

In accordance with the Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities (USEPA, 2009), the evaluation of whether a parameter has been detected at an SSL exceeding the GPS is based on comparison of the lower

confidence limit (LCL) for the mean, calculated from the assessment monitoring results, to the GPS. The LCL evaluation was completed for each Appendix IV parameter that has been detected at a concentration exceeding the GPS in at least one sample result since assessment monitoring was initiated, which includes arsenic, lithium, and molybdenum. The LCLs were calculated with Sanitas™ using historical concentrations measured since assessment monitoring began in January 2020. The most recent LCL evaluation, completed for the October event, is provided in **Appendix E**.

The only parameter determined to be at an SSL above the GPS is molybdenum at MW-302, MW-304, and MW-305. The molybdenum results for MW-301 had previously been identified as an SSL above the GPS based on the results collected through April 2020, but did not represent an SSL above the GPS based on the October 2020 evaluation. For arsenic at MW-303 and MW-304 and lithium at MW-303, an individual sample result exceeded the GPS, but the LCL for the mean was below the GPS; therefore, there is no SSL above the GPS for these parameters.

A trend analysis evaluation was completed for molybdenum. Trend analyses were calculated with Sanitas™ using historical concentrations measured since assessment monitoring began for each well. The evaluation is provided in **Appendix E**. Based on the trend analysis, there are no statistically significant trends in molybdenum concentrations at the monitoring wells.

4.5 §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 each 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 2020 Annual Groundwater Monitoring and Corrective Action Report for the CCR Unit.

4.5.1 §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 is currently in the selection of remedy process, with assessment monitoring continuing.

Summary of Key Actions Completed.

- Establishment of assessment monitoring program (January 13, 2020).
- Statistical evaluation for the October 2019 assessment monitoring event, completed on January 13, 2020.
- Second round of initial assessment monitoring (February 2020).

- Initial statistical evaluation of assessment groundwater monitoring, including sampling events in December 2019, February 2020, and April 2020 (completed July 13, 2020).
- Two semiannual groundwater sampling and analysis events (April and October 2020).
- Installation of additional background monitoring well MW-307 to characterize site conditions (April 2020).
- Supplemental groundwater monitoring events in July and August 2020 to characterize groundwater quality at the newly installed background well, MW-307, and to resample at MW-304 to evaluate the April arsenic result that exceeded the GPS.
- Statistical evaluation and determination of any SSL exceeding the GPS for the July and August 2020 monitoring events (October 2020).
- Initiated Assessment of Corrective Measures (ACM) (October 12, 2020).

Description of Any Problems Encountered. No problems were encountered during the groundwater sampling events in 2020.

Discussion of Actions to Resolve the Problems. Not applicable.

Projection of Key Activities for the Upcoming Year (2021):

- Statistical evaluation and determination of any SSLs exceeding the GPS for the October 2020 monitoring event (completed February 18, 2021).
- Installation of a deeper piezometer as a nested well with existing monitoring well MW-304 (drilled on January 9, 2021).
- Completion of ACM (completed March 11, 2021).
- Installation of additional monitoring wells to further delineate the nature and extent of groundwater concentrations that may exceed GPSs (wells MW-308 and MW-309 installed April 2021; additional wells to be determined).
- Two Semiannual Groundwater Sampling and Analysis Events (April and October 2021).
- Statistical evaluation and determination of any SSLs exceeding the GPS for the April 2021 monitoring event (by July 15, 2021).
- Supplemental monitoring events as needed to continue background monitoring at the newly installed background well MW-307 and to characterize groundwater quality at new monitoring wells to be installed in 2021.

4.5.2 §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. KAP is no longer in detection monitoring.

4.5.3 §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. KAP is no longer in detection monitoring.

4.5.4 §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. Assessment monitoring has been initiated at the site, but no alternative assessment monitoring frequency is proposed at this time.

4.5.5 §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).

The 2020 assessment monitoring results, background upper prediction limits (UPLs), and GPSs established for the site are provided in **Table 5**. As discussed above in **Section 4.2**, beginning with the October 2020 event, we revised the GPSs for lithium and molybdenum to equal the values from 40 CFR 257.95(h)(2), rather than the previously established GPS values based on background quality at MW-306. In 2020, MW-306 continued to be evaluated as a background well.

The laboratory reports are provided in **Appendix C**. Historical monitoring results are summarized in **Appendix D**.

4.5.6 §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 2020.

4.5.7 §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.

The ACM was initiated on October 12, 2020. The January 8, 2021 certification demonstrating the need for a 60-day deadline extension will be provided in the 2021 Annual Groundwater Monitoring and Corrective Action Report. The ACM was completed on March 11, 2021.

5.0 §257.90(E)(6) OVERVIEW

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit.

The specific requirements for the overview under §257.90(e)(6) are listed and the information is provided at the beginning of this report, before the Table of Contents.

6.0 REFERENCES

Wahl, K.D., G.A. Ludvigson, G.L. Ryan, W.C. Steinkampf, 1978, Water Resources of East-Central Iowa; U.S. Geologic Survey and Iowa Geologic Survey, Iowa, 1978.

U.S. Environmental Protection Agency (USEPA), 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, EPA 530-R-09-007, March 2009.

Tables

- 1 Groundwater Monitoring Well Network
- 2 Groundwater Sample Summary
- 3 Groundwater Elevation Summary
- 4 Groundwater Gradients and Average Linear Velocities
- 5 2020 Groundwater Analytical Results Summary
- 6 2020 Groundwater Field Data Summary

**Table 1. Groundwater Monitoring Well Network
M.L. Kapp Generating Station / SCS Engineers Project #25221077.00**

Monitoring Well	Location in Monitoring Network	Role in Monitoring Network
MW-301	Downgradient	Compliance
MW-302	Downgradient	Compliance
MW-303	Downgradient	Compliance
MW-304	Downgradient	Compliance
MW-305	Downgradient	Compliance
MW-306	Upgradient	Background
MW-307	Upgradient	Background

Created by: RM
 Last revision by: RM
 Checked by: NDK

Date: 12/14/2020
 Date: 2/5/2021
 Date: 2/5/2021

Table 2. Groundwater Sample Summary
M.L. Kapp Generating Station / SCS Engineers Project #25220077.00

Sample Dates	Compliance Wells					Background Wells	
	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307
2/4/2020	A	A	A	A	A	A	--
4/29/2020	A	A	A	A	A	A	--
7/7/2020	--	--	--	R-A	--	--	A
8/7/2020	--	--	--	--	--	--	A
10/22/2020	A	A	A	A	A	A	A
Total Samples	3	3	3	4	3	3	3

Abbreviations:

A = Assessment Monitoring Program

R-A = Resampling event

-- = Not Applicable

Created by: RM
 Last revision by: RM
 Checked by: NDK

Date: 2/1/2021
 Date: 2/5/2021
 Date: 2/5/2021

Table 3. Groundwater Elevation Summary
IPL - M.L. Kapp / SCS Engineers Project #25221077.00

Ground Water Elevation in feet above mean sea level (amsl)							
Well Number	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307
Top of Casing Elevation (feet amsl)	592.13	591.54	592.40	592.12	592.60	590.83	603.39
Screen Length (ft)	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Total Depth (ft from top of casing)	25.20	26.10	27.78	27.25	27.30	27.20	19.46
Top of Well Screen Elevation (ft)	576.93	575.44	574.62	574.87	575.30	573.63	593.93
Measurement Date							
March 28, 2018	577.65	576.62	577.37	577.05	576.58	577.93	NI
May 22, 2018	579.20	579.37	580.00	579.47	579.34	579.47	NI
June 25, 2018	578.57	578.04	577.24	570.77	571.28	576.93	NI
July 25, 2018	577.83	577.62	577.83	577.56	577.52	577.97	NI
October 5, 2018	580.04	579.88	579.74	579.32	579.15	579.46	NI
November 29, 2018	577.55	576.52	578.74	578.43	578.69	579.28	NI
January 10, 2019	577.36	577.05	579.06	578.56	578.84	579.47	NI
February 13, 2019	577.23	576.51	578.90	578.26	578.45	579.40	NI
April 9, 2019	585.25	585.29	584.61	585.25	585.23	585.29	NI
September 6, 2019	--	--	--	--	577.42	--	NI
October 7, 2019	580.97	580.74	581.39	581.62	581.88	582.28	NI
December 10, 2019	577.39	577.41	578.90	578.85	578.89	579.49	NI
February 4, 2020	578.07	577.74	579.58	578.73	578.85	579.31	NI
April 29, 2020	578.76	579.38	580.82	580.95	580.40	580.70	594.97
June 4, 2020	578.62	578.29	579.76	579.19	579.20	579.82	595.06
July 7, 2020	577.04	576.36	577.55	577.15	577.21	577.95	593.85
August 7, 2020	--	--	--	--	--	--	593.06
October 22, 2020	577.42	574.64	575.82	575.32	575.25	576.82	592.77
Bottom of Well Elevation (ft)	566.93	565.44	564.62	564.87	565.30	563.63	583.93

Notes:

-- Location not measured

NI = Not Installed

NM = Not Measured

Created by: AJR

Date: 10/9/2018

Last rev. by: NDK

Date: 6/8/2021

Checked by: TK

Date: 6/10/2021

Sci/Proj Mgr QA/QC: TK

Date: 6/10/2021

**Table 4. Groundwater Gradients and Average Linear Velocities
M.L. Kapp Generating Station /
SCS Engineers Project #25221077.00
January - December 2020**

North					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
4/29/2020	580.50	579.00	986.76	0.002	0.05

Southeast					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
10/22/2020	578.00	576.00	879.42	0.002	0.07

Wells	K Values (cm/sec)	K Values (ft/d)	Assumed Porosity, n
MW-301	5.30E-02	150	
MW-302	3.11E-03	8.8	
MW-303	3.56E-03	10	
MW-304	7.92E-03	22	
MW-305	9.92E-04	2.8	
MW-306	4.33E-03	12	
MW-307	1.74E-03	5	
Geometric Mean	5.4E-03	13	0.40

Groundwater flow velocity equation: $V = [K*(\Delta h/\Delta l)] / n$

ft = feet

ft/d = feet per day

K = hydraulic conductivity

n = effective porosity

V = groundwater flow velocity

h1, h2 = point interpreted groundwater elevation at locations 1 and 2

Δl = distance between location 1 and 2



Δh/Δl = hydraulic gradient

Created by: RM
Last revision by: RM
Checked by: NDK

Date: 12/29/2020
Date: 2/5/2021
Date: 2/5/2021

**Table 5. 2020 Groundwater Analytical Results Summary
ML Kapp Generating Station / SCS Engineers Project #25221077.00**

Parameter Name	UPL Method	UPL	GPS	Background Well						Compliance Wells						Compliance Wells									
				MW-306			MW-307			MW-301			MW-302			MW-303			MW-304			MW-305			
				2/4/2020	4/29/2020	10/22/2020	7/7/2020	8/7/2020	10/22/2020	2/4/2020	4/29/2020	10/22/2020	2/4/2020	4/29/2020	10/22/2020	2/4/2020	4/29/2020	10/22/2020	2/4/2020	4/29/2020	7/7/2020	10/22/2020	2/4/2020	4/29/2020	10/22/2020
Appendix III																									
Boron, µg/L	P	20,416		20,000	22,000	14,000	280	<80	130	13,000	10,000	13,000	5,900	4,700	5,700	4,000	4,200	3,800	10,000	8,900	--	9,400	15,000	16,000	16,000
Calcium, mg/L	P	181		120	130	150	260	260	230	110	130	130	64	61	65	130	220	71	85	81	--	86	160	190	190
Chloride, mg/L	P	121		75	76	110	53	55	52	37	48	50	16	17	14	11	6	23	25	26	--	23	19	18	15
Fluoride, mg/L	P	0.40		NA	<0.46	<0.23	<0.23	<0.23	<0.23	--	0.35 J, F1	<0.23	--	0.37 J	<0.23	--	<0.23	0.67	--	0.32 J	--	<0.23	--	0.33 J	<0.23
Field pH, Std. Units	NP	8.31		7.50	6.59	7.21	6.57	7.45	6.63	6.54	7.08	6.70	7.79	8.45	8.37	7.26	7.33	9.97	7.31	6.48	6.81	7.07	7.20	6.41	7.30
Sulfate, mg/L	P	639		500	560	340	15	17	21	360	250	310	250	230	260	380	590	260	310	290	--	340	590	690	760
Total Dissolved Solids, mg/L	P	1,185		1,100	1,200	1,000	1,100	980	940	790	720	820	550	490	580	760	1,000	510	620	590	--	660	1,100	1,200	1,300
Appendix IV																									
Antimony, ug/L	P*	0.29	6	NA	<0.58	--	<0.51	<0.51	--	--	<0.58	--	--	<0.58	--	--	<0.58	--	--	<0.58	--	--	--	<0.58	--
Arsenic, ug/L	P*	0.82	10	<0.88	<0.88	<3.5	1.7 J	1.1 J	0.92 J	<0.88	0.95 J	<3.5	6.1	8.6	7.3	4.0	5.8	20	3.7	18	4.4	4.5 J	1.4 J	3.1	<3.5
Barium, ug/L	P	61	2,000	53	59	71	320	330	330	72	140	76	58	66	63	48	96	52	78	420	--	95	90	120	100
Beryllium, ug/L	DQ	DQ	4	NA	<0.27	--	<0.27	<0.27	--	--	<0.27	--	--	<0.27	--	--	<0.27	--	--	<0.27	--	--	--	<0.27	--
Cadmium, ug/L	P*	0.14	5	0.072 J	<0.039	<0.20	0.098 J	0.13	0.13	0.11	0.095 J	0.28 J	0.13	0.12	0.16	<0.039	<0.039	0.093 J	0.31	0.43	--	0.39 J	0.24	0.26	0.34 J
Chromium, ug/L	P*	0.40	100	NA	<1.1	--	<1.1	<1.1	--	NA	<1.1	--	--	<1.1	--	--	<1.1	--	--	<1.1	--	--	--	<1.1	--
Cobalt, ug/L	P*	0.31	6	0.26 J	0.20 J	<0.36	6.3	1.9	2.4	4.5	3.5	4.4	0.16 J	0.23 J	0.29 J	0.46 J	0.77	0.30 J	0.92	1.2	--	1.00 J	0.55	0.68	0.69 J
Fluoride, mg/L	P	0.40	4	NA	<0.46	<0.23	<0.23	<0.23	<0.23	--	0.35 J, F1	<0.23	--	0.37 J	<0.23	--	<0.23	0.67	--	0.32 J	--	<0.23	--	0.33 J	<0.23
Lead, ug/L	NP*	0.19	15	<0.27	<0.27	<0.44	0.12 J	<0.11	<0.11	<0.27	<0.27	<0.44	<0.27	<0.27	<0.11	<0.27	<0.27	<0.11	<0.27	0.51	--	<0.44	<0.27	<0.44	
Lithium, ug/L	P	94	40	69	80	60	<2.5	<2.5	3.0 J	4.4 J	7.4 J	<10	12	4.0 J	12	26	44	14	<2.3	2.90 J	--	<10	16	20	22 J
Mercury, ug/L	NP*	0.14	2	NA	<0.10	--	<0.10	<0.10 F1	--	--	<0.10	--	--	<0.10	--	--	<0.10	--	--	<0.10	--	--	--	<0.10	--
Molybdenum, ug/L	P	139	100	100	120	49	2.5	<1.1	<1.1	300	250	510	280	360	320	96	74	180	950	1,200	--	930	680	720	580
Selenium, ug/L	P	4.5	50	<1.0	<1.0	--	<1.0	<1.0	--	<1.0	<1.0	--	<1.0	--	--	2.3 J	<1.0	--	<1.0	<1.0	--	--	<1.0	<1.0	--
Thallium, ug/L	NP*	0.13	2	NA	<0.26	--	<0.26	<0.26	--	--	<0.26	--	--	<0.26	--	--	<0.26	--	--	<0.26	--	--	--	<0.26	--
Radium 226/228 Combined, pCi/L	P	1.4	5	0.0680	0.137	0.198	0.841	0.666	0.623	0.413	0.538	0.388	0.122	0.577	1.13	0.409	0.348	0.676	0.622	4.39	--	0.839	0.280	0.0301	0.750

 Blue highlighted cell indicates the compliance well results exceeds the UPL and the LOQ.
 Yellow highlighted cell indicates the compliance well result exceeds the GPS.

Abbreviations:
 UPL = Upper Prediction Limit LOD = Limit of Detection mg/L = milligrams per Liter -- = Not measured
 ug/L = micrograms per Liter LOQ = Limit of Quantification GPS = Groundwater Protection Standard

* = UPL is below the LOQ for background sampling. For compliance wells, only results confirmed above the LOQ are evaluated as potential SSIs above background.

Lab Notes/Qualifiers:
 J = Result is less than the LOQ but greater than or equal to the LOD and the concentration is an approximate value.
 F1 = MS and/or MSD recovery exceeds control limits

- Notes:
1. An individual result above the UPL or GPS does not constitute an SSI above background or statistically significant level above the GPS. See the accompanying letter text for identification of statistically significant results.
 2. GPS is the United States Environmental Protection Agency (USEPA) Maximum Contamination Level (MCLs), if established; otherwise, the values from 40 CFR 257.95(h)(2).
 3. Interwell UPLs calculated based on results from background wells MW-306 and MW-307.

Created by: <u>NDK</u>	Date: <u>7/10/2019</u>
Last revision by: <u>RM</u>	Date: <u>2/1/2021</u>
Checked by: <u>NDK</u>	Date: <u>2/4/2021</u>
Proj Mgr QA/QC: <u>TK</u>	Date: <u>4/25/2021</u>

Table 6. 2020 Groundwater Field Data Summary
M.L. Kapp Generating Station / SCS Engineers Project #25221077.00

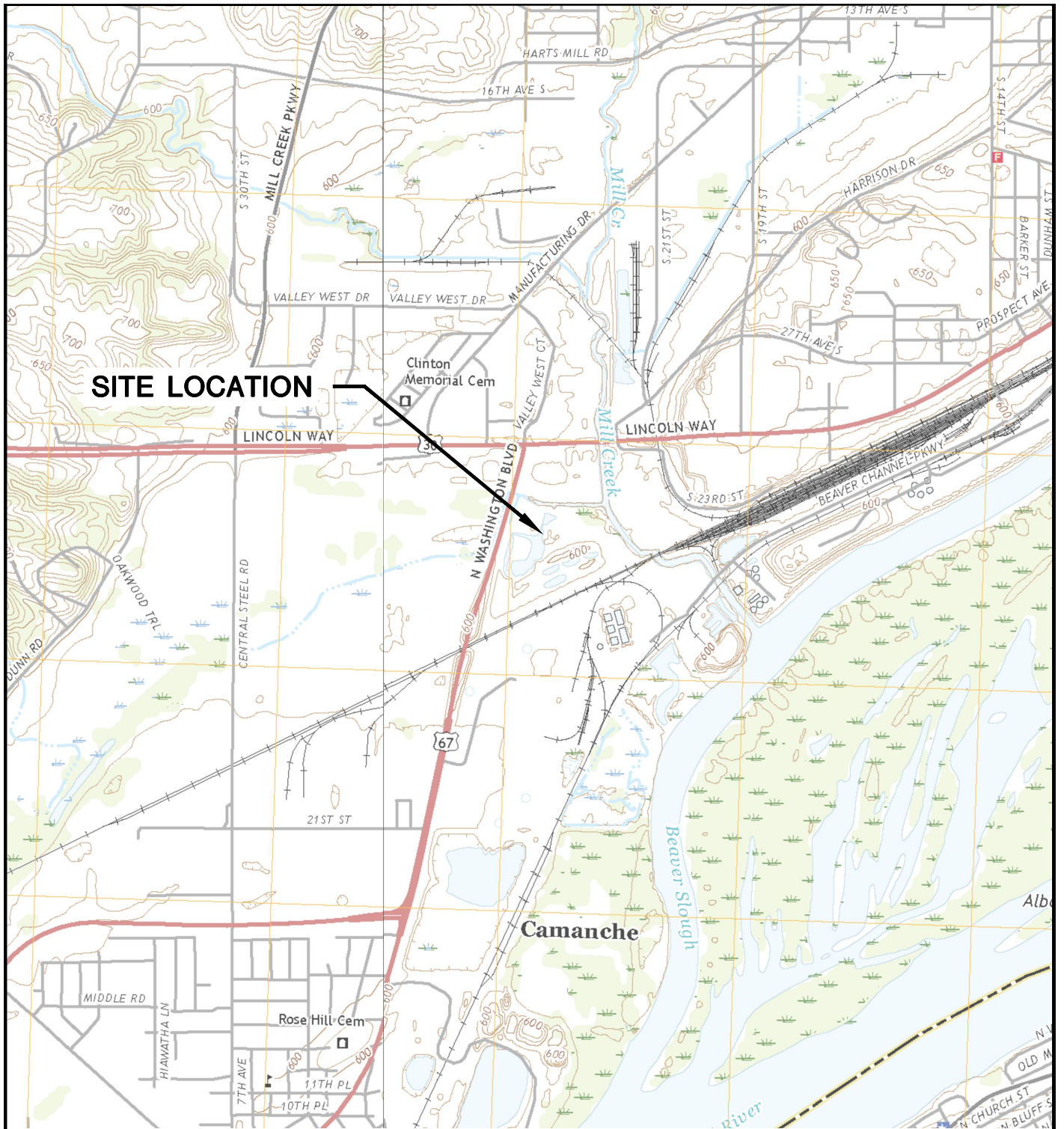
Well	Sample Date	Groundwater Elevation (feet)	Field Temperature (deg C)	Field pH (Std. Units)	Oxygen, Dissolved (mg/L)	Field Specific Conductance (umhos/cm)	Field Oxidation Potential (mV)	Turbidity (NTU)
MW-301	2/4/2020	578.07	10.9	6.54	0.56	1054	-4.20	3.15
	4/29/2020	578.76	10.5	7.08	0.13	1069	-44.10	9.87
	10/22/2020	577.42	14.6	6.70	0.10	979.0	-19.60	3.84
MW-302	2/4/2020	577.74	11.1	7.79	1.49	781.0	37.70	1.94
	4/29/2020	579.38	9.9	8.45	0.14	785.0	2.70	1.33
	10/22/2020	574.64	13.7	8.37	0.11	743.0	-64.10	0.02
MW-303	2/4/2020	579.58	11.9	7.26	1.73	1057	34.00	1.64
	4/29/2020	580.82	10.9	7.33	0.22	1484	-97.70	41.90
	10/22/2020	575.82	13.1	9.97	0.19	723.0	-32.10	35.20
MW-304	2/4/2020	578.73	12.0	7.31	0.82	934.0	36.30	2.94
	4/29/2020	580.95	10.8	6.48	0.13	924.0	74.50	49.90
	7/7/2020	577.15	13.4	6.81	0.28	1004	-23.60	12.80
	10/22/2020	575.32	13.2	7.07	0.10	918.0	-65.20	1.05
MW-305	2/4/2020	578.85	10.6	7.20	1.12	1415	14.00	1.72
	4/29/2020	580.40	10.1	6.41	0.16	1545	-50.80	11.90
	10/22/2020	575.25	13.7	7.30	0.13	1354	-8.40	3.20
MW-306	2/4/2020	579.31	11.1	7.50	1.87	1557	26.00	0.71
	4/29/2020	580.70	9.9	6.59	0.11	1683	105.4	1.47
	10/22/2020	576.82	13.7	7.21	0.10	1427	-3.50	0.02
MW-307	7/7/2020	593.85	14.2	6.57	0.39	1911	-0.40	3.50
	8/7/2020	593.06	15.6	7.45	0.13	1759	31.80	6.61
	10/22/2020	592.77	15.7	6.63	0.09	1590	22.40	2.68

Created by: RM
 Last revision by: RM
 Checked by: NDK

Date: 12/22/2020
 Date: 2/1/2021
 Date: 2/4/2021

Figures

- 1 Site Location Map
- 2 Monitoring Well Location Map
- 3 Water Table Map - April 2020
- 4 Water Table Map - October 2020

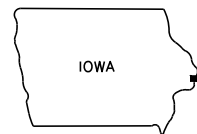


SITE LOCATION

Camanche



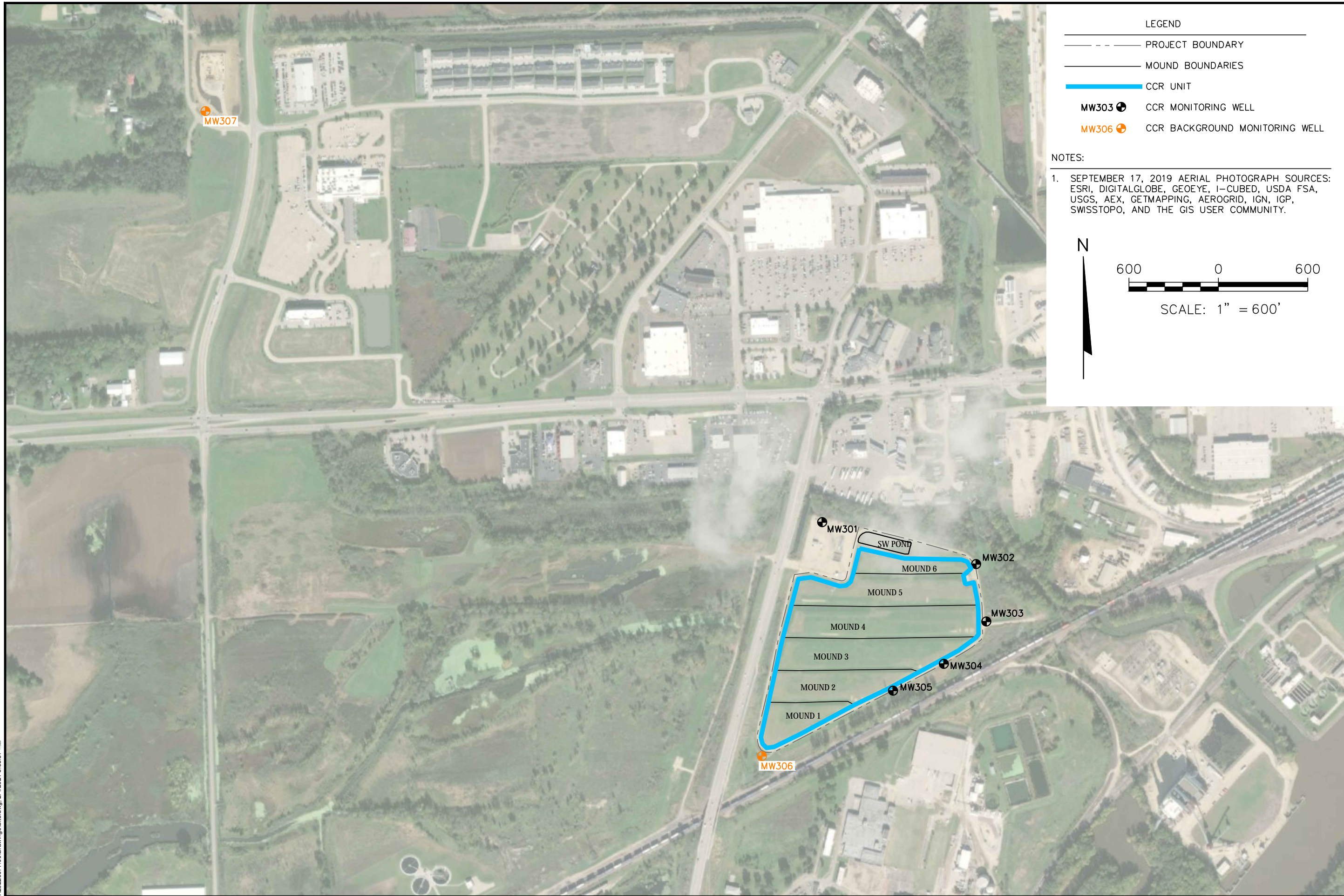
CLINTON QUADRANGLE
 IOWA-ILLINOIS
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'



CLIENT	ALLIANT ENERGY ML-KAPP GENERATING STATION 2001 BEAVER CHANNEL PKWY CLINTON, IA 52732		SITE	ALLIANT ENERGY M.L. KAPP GENERATING STATION CLINTON, IA		ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830		FIGURE 1
	PROJECT NO.	25219077.00		DRAWN BY:	BSS		2018	SCALE: 1" = 2,000'	
	DRAWN:	11/20/2019	CHECKED BY:	MDB					
	REVISED:	01/13/2020	APPROVED BY:						

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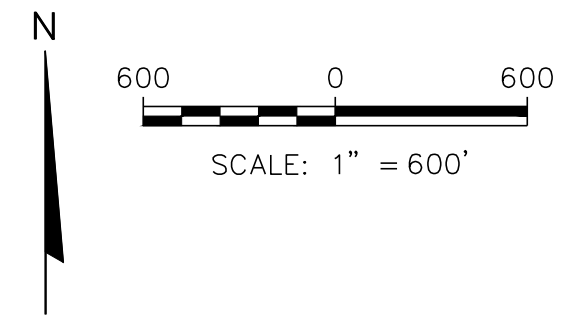
I:\25220077\00\Drawings\Site.dwg, 2/4/2021 3:05:37 PM



- LEGEND
- PROJECT BOUNDARY
 - MOUND BOUNDARIES
 - ██████████ CCR UNIT
 - MW303 CCR MONITORING WELL
 - MW306 CCR BACKGROUND MONITORING WELL

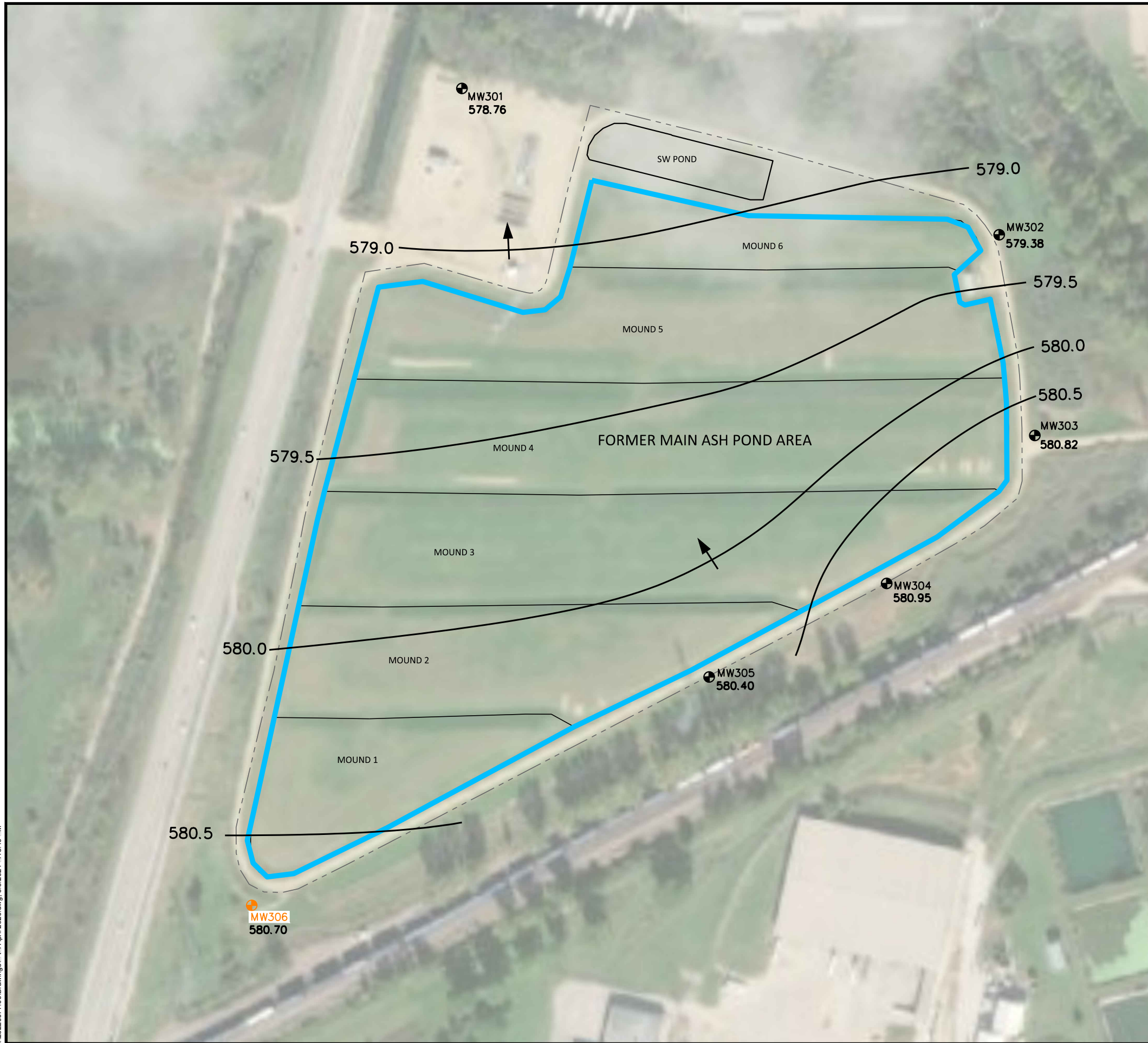
NOTES:

1. SEPTEMBER 17, 2019 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.

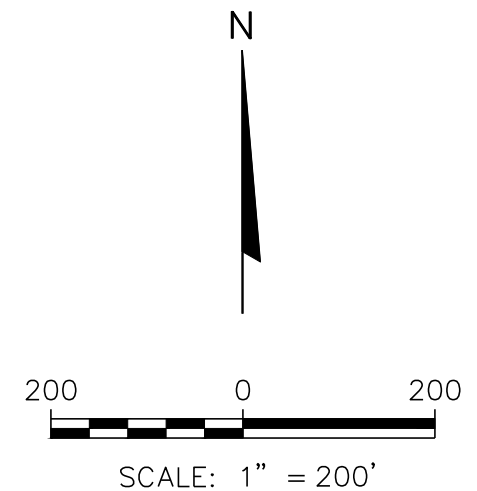


	ALLIANT ENERGY M.L. KAPP GENERATING STATION 2001 BEAVER CHANNEL PKWY, CLINTON, IA 52732	M.L. KAPP GENERATING STATION 3301 HIGHWAY 67 S, CLINTON, IA 52732	MONITORING WELL LOCATION MAP	FIGURE 2
	PROJECT NO: 25220077-00 DRAWN: 09/04/2020 REVISED: 02/04/2021	DRAWN BY: KP/ZTW CHECKED BY: NDK APPROVED BY:	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830

I:\25220077\00\Drawings\1 April 2020.dwg, 5/8/2021 11:15:49 AM



- LEGEND
- PROJECT BOUNDARY
 - MOUND BOUNDARIES
 - CCR UNIT
 - MW303 ● CCR MONITORING WELL
 - MW306 ● CCR BACKGROUND MONITORING WELL
 - 577.36 WATER TABLE ELEVATION MEASURED APRIL 29, 2020
 - WATER TABLE CONTOUR
 - ➔ APPROXIMATE GROUNDWATER FLOW DIRECTION



WATER TABLE MAP
APRIL 2020

M.L. KAPP GENERATING STATION
3301 HIGHWAY 67 S, CLINTON, IA 52732

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



FIGURE
3

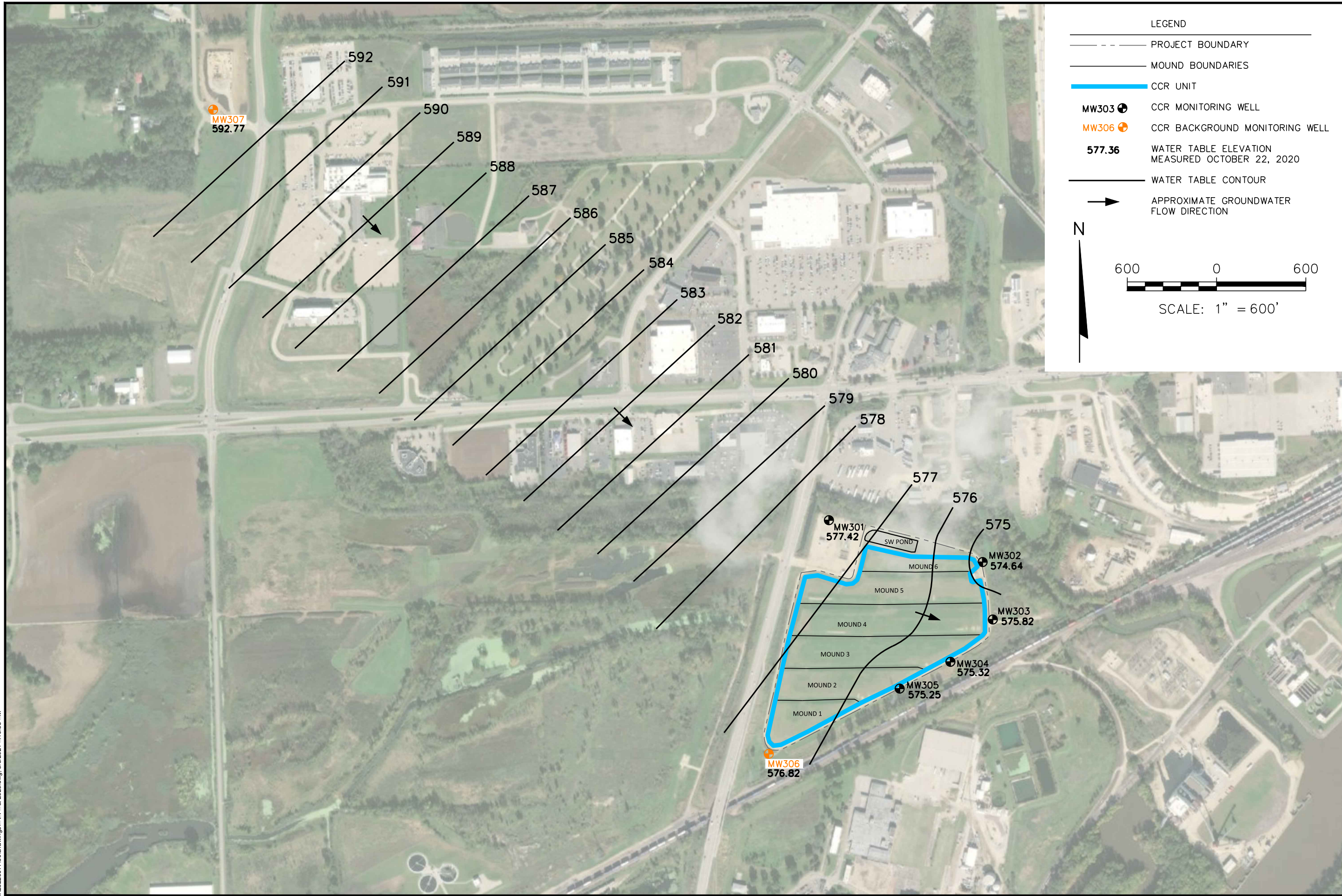
SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

ENGINEER

ZTW
NK/ADB

PROJECT NO. 25220077-00
DRAWN BY: 07/21/2020
CHECKED BY: 05/03/2021
APPROVED BY:

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LEGEND


- PROJECT BOUNDARY
- MOUND BOUNDARIES
- CCR UNIT
- MW303 CCR MONITORING WELL
- MW306 CCR BACKGROUND MONITORING WELL
- 577.36** WATER TABLE ELEVATION MEASURED OCTOBER 22, 2020
- WATER TABLE CONTOUR
- ➔ APPROXIMATE GROUNDWATER FLOW DIRECTION

N

600 0 600

SCALE: 1" = 600'

CLIENT	ALLIANT ENERGY M.L. KAPP GENERATING STATION 2001 BEAVER CHANNEL PKWY, CLINTON, IA 52732	SITE	M.L. KAPP GENERATING STATION 3301 HIGHWAY 67 S, CLINTON, IA 52732	ENGINEER	FIGURE
PROJECT NO:	25220077-00	DRAWN BY:	ZTW	SCS ENGINEERS 2830 DAIRY DRIVE, MADISON, WI 53718-6751 PHONE: (608) 224-2830	4
DRAWN:	07/21/2020	CHECKED BY:	NK/ MDB		
REVISED:	05/03/2021	APPROVED BY:			



Appendix A
Summary of Regional Hydrogeologic Stratigraphy

Table 2. — Hydrologic units in east-central Iowa

Hydrologic unit	General thickness in feet	Age of rocks	Name of rock units	Type of rock
Surficial aquifers alluvial buried-channel drift	0 to 400	Quaternary (0 to 1 million years old)	Quaternary deposits, undifferentiated	Sand, gravel, silt, and clay Sand, gravel, silt, and clay Till (sandy, pebbly clay) sand, and silt
Pennsylvanian rocks principally confining beds; locally contains waterbearing sandstone	0 to 70	Pennsylvanian (280 to 310 million years old)	Pennsylvanian rocks, undifferentiated	Shale, sandstone, limestone, and coal
Mississippian aquifer	0 to 220	Mississippian (310 to 345 million years old)	Meramecian Series Osagean Series Kinderhookian Series	Limestone and sandstone Dolomite, limestone, and shale Limestone, dolomite, and siltstone
Devonian confining beds	0 to 350	Devonian (345 to 400 million years old)	Yellow Spring Group	Shale, dolomite and siltstone
Devonian aquifer	0 to 400		Lime Creek Shale	Dolomite and shale
Silurian aquifer	0 to 450	Silurian (400 to 425 million years old)	Cedar Valley Limestone Wapsipinicon Limestone	Limestone and dolomite Dolomite, limestone, and shale
Ordovician confining beds	300 - 600		Gower Dolomite * Hopkinton Dolomite Kankakee Limestone Edgewood Dolomite	Dolomite, with some chert and limestone
Cambrian- Ordovician aquifer	400 to 650	Ordovician (425 to 500 million years old)	Maquoketa Shale Galena Dolomite Decorah Formation Platteville Formation	Dolomite and shale Dolomite and chert Limestone and shale Limestone and shale
Cambrian confining beds	90 - 290		St. Peter Sandstone Prairie du Chien Formation Jordan Sandstone St. Lawrence Dolomite	Sandstone Dolomite, sandstone, and shale Sandstone Dolomite
Dresbach aquifer	157 to 1644	Cambrian (500 to 600 million years old)	Franconia Sandstone	Shale, siltstone, and sandstone
Precambrian rocks			Dresbach Group Galesville Sandstone Eau Claire Sandstone Mt. Simon Sandstone	Sandstone Sandstone, shale, and dolomite Sandstone
		Precambrian (600 to more than 2 billion years old)	Crystalline rocks, undifferentiated	Sandstone, igneous and metamorphic rocks.

*Upper part includes the LaPorte City Chert in the northwest part of the report area.

The nomenclature and classification of rock units in this report are those of the Iowa Geological Survey and do not necessarily coincide with those accepted by the U.S. Geological Survey.

Surficial Aquifers

The surficial aquifers are located within the unconsolidated materials above the bedrock surface. They are subdivided into alluvial, buried-channel, and drift aquifers.

The alluvial aquifers are deposits located along present-day watercourses. They consist of sands and gravels interbedded with less-permeable silts and clays and lie beneath the flood plains of larger rivers and creeks. In the eastern half of the report area, the Iowa, Cedar, Wapsipinicon, and Maquoketa Rivers as well as Buffalo Creek alternately flow through narrow bedrock gorges and wide flood plains (fig. 22). Thus the alluvial aquifers occur irregularly in the valleys of these rivers.

The buried-channel aquifers (fig. 23) are the unconsolidated material deposited by ancient streams that carved valleys prior to or between glacial

advances. Many of these ancient valleys were scoured deeply into the bedrock and are much wider than the valleys of present streams (fig. 24). Buried channels may be easily recognized on the bedrock topography map (fig. 25), but are only poorly expressed in the modern landscape. While they are not generally expressed as primary features of present topography, they exert noticeable influences on modern drainage. Prairie Creek near Cedar Rapids, Deep Creek near Preston, and the lower stretches of the Cedar, Wapsipinicon, and Maquoketa Rivers follow the courses of buried channels. See figures 22 and 23. In addition, most of the irregularly occurring alluvial aquifers in the eastern half of the report area are located where modern stream valleys intersect buried bedrock channels.

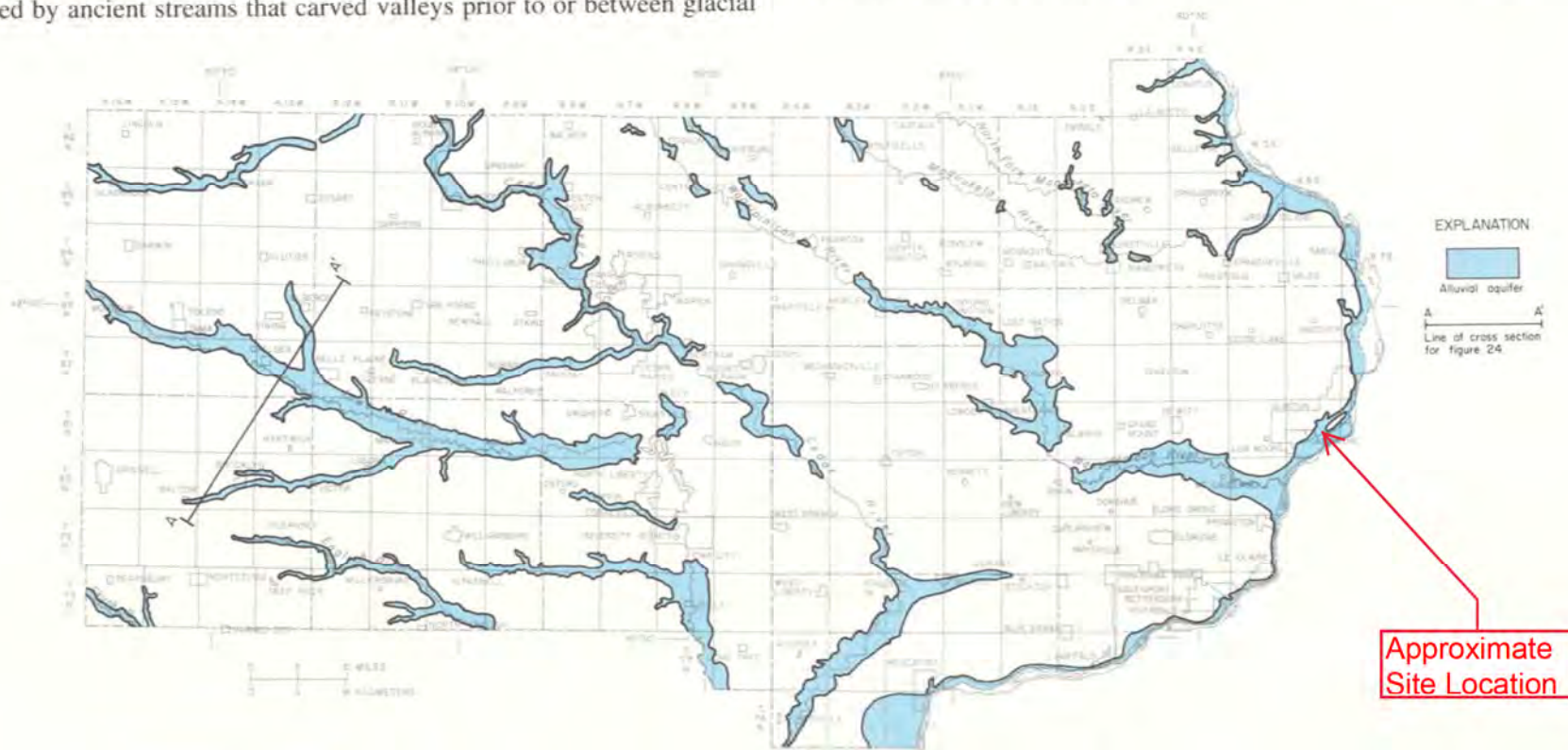


Figure 22.—Areal distribution of alluvial aquifers in east-central Iowa

Bedrock Aquifers

The bedrock hydrogeologic map (fig. 26) shows the aquifers and confining beds that make up the bedrock surface in east-central Iowa. Pennsylvanian confining beds are the bedrock in the extreme southwest corner of the area, in southeast Muscatine County and southwest Scott County, and in other small outlying localities. The Mississippian aquifer is found beneath the surficial deposits in most of the southwest part of the region. The Devonian confining beds comprise the bedrock surface in an area about 25 miles wide extending from the northwest corner to the south-central part of the report area. They have been partly or completely removed in parts of the Belle Plaine and Poweshiek buried bedrock channels.

The Devonian aquifer is the bedrock in a broad belt that parallels the northeast side of the Devonian confining beds. This belt is from 12 to 25 miles wide and extends from northern Benton and Linn Counties to the southern border of Muscatine County. The Devonian and Silurian aquifers are separated by an irregular zone of relatively thin shale occurring near the base of the Devonian and represented by a single line on figure 26.

The Silurian aquifer comprises the bedrock surface over most of the eastern half of the area. In the extreme northeastern border area the Ordovician confining beds are found at the bedrock surface. They also appear in several buried bedrock channels where the Silurian aquifer has been removed locally by erosion.

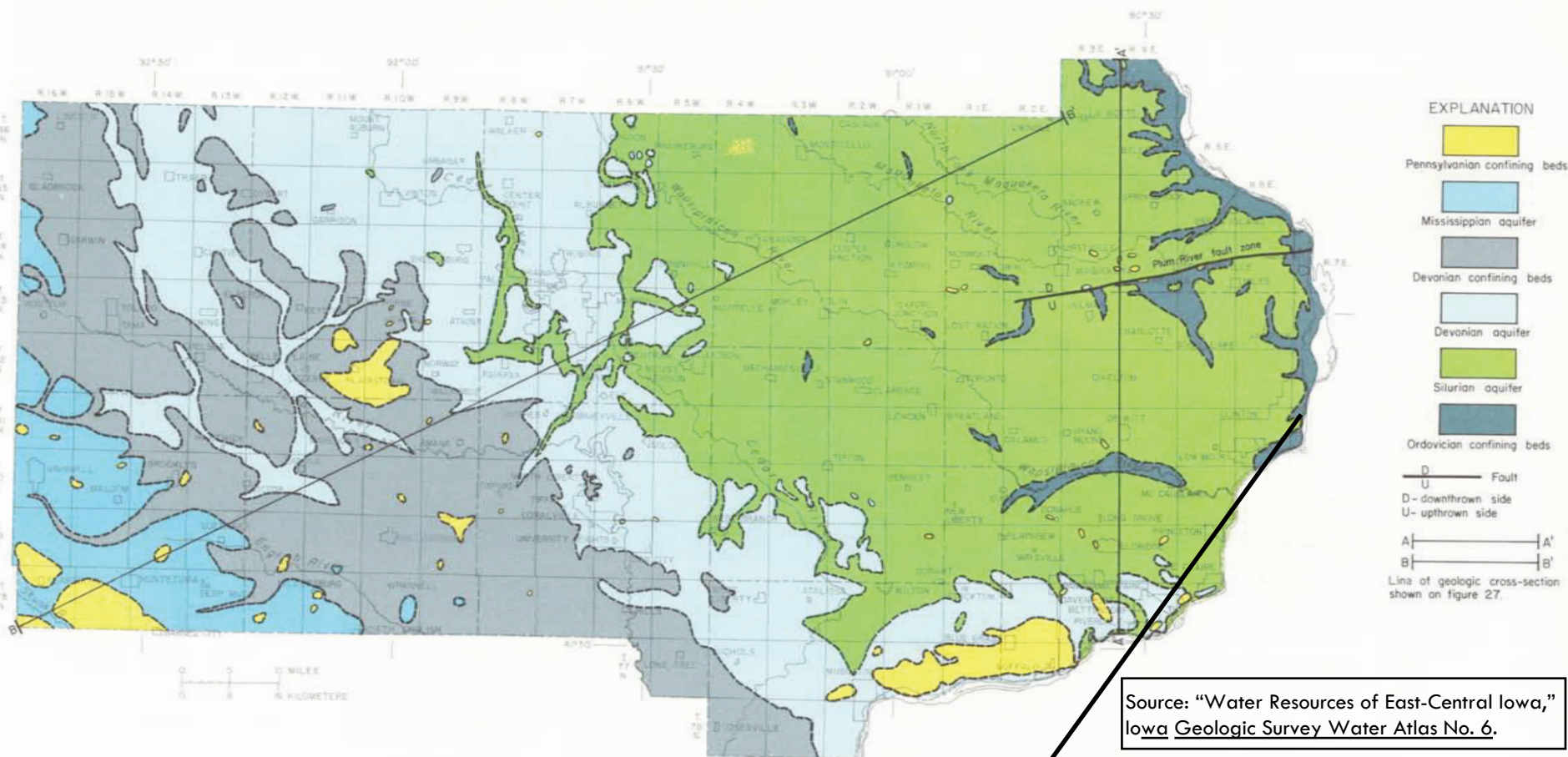



Figure 26.—Bedrock hydrogeologic map

Source: "Water Resources of East-Central Iowa," Iowa Geologic Survey Water Atlas No. 6.

Approximate Site Location



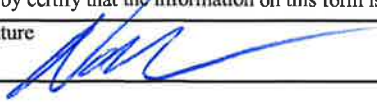
Appendix B
Boring Logs and Well Construction Documentation

Route To: Watershed/Wastewater Waste Management
 Remediation/Rcdevelopment Other

Facility/Project Name IPL - Alliant M.L. Kapp		License/Permit/Monitoring Number		Boring Number MW-301	
Boring Drilled By: Name of crew chief (first, last) and Firm Patrick Goetz Direct Push Analytical		Date Drilling Started 2/8/2018		Date Drilling Completed 2/8/2018	
Drilling Method HSA		Unique Well No. MW-301		Borehole Diameter 8.3 in	
DNR Well ID No.		Common Well Name		Final Static Water Level	
				Feet	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		Surface Elevation 589.3 Feet		Local Grid Location	
State Plane 677,257 N, 2,528,287 E S/C/N		Lat _____"		<input type="checkbox"/> N <input type="checkbox"/> E	
SE 1/4 of NE 1/4 of Section 22, T 81 N, R 6 E		Long _____"		<input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Clinton		Civil Town/City/ or Village Clinton	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	POORLY GRADED SAND, fine to coarse, tan, (fill). Hydrovaced hole to 8 feet. Blind drilled to 8 feet.											
			2												
			3												
			4		SP										
			5												
			6												
			7												
			8												
S1	48		9	LEAN CLAY, dark gray, (10YR 4/1), soft, low plasticity, few organic fibers.											
			10							M					
			11		CL										
			12												
			13												
S2	42		14								M/W				
			15		ML										Depth to water at ~13 feet.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:  Firm: SCS Engineers
 2830 Dairy Drive Madison, WI 53711 Tel: (608) 224-2830 Fax:

Boring Number MW-301

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	36		16	SANDY SILT, fine grains, dark yellow-brown, (10YR 4/6), soft. <i>(continued)</i>	ML									
			17	POORLY GRADED SAND, fine to coarse, brown, (10YR 4/3).										
S4	36		18											
			19		SP									
			20											
			21											
			22	LEAN CLAY, dark gray, (10YR 4/1), soft, medium plasticity.	CL									
			23	SILT, dark gray, (10YR 4/1), stiff, trace organic fibers (wood chips).	ML									
			24	End of Boring at 24 feet.										

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL - Alliant M.L. Kapp		SCS#: 25216127.00		License/Permit/Monitoring Number		Boring Number MW-302					
Boring Drilled By: Name of crew chief (first, last) and Firm Patrick Goetz Direct Push Analytical				Date Drilling Started 2/8/2018		Date Drilling Completed 2/8/2018		Drilling Method HSA			
Unique Well No.		DNR Well ID No.		Common Well Name MW-302		Final Static Water Level Feet		Surface Elevation 588.6 Feet		Borehole Diameter 8.3 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>				State Plane 676,976 N, 2,529,320 E S/C/N				Local Grid Location			
SE 1/4 of NE 1/4 of Section 22, T 81 N, R 6 E				Lat _____ ° _____ ' _____ "				Long _____ ° _____ ' _____ "			
Facility ID				County Clinton				Civil Town/City/ or Village Clinton			

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	POORLY GRADED SAND, fine to coarse, tan, (fill). Hydrovaced hole to 8 feet. Bling drilled to 8 feet.											
	96		2-7		SP										
S1	48		8-12	LEAN CLAY, dark yellow brown, (10YR 4/4), medium stiffness, low to medium plasticity.	CL					M					
S2	36		13-14	POORLY GRADED SAND, fine, yellow-brown, (10YR 4/4). LEAN CLAY with fine sand, brown, (7.5YR 4/3), medium plasticity,	SP CL						M/W				Depth to water at ~14 feet.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53711	Tel: (608) 224-2830 Fax:
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Boring Number MW-302

Page 2 of 2

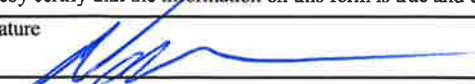
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	42		16	LEAN CLAY with fine sand, brown, (7.5YR 4/3), medium plasticity, <i>(continued)</i>	CL									
			17											
S4	42		18	SANDY SILT, fine, dark gray, (10YR 4/1), soft, low plasticity.	ML									
			19											
			20											
			21	LEAN CLAY, soft, medium plasticity.	CL									
			22											
			23	POORLY GRADED SAND, fine to coarse.	SP									
			24	End of boring at 24 feet.										

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL - Alliant M.L. Kapp		License/Permit/Monitoring Number		Boring Number MW-303	
Boring Drilled By: Name of crew chief (first, last) and Firm Patrick Goetz Direct Push Analytical		Date Drilling Started 2/8/2018		Date Drilling Completed 2/8/2018	
Unique Well No.		DNR Well ID No.		Common Well Name MW-303	
Final Static Water Level Feet		Surface Elevation 589.7 Feet		Borehole Diameter 8.3 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		State Plane 676,590 N, 2,529,389 E S/C/N		Local Grid Location	
SE 1/4 of NE 1/4 of Section 22, T 81 N, R 6 E		Lat _____ ° _____ ' _____ "		Long _____ ° _____ ' _____ "	
Facility ID		County Clinton		Civil Town/City/ or Village Clinton	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	POORLY GRADED SAND, fine to coarse, tan, (fill). Hydrovaced hole to 8 feet. Blind drilled to 8 feet.										
			2											
			3											
			4		SP									
			5											
			6											
			7											
			8											
S1	48		9	LEAN CLAY, very dark brown, (10YR 2/2), stiff, medium plasticity.										
			10								M			
			11											
			12	Same as above but dark gray (5YR 4/1) mottled with reddish brown (5YR 4/4).	CL									
			13											
S2	42		14								M/W			
			15											Depth to water at ~15 feet.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:  Firm: SCS Engineers
2830 Dairy Drive Madison, WI 53711 Tel: (608) 224-2830 Fax:

Boring Number MW-303

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	POORLY GRADED SAND with silt, fine to medium sand, dark gray, (7YR 4/1).	SP									
			17											
			18	POORLY GRADED SAND, fine to coarse, brown, (7YR 4/4).	SP									
			19											
			20											
			21											
			22											
			23	LEAN CLAY, very dark gray, (10YR 3/1), soft, medium plasticity, trace organic fibers (wood chips).	CL									
			24											
			25											
				End of Boring at 25.5 feet.										

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL - Alliant M.L. Kapp		SCS#: 25216127.00		License/Permit/Monitoring Number		Boring Number MW-304	
Boring Drilled By: Name of crew chief (first, last) and Firm Patrick Goetz Direct Push Analytical				Date Drilling Started 2/7/2018		Date Drilling Completed 2/7/2018	
Unique Well No.		DNR Well ID No.		Common Well Name MW-304		Final Static Water Level Feet	
				Surface Elevation 589.4 Feet		Borehole Diameter 8.3 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>				Local Grid Location			
State Plane 676,306 N, 2,529,104 E S/C/N				Lat _____ " <input type="checkbox"/> N <input type="checkbox"/> E		Long _____ " <input type="checkbox"/> S <input type="checkbox"/> W	
SE 1/4 of NE 1/4 of Section 22, T 81 N, R 6 E				Feet <input type="checkbox"/>		Feet <input type="checkbox"/>	
Facility ID		County Clinton		Civil Town/City/ or Village Clinton			

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	POORLY GRADED SAND, fine to coarse, tan, (fill). Hydrovaced hole to 8 feet. Blind drilled to 8 feet.										
			2											
			3											
			4		SP									
			5											
			6											
			7											
			8											
S1	48		9	LEAN CLAY, very dark brown, (7.5YR 2.5/2), stiff, trace organic fibers (wood chips) at 10 feet.	CL						M			
			10											
			11											
			12											
			13	LEAN CLAY with trace silt, very dark gray, (10YR 3/1), medium stiffness, medium plasticity.	CL						M			
S2	48		14											
			15											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53711	Tel: (608) 224-2830 Fax:
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Boring Number **MW-304**

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	48		16	SANDY SILT, fine sand, brown, (10YR 4/3), soft.	ML								Depth to water at ~16 feet.	
			17	SILT, brown, (7.5YR 4/3), soft, low plasticity.										
			18											
			19											
			20		ML									
S4	12		21											
			22											
			23	POORLY GRADED SAND, fine to coarse, dark grayish/brown, (10YR 4/2).										
			24		SP									
			25	End of Boring at 25.0 feet.										

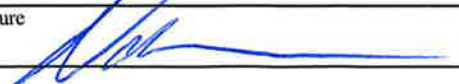
Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL - Alliant M.L. Kapp SCS#: 25216127.00		License/Permit/Monitoring Number		Boring Number MW-305	
Boring Drilled By: Name of crew chief (first, last) and Firm Patrick Goetz Direct Push Analytical			Date Drilling Started 2/7/2018	Date Drilling Completed 2/7/2018	Drilling Method HSA
Unique Well No.	DNR Well ID No.	Common Well Name MW-305	Final Static Water Level Feet	Surface Elevation 589.4 Feet	Borehole Diameter 8.3 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 676,126 N, 2,528,763 E S/C/N SE 1/4 of NE 1/4 of Section 22, T 81 N, R 6 E			Local Grid Location Lat _____ ° _____ ' _____ " <input type="checkbox"/> N <input type="checkbox"/> E Long _____ ° _____ ' _____ " Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W		

Facility ID	County Clinton	Civil Town/City/ or Village Clinton
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Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	POORLY GRADED SAND, fine to coarse, tan, (fill). Hydrovaced hole to 8 feet. Blind drilled to 8 feet.										
			2											
			3											
			4		SP									
			5											
			6											
			7											
			8											
S1	48		9	LEAN CLAY, very dark brown, (7.5YR 2.5/2), soft, low plasticity. Same as above but with trace silt (10-11) and dark brown (7.5YR 3/3).										
			10								M			
			11											
			12		CL									
			13											
S2	48		14								M			
			15											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53711	Tel: (608) 224-2830 Fax:
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Boring Number MW-305

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	42		16	SANDY SILT with gravel, fine to medium sand, fine to coarse gravel, dark yellowish-brown, (10YR 4/6), sub-rounded gravel.	CL									
			17		ML									
			18	POORLY GRADED SAND AND GRAVEL, fine to medium sand, fine to coarse gravel, dark yellowish-brown, (10YR 4/4), subrounded grains.	SP									W
			19											
S4	24		20	POORLY GRADED SAND, fine, very pale brown, (10YR 3/3), (sandstone bedrock).	SP									
			21											
			22											W
			23											
			24											
			End of Boring at 24.5 feet.											

Depth to water at 16 feet.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL - Alliant M.L. Kapp SCS#: 25216127.00		License/Permit/Monitoring Number		Boring Number MW-306	
Boring Drilled By: Name of crew chief (first, last) and Firm Patrick Goetz Direct Push Analytical			Date Drilling Started 2/7/2018	Date Drilling Completed 2/7/2018	Drilling Method HSA
Unique Well No.	DNR Well ID No.	Common Well Name MW-306	Final Static Water Level Feet	Surface Elevation 588.1 Feet	Borehole Diameter 8.3 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 675,687 N, 2,527,883 E S/C/N SE 1/4 of NE 1/4 of Section 22, T 81 N, R 6 E			Local Grid Location Lat _____ " <input type="checkbox"/> N <input type="checkbox"/> E Long _____ " <input type="checkbox"/> S <input type="checkbox"/> W		

Facility ID	County Clinton	Civil Town/City/ or Village Clinton
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties						RQD/ Comments		
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200				
S1	24		1	POORLY GRADED SAND, fine to coarse, tan, (fill). Hydrovaced hole to 8 feet. Blind drilled to 8 feet.	SP												
		2															
		3															
		4															
		5															
		6															
		7															
		8															
					9	SILTY SAND, brownish yellow, (10YR 6/6).	SM										
		10															
					11	(Weathered Limestone Bedrock).	LIMESTONE										
		12															
		13															
		14															
		15															

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53711	Tel: (608) 224-2830 Fax:
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Boring Number MW-306

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	(Weathered Limestone Bedrock). (continued)										
			17											
			18											
			19											
			20			LIMESTONE								
			21											
			22											
			23											
			24											
			25	End of Boring at 25 feet.										Depth to water at ~17 feet.

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name ML-Kapp		SCS#: 25220117.00		License/Permit/Monitoring Number		Boring Number MW-307	
Boring Drilled By: Name of crew chief (first, last) and Firm Scott Zeien Terracon				Date Drilling Started 4/15/2020		Date Drilling Completed 4/15/2020	
Unique Well No.		DNR Well ID No.		Common Well Name		Final Static Water Level 6.63 Feet	
						Surface Elevation 601.69 Feet	
						Borehole Diameter 8.5" in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 680017.03 N, 2524149.7 E S/C/N				Lat _____ ° _____ ' _____ "		Local Grid Location	
NE 1/4 of SW 1/4 of Section 15, T 81 N, R 6 E				Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Clinton		County Code		Civil Town/City/ or Village Clinton, Iowa	













Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments		
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200			
			1	CLAYEY SAND, fine grained, yellowish brown (10YR, 5/6) with some silt and trace gravel, non-cohesive to slightly cohesive, slightly moist, and loose.	SP											
			3	SILTY SAND, fine grained, dark yellowish brown (10YR, 3/4), trace gravel, cohesive, loose.	SM											Collected 2 samples from the sidewall of the hydrovac borhole between 0 and 8 feet bgs.
1	23	00 34	9	SILTY CLAY, dark brown to very dark brown (10YR, 3/3 to 10YR, 2/2) with trace fine sand, cohesive, very soft to soft.	CL											No recovery from 4-8 feet bgs
2	24	02 23	11		CL											
3	24	02 34	13	Same, with more sand, oxidized color.	CL											
			14	SANDY LEAN CLAY, yellowish brown to grayish brown, slight green hue (10YR, 5/4 to 10YR, 5/2),	CL											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Meghan Blodgett for Matthew Cahalan	Firm SCS Engineers	Tel: Fax:
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SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307** to 4400-122. Page **2** of **2**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments		
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200			
4	16	00 23	16	cohesive, very soft to soft.												
5	24	00 00	17		CL											
6	21	00 03	19													
			20	CLAYEY SAND, dark grayish brown, (10YR, 4/2), fine to medium grained, cohesive, very soft to soft.	SC-SM											
7	19	00 23	21	SILTY CLAY with sand, very dark grayish brown (10YR, 3/2), non-cohesive, very loose, sand is fine to medium grained.	CL											
			22	POORLY GRADED SAND, fine to medium grained, dark grayish brown (10YR, 4/2), some clay, very loose.	SP											
				End of boring at 22' bgs.												



IOWA DEPARTMENT OF NATURAL RESOURCES
MONITORING WELL/PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name: M.L. Kapp Generating Station - Main Ash Pond Permit No.:

Well or Piezometer No: MW-301

Dates Started: 2/8/2018 Date Completed: 2/8/2018

A. SURVEYED LOCATIONS AND ELEVATIONS
B. SOIL BORING INFORMATION
Locations (± 0.5 ft): 677257.43 N, 2528287.27 E
Specify corner of site: NW of parcel 8071940000
Distance & direction along boundary: 146' S
Distance & direction from boundary to wall: 22' E
Elevations (± 0.01 ft MSL):
Ground Surface: 589.32
Top of protective casing: 592.36
Top of well casing: 592.13
Benchmark elevation: 590.75
Benchmark description: BM-1
Name & Address of Construction Company:
Direct Push Analytical
4N969 Old LaFox Road, Unit E
St. Charles, IL 60175
Name of Driller: Patrick Goetz
Drilling Method: 4.5" Auger
Drilling Fluid: N/A
Bore Hole Diameter: 8.25"
Soil Sampling Method: Geoprobe
Depth of Boring: 24.0'

C. MONITORING WELL INSTALLATION
Casing material: PVC
Length of casing: 15.19
Outside casing diameter: 2.38"
Inside casing diameter: 2"
Casing joint type: Flush Threaded
Casing/screen joint type: Flush Threaded
Screen material: PVC
Screen opening size: 0.010"
Screen length: 10'
Depth of well: 22.39
Filter Pack: 10.39' -23.39' bgs
Material: R.W. Sidley
Grain size: #5
Volume: 4.2 cu/ft
Seal (minimum 3 ft length above filter pack): 2'- 10.39' bgs
Material: 3/8 inch bentonite chips
Placement method: Gravity
Volume: 1.75 ft3
Backfill (if different from seal): N/A
Material: N/A
Placement method: N/A
Volume: N/A
Surface seal design: 0'-2' bgs
Material of protective casing: Steel, 4" diameter
Material of grout between protective casing and well casing: sand
Protective cap: 6 inch diameter
Material: Steel
Vented: [] Yes [] No Locking: [x] Yes [] No
Well Cap: 2 inch diameter
Material: plastic with rubber gasket
Vented: [] Yes [x] No

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)
Water level: 14.08 Stabilization Time: 48 days
Well development method: N/A
Average depth of frostline: 4 feet

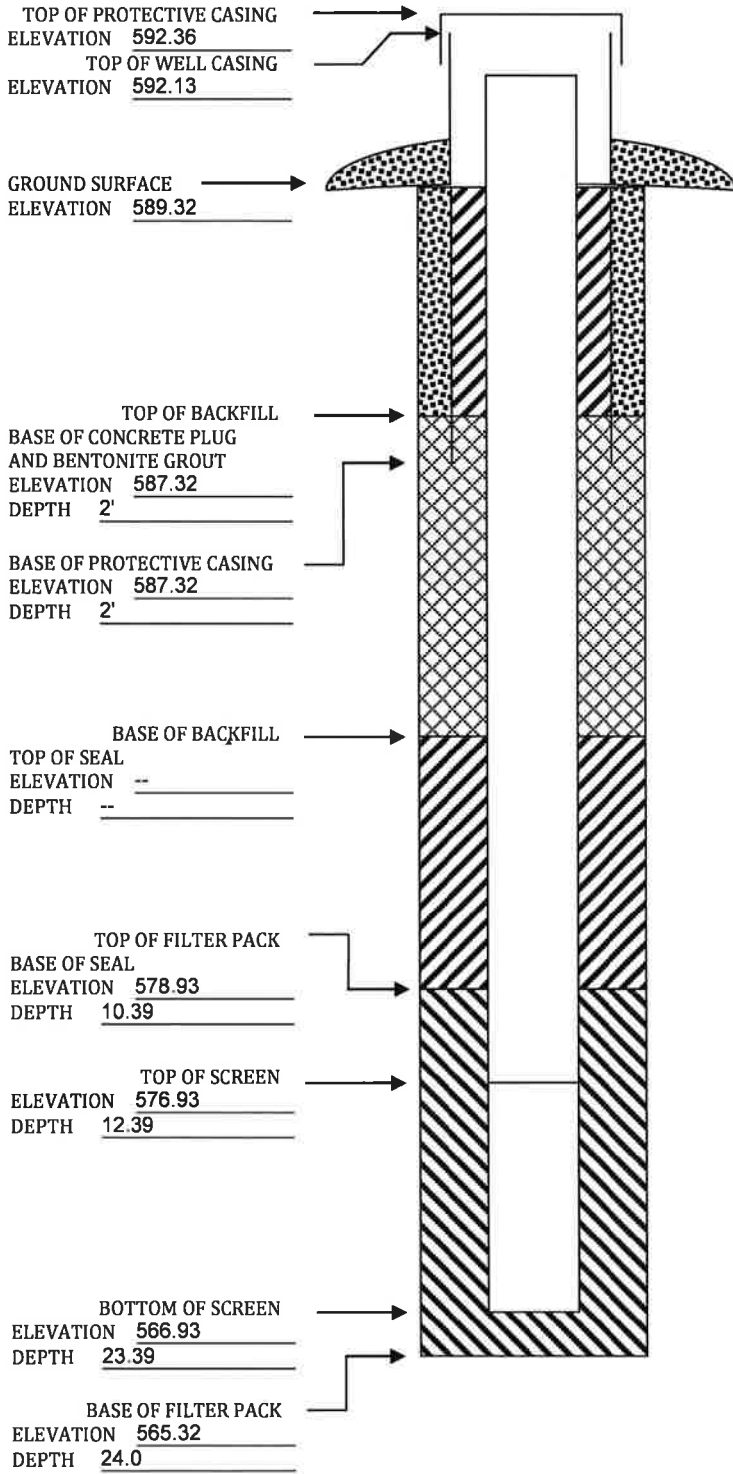
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed for to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E 9th St, Des Moines IA 50319-0034.

Questions? Call or Email: Nina Koger, Environmental Engineer Sr., 515-281-8986, Nina.Koger@dnr.iowa.gov

ELEVATIONS: ± 0.01 ft MSL
DEPTHS: ± 0.1 ft FROM GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
(SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL.)





IOWA DEPARTMENT OF NATURAL RESOURCES
MONITORING WELL/PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name: M.L. Kapp Generating Station - Main Ash Pond Permit No.: _____

Well or Piezometer No: MW-302

Dates Started: 2/8/2018 Date Completed: 2/8/2018

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): <u>676976.06 N, 2529320.21 E</u>	Name & Address of Construction Company:
Specify corner of site: <u>NW of parcel 8071930000</u>	<u>Direct Push Analytical</u>
Distance & direction along boundary: <u>700' E</u>	<u>4N969 Old LaFox Road, Unit E</u>
Distance & direction from boundary to wall: <u>329' S</u>	<u>St. Charles, IL 60175</u>
Elevations (± 0.01 ft MSL):	Name of Driller: <u>Patrick Goetz</u>
Ground Surface: <u>588.58</u>	Drilling Method: <u>4.5" Auger</u>
Top of protective casing: <u>591.81</u>	Drilling Fluid: <u>N/A</u>
Top of well casing: <u>591.54</u>	Bore Hole Diameter: <u>8.25"</u>
Benchmark elevation: <u>590.75</u>	Soil Sampling Method: <u>Geoprobe</u>
Benchmark description: <u>BM-1</u>	Depth of Boring: <u>24.0'</u>

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: <u>15.83</u>	Volume: <u>1.86 ft³</u>
Outside casing diameter: <u>2.38"</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter: <u>2"</u>	Material: <u>N/A</u>
Casing joint type: <u>Flush Threaded</u>	Placement method: <u>N/A</u>
Casing/screen joint type: <u>Flush Threaded</u>	Volume: <u>N/A</u>
Screen material: <u>PVC</u>	Surface seal design: <u>0'-2' bgs</u>
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel, 4" diameter</u>
Screen length: <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>23.14</u>	Protective cap: <u>6 inch diameter</u>
Filter Pack: <u>11.14' -23.14' bgs</u>	Material: <u>Steel</u>
Material: <u>R.W. Sidley</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>#5</u>	Well Cap: <u>2 inch diameter</u>
Volume: <u>4.2 cu/ft</u>	Material: <u>plastic with rubber gasket</u>
Seal (minimum 3 ft length above filter pack): <u>2'-11.14' bgs</u>	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8 inch bentonite chips</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>16.00</u>	Stabilization Time: <u>48 days</u>
Well development method: <u>N/A</u>	
Average depth of frostline: <u>4 feet</u>	

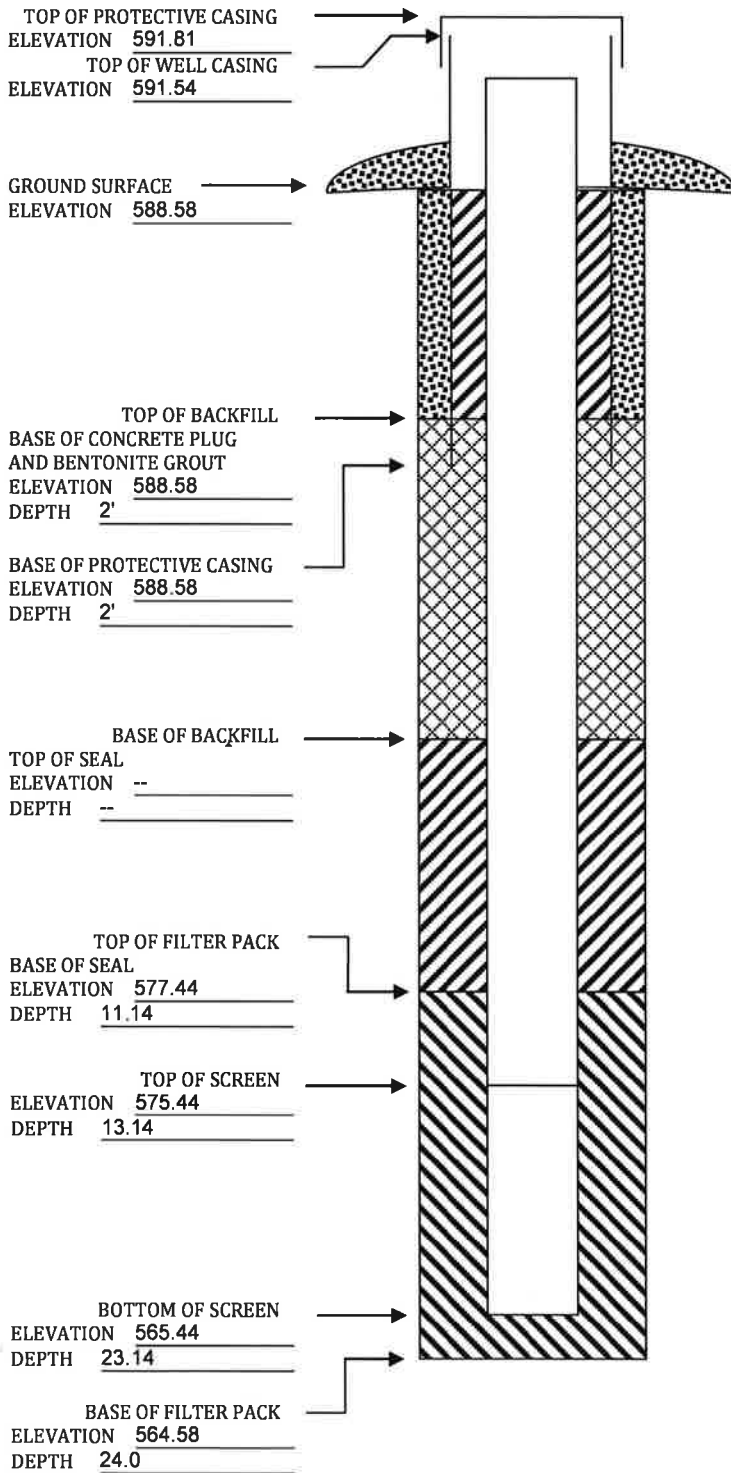
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed for to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E 9th St, Des Moines IA 50319-0034.

Questions? Call or Email: Nina Koger, Environmental Engineer Sr., 515-281-8986, Nina.Koger@dnr.iowa.gov

ELEVATIONS: ± 0.01 ft MSL
DEPTHS: ± 0.1 ft FROM GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
(SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL.)





IOWA DEPARTMENT OF NATURAL RESOURCES
MONITORING WELL/PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name: M.L. Kapp Generating Station - Main Ash Pond Permit No.: _____

Well or Piezometer No: MW-303

Dates Started: 2/8/2018

Date Completed: 2/8/2018

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): <u>676590.31 N, 2529388.67 E</u>	Name & Address of Construction Company:
Specify corner of site: <u>NW of parcel 8071930000</u>	<u>Direct Push Analytical</u>
Distance & direction along boundary: <u>687' E</u>	<u>4N969 Old LaFox Road, Unit E</u>
Distance & direction from boundary to wall: <u>730' S</u>	<u>St. Charles, IL 60175</u>
Elevations (± 0.01 ft MSL):	Name of Driller: <u>Patrick Goetz</u>
Ground Surface: <u>589.73</u>	Drilling Method: <u>4.5" Auger</u>
Top of protective casing: <u>592.69</u>	Drilling Fluid: <u>N/A</u>
Top of well casing: <u>592.40</u>	Bore Hole Diameter: <u>8.25"</u>
Benchmark elevation: <u>590.75</u>	Soil Sampling Method: <u>Geoprobe</u>
Benchmark description: <u>BM-1</u>	Depth of Boring: <u>25.5'</u>

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: <u>15.11'</u>	Volume: <u>2.43 cubic feet</u>
Outside casing diameter: <u>2.38"</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter: <u>2"</u>	Material: <u>N/A</u>
Casing joint type: <u>Flush Threaded</u>	Placement method: <u>N/A</u>
Casing/screen joint type: <u>Flush Threaded</u>	Volume: <u>N/A</u>
Screen material: <u>PVC</u>	Surface seal design: <u>0'-2' bgs</u>
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel, 4" diameter</u>
Screen length: <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>25.11'</u>	Protective cap: <u>6 inch diameter</u>
Filter Pack: <u>13.11'-25.11' bgs</u>	Material: <u>Plastic</u>
Material: <u>R.W. Sidley</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>#5</u>	Well Cap: <u>2 inch diameter</u>
Volume: <u>4.2 cu/ft</u>	Material: <u>plastic with rubber gasket</u>
Seal (minimum 3 ft length above filter pack): <u>2'-13.11' bgs</u>	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8 inch bentonite chips</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>15.47</u>	Stabilization Time: <u>47 days</u>
Well development method: <u>N/A</u>	
Average depth of frostline: <u>4 feet</u>	

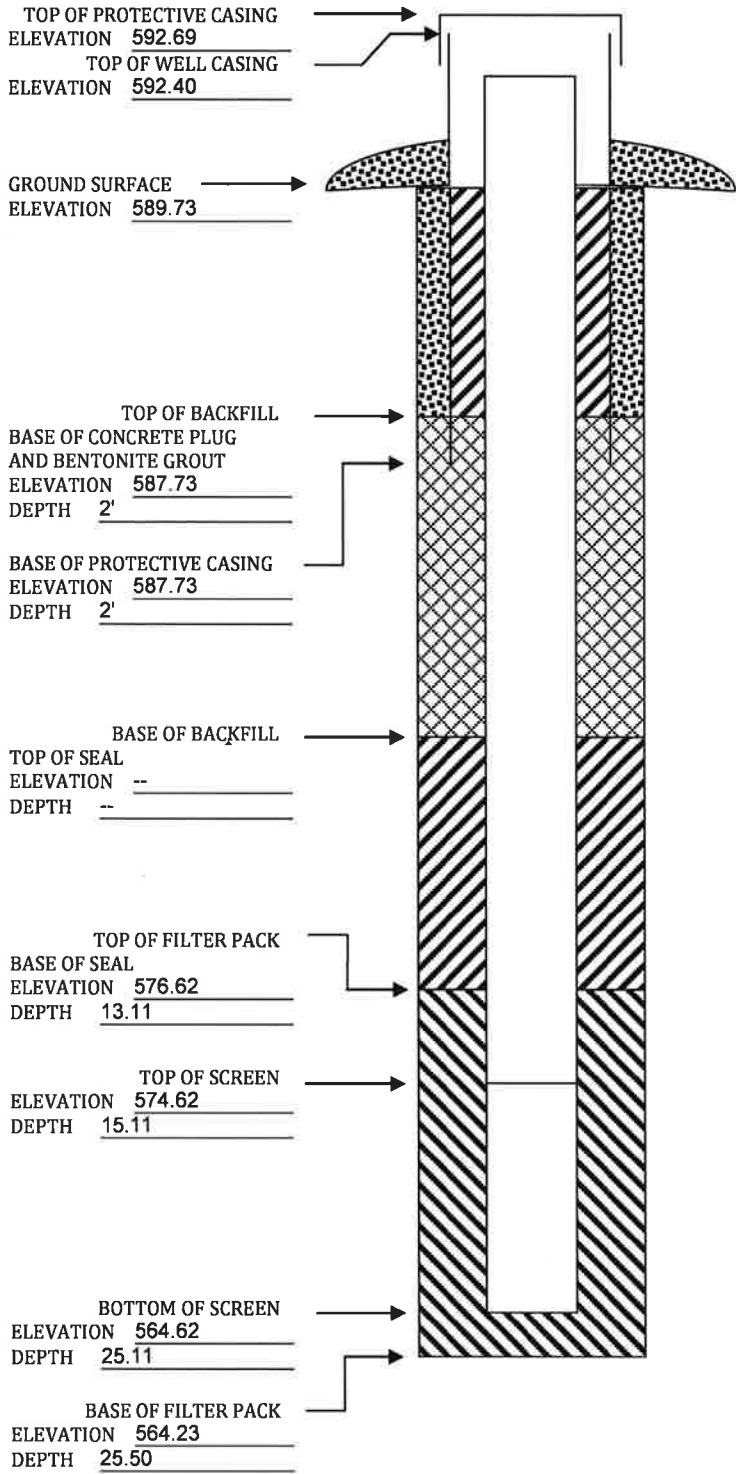
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed for to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E 9th St, Des Moines IA 50319-0034.

Questions? Call or Email: Nina Koger, Environmental Engineer Sr., 515-281-8986, Nina.Koger@dnr.iowa.gov

ELEVATIONS: ± 0.01 ft MSL
DEPTHS: ± 0.1 ft FROM GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
(SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL.)





IOWA DEPARTMENT OF NATURAL RESOURCES
MONITORING WELL/PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name: M.L. Kapp Generating Station - Main Ash Pond Permit No.: _____

Well or Piezometer No: MW-304

Dates Started: 2/7/2018 Date Completed: 2/7/2018

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): <u>676305.68 N, 2529103.87 E</u>	Name & Address of Construction Company: _____
Specify corner of site: <u>SW of parcel 8071930000</u>	<u>Direct Push Analytical</u>
Distance & direction along boundary: <u>152' N</u>	<u>4N969 Old LaFox Road, Unit E</u>
Distance & direction from boundary to wall: <u>1,487' E</u>	<u>St. Charles, IL 60175</u>
Elevations (± 0.01 ft MSL): _____	Name of Driller: <u>Patrick Goetz</u>
Ground Surface: <u>589.42</u>	Drilling Method: <u>4.5" Auger</u>
Top of protective casing: <u>592.35</u>	Drilling Fluid: <u>N/A</u>
Top of well casing: <u>592.12</u>	Bore Hole Diameter: <u>8.5"</u>
Benchmark elevation: <u>590.75</u>	Soil Sampling Method: <u>Geoprobe</u>
Benchmark description: <u>BM-1</u>	Depth of Boring: <u>25.0'</u>
C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: <u>14.54'</u>	Volume: <u>2.0 ft³</u>
Outside casing diameter: <u>2.38"</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter: <u>2"</u>	Material: <u>N/A</u>
Casing joint type: <u>Flush Threaded</u>	Placement method: <u>N/A</u>
Casing/screen joint type: <u>Flush Threaded</u>	Volume: <u>N/A</u>
Screen material: <u>PVC</u>	Surface seal design: <u>0'-2' bgs</u>
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel, 4" diameter</u>
Screen length: <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>24.0'</u>	Protective cap: <u>6 inch diameter</u>
Filter Pack: <u>12.54'-24.54' bgs</u>	Material: <u>Plastic</u>
Material: <u>R.W. Sidley</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>#5</u>	Well Cap: <u>2 inch diameter</u>
Volume: <u>4.2 cu/ft</u>	Material: <u>plastic with rubber gasket</u>
Seal (minimum 3 ft length above filter pack): <u>2'-12.54' bgs</u>	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8 inch bentonite chips</u>	
D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>15.35</u>	Stabilization Time: <u>48 days</u>
Well development method: <u>N/A</u>	
Average depth of frostline: <u>4 feet</u>	

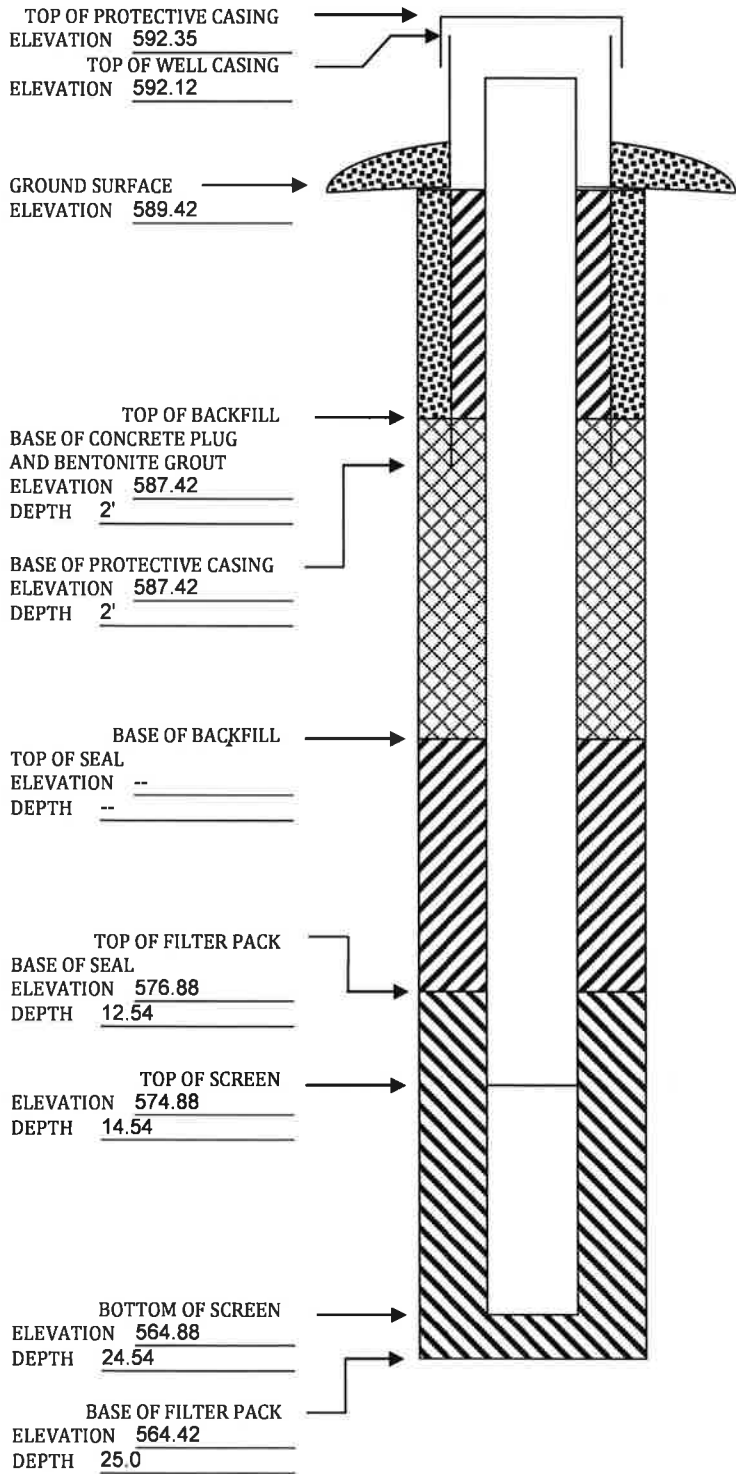
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed for to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E 9th St, Des Moines IA 50319-0034.

Questions? Call or Email: Nina Koger, Environmental Engineer Sr., 515-281-8986, Nina.Koger@dnr.iowa.gov

ELEVATIONS: ± 0.01 ft MSL
DEPTHS: ± 0.1 ft FROM GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
(SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL.)





IOWA DEPARTMENT OF NATURAL RESOURCES
MONITORING WELL/PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name: M.L. Kapp Generating Station - Main Ash Pond Permit No.: _____

Well or Piezometer No: MW-305

Dates Started: 2/7/2018 Date Completed: 2/7/2018

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): <u>676125.82 N, 2528762.6 E</u>	Name & Address of Construction Company: _____
Specify corner of site: <u>SW of parcel 8071930000</u>	<u>Direct Push Analytical</u>
Distance & direction along boundary: <u>137' N</u>	<u>4N969 Old LaFox Road, Unit E</u>
Distance & direction from boundary to wall: <u>1,084' E</u>	<u>St. Charles, IL 60175</u>
Elevations (± 0.01 ft MSL): _____	Name of Driller: <u>Patrick Goetz</u>
Ground Surface: <u>589.39</u>	Drilling Method: <u>4.5" Auger</u>
Top of protective casing: <u>592.86</u>	Drilling Fluid: <u>N/A</u>
Top of well casing: <u>592.60</u>	Bore Hole Diameter: <u>8.25"</u>
Benchmark elevation: <u>590.75</u>	Soil Sampling Method: <u>Geoprobe</u>
Benchmark description: <u>BM-1</u>	Depth of Boring: <u>24.5'</u>

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: <u>17.30</u>	Volume: <u>2.21 ft³</u>
Outside casing diameter: <u>2.38"</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter: <u>2"</u>	Material: <u>N/A</u>
Casing joint type: <u>Flush Threaded</u>	Placement method: <u>N/A</u>
Casing/screen joint type: <u>Flush Threaded</u>	Volume: <u>N/A</u>
Screen material: <u>PVC</u>	Surface seal design: <u>0'-2' bgs</u>
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel, 4" diameter</u>
Screen length: <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>24.09</u>	Protective cap: <u>6 inch diameter</u>
Filter Pack: <u>12.09' -24.09' bgs</u>	Material: <u>Steel</u>
Material: <u>R.W. Sidley</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>#5</u>	Well Cap: <u>2 inch diameter</u>
Volume: <u>4.2 cu/ft</u>	Material: <u>plastic with rubber gasket</u>
Seal (minimum 3 ft length above filter pack): <u>2'-12.09' bgs</u>	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8 inch bentonite chips</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>16.24</u>	Stabilization Time: <u>48 days</u>
Well development method: <u>N/A</u>	
Average depth of frostline: <u>4 feet</u>	

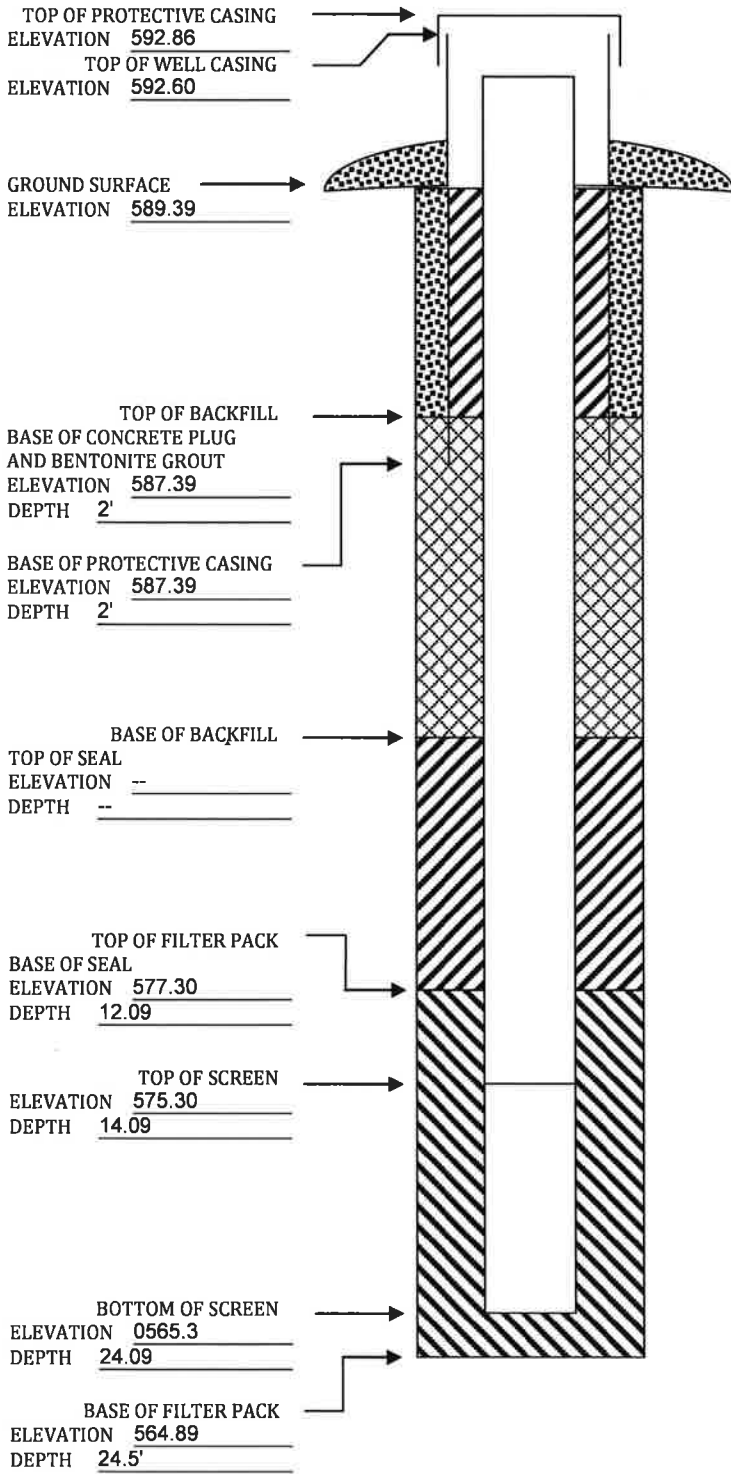
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed for to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E 9th St, Des Moines IA 50319-0034.

Questions? Call or Email: Nina Koger, Environmental Engineer Sr., 515-281-8986, Nina.Koger@dnr.iowa.gov

ELEVATIONS: ± 0.01 ft MSL
DEPTHS: ± 0.1 ft FROM GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
(SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL.)





IOWA DEPARTMENT OF NATURAL RESOURCES
MONITORING WELL/PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name: M.L. Kapp Generating Station - Main Ash Pond Permit No.: _____

Well or Piezometer No: MW-306

Dates Started: 2/7/2018

Date Completed: 2/7/2018

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): <u>675686.88 N, 2527883.15 E</u>	Name & Address of Construction Company: <u>Direct Push Analytical</u>
Specify corner of site: <u>SW of Parcel 8071930000</u>	<u>4N969 Old LaFox Road, Unit E</u>
Distance & direction along boundary: <u>130' N</u>	<u>St. Charles, IL 60175</u>
Distance & direction from boundary to wall: <u>81' E</u>	Name of Driller: <u>Patrick Goetz</u>
Elevations (± 0.01 ft MSL):	Drilling Method: <u>4.5" Auger</u>
Ground Surface: <u>588.14</u>	Drilling Fluid: <u>N/A</u>
Top of protective casing: <u>591.09</u>	Bore Hole Diameter: <u>8.25"</u>
Top of well casing: <u>590.83</u>	Soil Sampling Method: <u>Geoprobe</u>
Benchmark elevation: <u>590.75</u>	Depth of Boring: <u>25.0'</u>
Benchmark description: <u>BM-1</u>	

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: <u>17.20</u>	Volume: <u>2.30 ft3</u>
Outside casing diameter: <u>2.38"</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter: <u>2"</u>	Material: <u>N/A</u>
Casing joint type: <u>Flush Threaded</u>	Placement method: <u>N/A</u>
Casing/screen joint type: <u>Flush Threaded</u>	Volume: <u>N/A</u>
Screen material: <u>PVC</u>	Surface seal design: <u>0'-2'</u>
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel, 4" diameter</u>
Screen length: <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>24.51'</u>	Protective cap: <u>6 inch diameter</u>
Filter Pack: <u>12.51'-24.51' bgs</u>	Material: <u>Steel</u>
Material: <u>Native (slough)</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>R.W. Sidley #5</u>	Well Cap: <u>2 inch diameter</u>
Volume: <u>4.2 cu/ft</u>	Material: <u>plastic with rubber gasket</u>
Seal (minimum 3 ft length above filter pack): <u>2'-12.51' bgs</u>	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8 inch bentonite chips</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>13.26</u>	Stabilization Time: <u>48 days</u>
Well development method: <u>N/A</u>	
Average depth of frostline: <u>4 feet</u>	

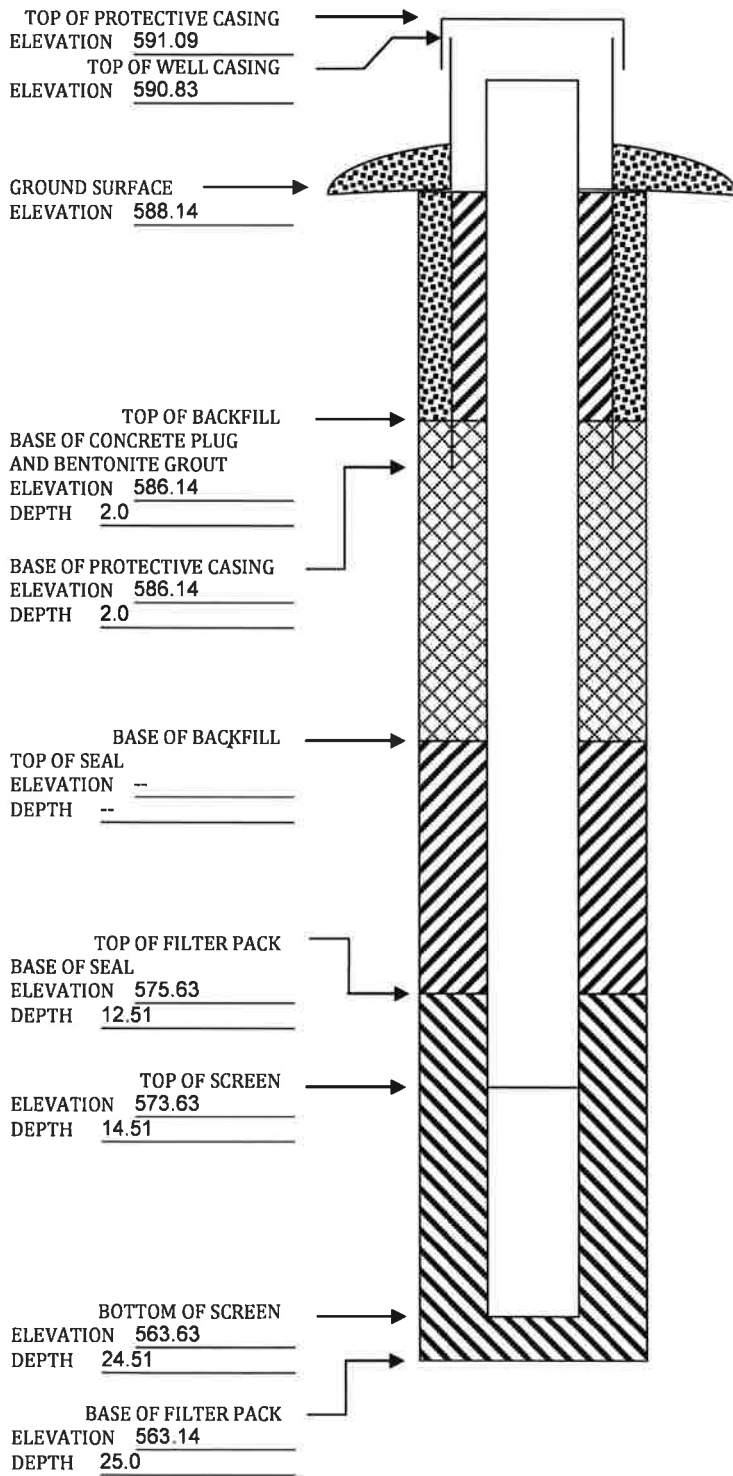
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed for to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E 9th St, Des Moines IA 50319-0034.

Questions? Call or Email: Nina Koger, Environmental Engineer Sr., 515-281-8986, Nina.Koger@dnr.iowa.gov

ELEVATIONS: ± 0.01 ft MSL
DEPTHS: ± 0.1 ft FROM GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
(SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL.)



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name _____ Permit No. _____
Well or Piezometer No. _____ Dates Started _____ Date Completed _____

A. SURVEYED LOCATION AND ELEVATION OF POINT (+0.5 ft.)

Specify corner of site _____ Distance and direction along boundary _____
Distance and direction from boundary to surface monitoring well _____
Elevation (+0.01 ft. MSL) _____
Ground Surface _____ Top of protective casing _____
Top of well casing _____ Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name _____
Address _____ City, State, Zip Code _____
Name of driller _____
Drilling method _____ Drilling fluid _____ Bore Hole diameter _____
Soil sampling method _____ Depth of boring _____

C. MONITORING WELL INSTALLATION

Casing material _____	Placement method _____
Length of casing _____	Volume _____
Outside casing diameter _____	Backfill (if different from seal): _____
Inside casing diameter _____	Material _____
Casing joint type _____	Placement method _____
Casing/screen joint type _____	Volume _____
Screen material _____	Surface seal design: _____
Screen opening size _____	Material of protective casing: _____
Screen length _____	Material of grout between protective casing and well casing: _____
Depth of Well _____	Protective cap: _____
Filter Pack: _____	Material _____
Material _____	Vented?: <input type="checkbox"/> Y <input type="checkbox"/> N
Grain Size _____	Locking?: <input type="checkbox"/> Y <input type="checkbox"/> N
Volume _____	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material _____
Material _____	Vented?: <input type="checkbox"/> Y <input type="checkbox"/> N

D. GROUNDWATER MEASUREMENT (± 0.01 foot below top of inner well casing)

Water level _____ Stabilization time _____
Well development method _____
Average depth of frost line _____

DRILLER'S CERTIFICATION

I certify under penalty of law I believe the information reported above is true, accurate, and complete.

Signature _____ Certification # _____ Date _____

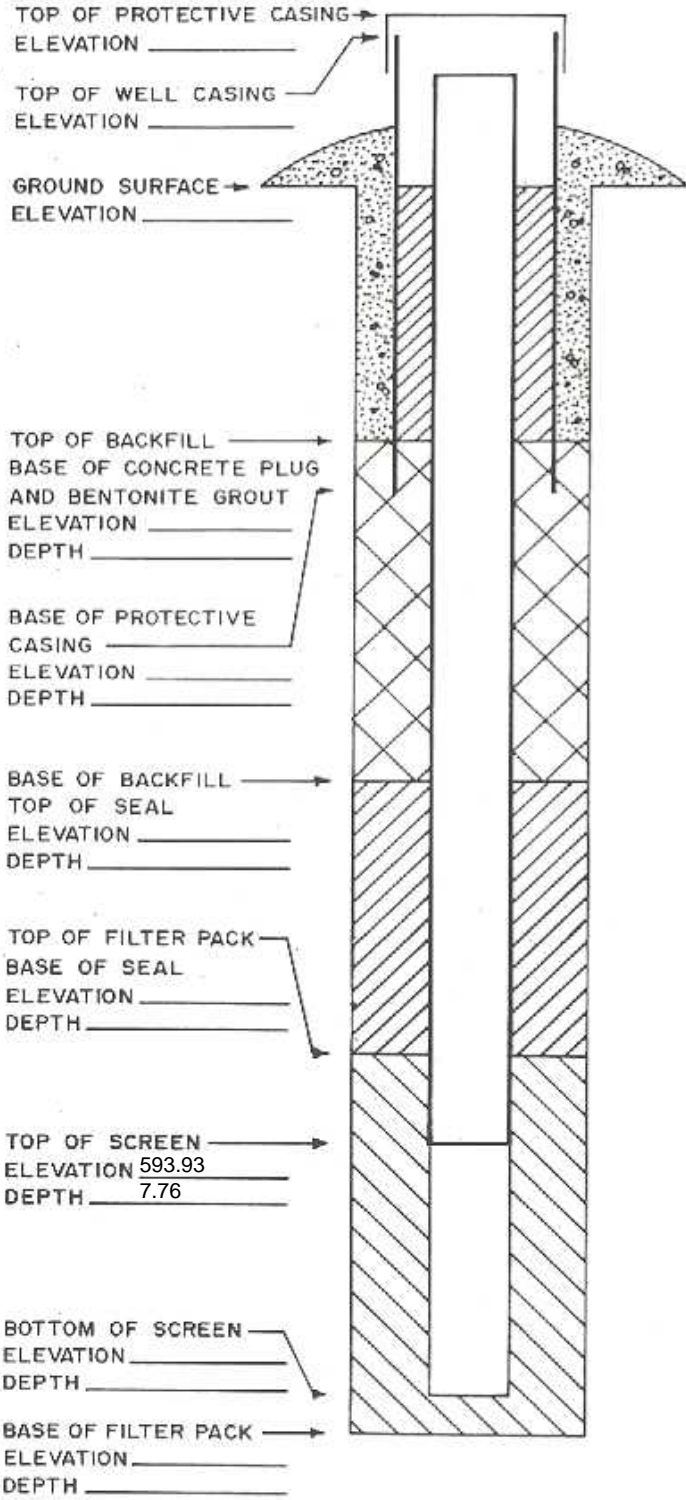
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.


Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.

Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

ELEVATIONS: ± 0.01 FT. MSL
 DEPTHS: ± 0.1 FT. FROM
 GROUND SURFACE

SPACE TO ATTACH ENTIRE SOIL BORING LOG
 (SHOW SCREENED INTERVAL AND FILTER PACK INTERVAL).





Appendix C
Laboratory Reports

C1 February 2020 Assessment Monitoring

ANALYTICAL REPORT

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

Laboratory Job ID: 310-175267-1
Client Project/Site: M.L. Kapp Ash Pond-25219077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
2/18/2020 12:08:49 PM

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

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	9
QC Sample Results	10
QC Association	13
Chronicle	15
Certification Summary	16
Method Summary	17
Chain of Custody	18
Receipt Checklists	22

Case Narrative

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

Job ID: 310-175267-1

Job ID: 310-175267-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-175267-1

Comments

No additional comments.

Receipt

The samples were received on 2/6/2020 6:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° 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.

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Sample Summary

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

Job ID: 310-175267-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-175267-1	MW-305	Water	02/04/20 13:35	02/06/20 18:40	
310-175267-2	MW-306	Water	02/04/20 14:35	02/06/20 18:40	
310-175267-3	Field Blank	Water	02/04/20 23:59	02/06/20 18:40	

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- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 310-175267-1

Client Sample ID: MW-305

Lab Sample ID: 310-175267-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19		10	4.0	mg/L	10		9056A	Total/NA
Sulfate	590		20	14	mg/L	20		9056A	Total/NA
Arsenic	1.4	J	2.0	0.88	ug/L	1		6020A	Total/NA
Barium	90		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	15000		2000	1000	ug/L	10		6020A	Total/NA
Cadmium	0.24		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	160		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.55		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	16		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	680		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1100		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.4	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	14.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.12				mg/L	1		Field Sampling	Total/NA
pH, Field	7.20				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1415				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	10.63				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.72				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-175267-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	75		10	4.0	mg/L	10		9056A	Total/NA
Sulfate	500		10	7.1	mg/L	10		9056A	Total/NA
Barium	53		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	20000		2000	1000	ug/L	10		6020A	Total/NA
Cadmium	0.072	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	120		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.26	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	69		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	100		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1100		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	579.31				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	26.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.87				mg/L	1		Field Sampling	Total/NA
pH, Field	7.50				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1557				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	11.08				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.71				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-175267-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	110	J	200	100	ug/L	1		6020A	Total/NA
pH	7.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175267-1

Client Sample ID: MW-305

Lab Sample ID: 310-175267-1

Date Collected: 02/04/20 13:35

Matrix: Water

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19		10	4.0	mg/L			02/10/20 13:10	10
Sulfate	590		20	14	mg/L			02/11/20 00:42	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4	J	2.0	0.88	ug/L		02/10/20 08:15	02/11/20 18:45	1
Barium	90		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 18:45	1
Boron	15000		2000	1000	ug/L		02/10/20 08:15	02/13/20 15:43	10
Cadmium	0.24		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 18:45	1
Calcium	160		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 18:45	1
Cobalt	0.55		0.50	0.091	ug/L		02/10/20 08:15	02/11/20 18:45	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 18:45	1
Lithium	16		10	2.3	ug/L		02/10/20 08:15	02/11/20 18:45	1
Molybdenum	680		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 18:45	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 18:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	26	mg/L			02/10/20 12:05	1
pH	7.4	HF	0.1	0.1	SU			02/06/20 20:50	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	578.85				ft			02/04/20 13:35	1
Oxidation Reduction Potential	14.0				millivolts			02/04/20 13:35	1
Oxygen, Dissolved, Client Supplied	1.12				mg/L			02/04/20 13:35	1
pH, Field	7.20				SU			02/04/20 13:35	1
Specific Conductance, Field	1415				uS/cm			02/04/20 13:35	1
Temperature, Field	10.63				Degrees C			02/04/20 13:35	1
Turbidity, Field	1.72				NTU			02/04/20 13:35	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175267-1

Client Sample ID: MW-306

Lab Sample ID: 310-175267-2

Date Collected: 02/04/20 14:35

Matrix: Water

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	75		10	4.0	mg/L			02/10/20 13:25	10
Sulfate	500		10	7.1	mg/L			02/10/20 13:25	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 19:03	1
Barium	53		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 19:03	1
Boron	20000		2000	1000	ug/L		02/10/20 08:15	02/13/20 15:53	10
Cadmium	0.072	J	0.10	0.039	ug/L		02/10/20 08:15	02/11/20 19:03	1
Calcium	120		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 19:03	1
Cobalt	0.26	J	0.50	0.091	ug/L		02/10/20 08:15	02/11/20 19:03	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 19:03	1
Lithium	69		10	2.3	ug/L		02/10/20 08:15	02/11/20 19:03	1
Molybdenum	100		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 19:03	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 19:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	26	mg/L			02/10/20 12:05	1
pH	7.7	HF	0.1	0.1	SU			02/06/20 20:51	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	579.31				ft			02/04/20 14:35	1
Oxidation Reduction Potential	26.0				millivolts			02/04/20 14:35	1
Oxygen, Dissolved, Client Supplied	1.87				mg/L			02/04/20 14:35	1
pH, Field	7.50				SU			02/04/20 14:35	1
Specific Conductance, Field	1557				uS/cm			02/04/20 14:35	1
Temperature, Field	11.08				Degrees C			02/04/20 14:35	1
Turbidity, Field	0.71				NTU			02/04/20 14:35	1

Client Sample Results

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

Job ID: 310-175267-1

Client Sample ID: Field Blank

Lab Sample ID: 310-175267-3

Date Collected: 02/04/20 23:59

Matrix: Water

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			02/10/20 13:41	1
Sulfate	<0.71		1.0	0.71	mg/L			02/10/20 13:41	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 19:06	1
Barium	<0.90		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 19:06	1
Boron	110	J	200	100	ug/L		02/10/20 08:15	02/11/20 19:06	1
Cadmium	<0.039		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 19:06	1
Calcium	<0.19		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 19:06	1
Cobalt	<0.091		0.50	0.091	ug/L		02/10/20 08:15	02/11/20 19:06	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 19:06	1
Lithium	<2.3		10	2.3	ug/L		02/10/20 08:15	02/11/20 19:06	1
Molybdenum	<1.1		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 19:06	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 19:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		30	26	mg/L			02/10/20 12:05	1
pH	7.0	HF	0.1	0.1	SU			02/06/20 20:55	1

Definitions/Glossary

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

Job ID: 310-175267-1

Qualifiers

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.
α	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 Ash Pond-25219077

Job ID: 310-175267-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-270329/3
Matrix: Water
Analysis Batch: 270329

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			02/10/20 10:03	1
Sulfate	<0.71		1.0	0.71	mg/L			02/10/20 10:03	1

Lab Sample ID: LCS 310-270329/4
Matrix: Water
Analysis Batch: 270329

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	9.95		mg/L		99	90 - 110
Sulfate	10.0	10.2		mg/L		102	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-269745/1-A
Matrix: Water
Analysis Batch: 270025

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269745

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 18:39	1
Barium	<0.90		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 18:39	1
Boron	<100		200	100	ug/L		02/10/20 08:15	02/11/20 18:39	1
Cadmium	<0.039		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 18:39	1
Calcium	<0.19		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 18:39	1
Cobalt	<0.091		0.50	0.091	ug/L		02/10/20 08:15	02/11/20 18:39	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 18:39	1
Lithium	<2.3		10	2.3	ug/L		02/10/20 08:15	02/11/20 18:39	1
Molybdenum	<1.1		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 18:39	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 18:39	1

Lab Sample ID: LCS 310-269745/2-A
Matrix: Water
Analysis Batch: 270025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	66.6		ug/L		83	80 - 120
Barium	80.0	72.9		ug/L		91	80 - 120
Boron	1760	1580		ug/L		90	80 - 120
Cadmium	40.0	36.6		ug/L		91	80 - 120
Calcium	4.00	3.60		mg/L		90	80 - 120
Cobalt	40.0	37.0		ug/L		92	80 - 120
Lead	40.0	37.6		ug/L		94	80 - 120
Lithium	200	165		ug/L		82	80 - 120
Selenium	80.0	68.1		ug/L		85	80 - 120

Lab Sample ID: LCS 310-269745/2-A
Matrix: Water
Analysis Batch: 270292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	80.0	75.9		ug/L		95	80 - 120

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QC Sample Results

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

Job ID: 310-175267-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: 310-175267-1 MS
Matrix: Water
Analysis Batch: 270025

Client Sample ID: MW-305
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	%Rec.
Arsenic	1.4	J	80.0	73.5		ug/L		90	75 - 125	
Barium	90		80.0	153		ug/L		79	75 - 125	
Cadmium	0.24		40.0	35.2		ug/L		87	75 - 125	
Calcium	160		4.00	152	4	mg/L		-248	75 - 125	
Cobalt	0.55		40.0	36.7		ug/L		90	75 - 125	
Lead	<0.27		40.0	38.1		ug/L		95	75 - 125	
Lithium	16		200	179		ug/L		82	75 - 125	
Molybdenum	680		80.0	699	4	ug/L		27	75 - 125	
Selenium	<1.0		80.0	74.9		ug/L		94	75 - 125	

Lab Sample ID: 310-175267-1 MS
Matrix: Water
Analysis Batch: 270292

Client Sample ID: MW-305
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	%Rec.
Boron	15000		1760	18100	4	ug/L		174	75 - 125	

Lab Sample ID: 310-175267-1 MSD
Matrix: Water
Analysis Batch: 270025

Client Sample ID: MW-305
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	1.4	J	80.0	80.5		ug/L		99	75 - 125	9	20
Barium	90		80.0	167		ug/L		96	75 - 125	8	20
Cadmium	0.24		40.0	38.9		ug/L		97	75 - 125	10	20
Calcium	160		4.00	164	4	mg/L		48	75 - 125	8	20
Cobalt	0.55		40.0	40.0		ug/L		99	75 - 125	9	20
Lead	<0.27		40.0	41.4		ug/L		104	75 - 125	8	20
Lithium	16		200	190		ug/L		87	75 - 125	6	20
Molybdenum	680		80.0	752	4	ug/L		93	75 - 125	7	20
Selenium	<1.0		80.0	81.2		ug/L		102	75 - 125	8	20

Lab Sample ID: 310-175267-1 MSD
Matrix: Water
Analysis Batch: 270292

Client Sample ID: MW-305
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Boron	15000		1760	17000	4	ug/L		109	75 - 125	7	20

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

Lab Sample ID: MB 310-269815/1
Matrix: Water
Analysis Batch: 269815

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	<26		30	26	mg/L			02/10/20 12:05	1

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QC Sample Results

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

Job ID: 310-175267-1

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

Lab Sample ID: LCS 310-269815/2
Matrix: Water
Analysis Batch: 269815

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	970		mg/L		97	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-269584/1
Matrix: Water
Analysis Batch: 269584

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: M.L. Kapp Ash Pond-25219077

Job ID: 310-175267-1

HPLC/IC

Analysis Batch: 270329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	9056A	
310-175267-1	MW-305	Total/NA	Water	9056A	
310-175267-2	MW-306	Total/NA	Water	9056A	
310-175267-3	Field Blank	Total/NA	Water	9056A	
MB 310-270329/3	Method Blank	Total/NA	Water	9056A	
LCS 310-270329/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 269745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	3010A	
310-175267-2	MW-306	Total/NA	Water	3010A	
310-175267-3	Field Blank	Total/NA	Water	3010A	
MB 310-269745/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-175267-1 MS	MW-305	Total/NA	Water	3010A	
310-175267-1 MSD	MW-305	Total/NA	Water	3010A	

Analysis Batch: 270025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	6020A	269745
310-175267-2	MW-306	Total/NA	Water	6020A	269745
310-175267-3	Field Blank	Total/NA	Water	6020A	269745
MB 310-269745/1-A	Method Blank	Total/NA	Water	6020A	269745
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	6020A	269745
310-175267-1 MS	MW-305	Total/NA	Water	6020A	269745
310-175267-1 MSD	MW-305	Total/NA	Water	6020A	269745

Analysis Batch: 270043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-3	Field Blank	Total/NA	Water	6020A	269745
MB 310-269745/1-A	Method Blank	Total/NA	Water	6020A	269745
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	6020A	269745

Analysis Batch: 270292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	6020A	269745
310-175267-2	MW-306	Total/NA	Water	6020A	269745
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	6020A	269745
310-175267-1 MS	MW-305	Total/NA	Water	6020A	269745
310-175267-1 MSD	MW-305	Total/NA	Water	6020A	269745

General Chemistry

Analysis Batch: 269584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	SM 4500 H+ B	
310-175267-2	MW-306	Total/NA	Water	SM 4500 H+ B	
310-175267-3	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-269584/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

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QC Association Summary

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

Job ID: 310-175267-1

General Chemistry

Analysis Batch: 269815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	SM 2540C	
310-175267-2	MW-306	Total/NA	Water	SM 2540C	
310-175267-3	Field Blank	Total/NA	Water	SM 2540C	
MB 310-269815/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-269815/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 270470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	Field Sampling	
310-175267-2	MW-306	Total/NA	Water	Field Sampling	

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

Lab Chronicle

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

Job ID: 310-175267-1

Client Sample ID: MW-305

Lab Sample ID: 310-175267-1

Date Collected: 02/04/20 13:35

Matrix: Water

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	270329	02/10/20 13:10	ACJ	TAL CF
Total/NA	Analysis	9056A		20	270329	02/11/20 00:42	ACJ	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		10	270292	02/13/20 15:43	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 18:45	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:50	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	270470	02/04/20 13:35	EAR	TAL CF

Client Sample ID: MW-306

Lab Sample ID: 310-175267-2

Date Collected: 02/04/20 14:35

Matrix: Water

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	270329	02/10/20 13:25	ACJ	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		10	270292	02/13/20 15:53	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 19:03	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:51	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	270470	02/04/20 14:35	EAR	TAL CF

Client Sample ID: Field Blank

Lab Sample ID: 310-175267-3

Date Collected: 02/04/20 23:59

Matrix: Water

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	270329	02/10/20 13:41	ACJ	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 19:06	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270043	02/11/20 19:06	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:55	JMH	TAL CF

Laboratory References:

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

Eurofins TestAmerica, Cedar Falls

Accreditation/Certification Summary

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

Job ID: 310-175267-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

- 1
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- 3
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- 9
- 10
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- 12
- 13
- 14

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

Job ID: 310-175267-1

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



310-175267 Chain of Custody

Cooler/Sample Receipt and Temperature

Client Information			
Client: <u>JCS Engineers</u>			
City/State:	CITY <u>Clive</u>	STATE <u>IA</u>	Project: <u>ML Kapp Ash Pond</u>
Receipt Information			
Date/Time Received:	DATE <u>2-6-20</u>	TIME <u>1840</u>	Received By: <u>LAB</u>
Delivery Type:	<input type="checkbox"/> UPS	<input type="checkbox"/> FedEx	<input type="checkbox"/> FedEx Ground
	<input checked="" type="checkbox"/> Lab Courier	<input type="checkbox"/> Lab Field Services	<input type="checkbox"/> Client Drop-off
		<input type="checkbox"/> US Mail	<input type="checkbox"/> Spee-Dee
			<input type="checkbox"/> Other: _____
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice	<input type="checkbox"/> Blue ice	<input type="checkbox"/> Dry ice
			<input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE
Thermometer ID:	<u>M</u>		Correction Factor (°C): <u>+0.1</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.3</u>		Corrected Temp (°C): <u>2.4</u>
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container		Preservative	
			pH	Temp	Added (mls)	Lot #
MW-305	310-175267-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-305	310-175267-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-305	310-175267-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-175267-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-306	310-175267-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-175267-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-175267-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
Field Blank	310-175267-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-175267-D-3	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							
	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	x	x	x	x	x	x	x
	Barium	x	x	x	x	x	x	x
	Beryllium							
	Cadmium	x	x	x	x	x	x	x
	Chromium							
	Cobalt	x	x	x	x	x	x	x
	Fluoride							
	Lead	x	x	x	x	x	x	x
	Lithium	x	x	x	x	x	x	x
	Mercury							
	Molybdenum	x	x	x	x	x	x	x
	Selenium	x	x	x	x	x	x	x
	Thallium							
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	

I:\25219077.00\Data and Calculations\Field Work Requests\[IPL_M.L. Kapp_CCR_Rule_Sampling_2002.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-175267-1

Login Number: 175267

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bovy, Lorraine L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 310-175267-2
Client Project/Site: M.L. Kapp Ash Pond-25219077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
3/4/2020 10:59:14 AM
Jim Knapp, Project Manager II
(630)758-0262
jim.knapp@testamericainc.com

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

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www.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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	9
QC Sample Results	10
QC Association	12
Chronicle	13
Certification Summary	14
Method Summary	15
Chain of Custody	16
Receipt Checklists	20
Tracer Carrier Summary	22

Case Narrative

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

Job ID: 310-175267-2

Job ID: 310-175267-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-175267-2

Comments

No additional comments.

Receipt

The samples were received on 2/6/2020 6:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice.

RAD

Methods 903.0, 9315: Radium-226 Prep Batch 160-459800

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-305 (310-175267-1), MW-306 (310-175267-2), Field Blank (310-175267-3), (LCS 160-459800/1-A), (LCSD 160-459800/2-A) and (MB 160-459800/21-A)

Methods 904.0, 9320: Ra-228 Prep Batch 160-459801

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-305 (310-175267-1), MW-306 (310-175267-2), Field Blank (310-175267-3), (LCS 160-459801/1-A), (LCSD 160-459801/2-A) and (MB 160-459801/21-A)

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 Pond-25219077

Job ID: 310-175267-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-175267-1	MW-305	Water	02/04/20 13:35	02/06/20 18:40	
310-175267-2	MW-306	Water	02/04/20 14:35	02/06/20 18:40	
310-175267-3	Field Blank	Water	02/04/20 23:59	02/06/20 18:40	

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Detection Summary

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

Job ID: 310-175267-2

Client Sample ID: MW-305

Lab Sample ID: 310-175267-1

No Detections.

Client Sample ID: MW-306

Lab Sample ID: 310-175267-2

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 310-175267-3

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175267-2

Client Sample ID: MW-305

Lab Sample ID: 310-175267-1

Date Collected: 02/04/20 13:35

Matrix: Water

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.151		0.0767	0.0779	1.00	0.0915	pCi/L	02/10/20 12:07	03/03/20 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110					02/10/20 12:07	03/03/20 11:58	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	0.129	U	0.257	0.258	1.00	0.440	pCi/L	02/10/20 12:27	02/18/20 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110					02/10/20 12:27	02/18/20 17:25	1
Y Carrier	83.7		40 - 110					02/10/20 12:27	02/18/20 17:25	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	0.280	U	0.268	0.270	5.00	0.440	pCi/L		03/04/20 08:50	1

Client Sample Results

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

Job ID: 310-175267-2

Client Sample ID: MW-306

Lab Sample ID: 310-175267-2

Date Collected: 02/04/20 14:35

Matrix: Water

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0680	U	0.0659	0.0662	1.00	0.103	pCi/L	02/10/20 12:07	03/03/20 11:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110					02/10/20 12:07	03/03/20 11:59	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	-0.0785	U	0.289	0.289	1.00	0.520	pCi/L	02/10/20 12:27	02/18/20 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110					02/10/20 12:27	02/18/20 17:25	1
Y Carrier	86.4		40 - 110					02/10/20 12:27	02/18/20 17:25	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	0.0680	U	0.296	0.296	5.00	0.520	pCi/L		03/04/20 08:50	1

Client Sample Results

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

Job ID: 310-175267-2

Client Sample ID: Field Blank

Lab Sample ID: 310-175267-3

Date Collected: 02/04/20 23:59

Matrix: Water

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0208	U	0.0511	0.0511	1.00	0.0932	pCi/L	02/10/20 12:07	03/03/20 11:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					02/10/20 12:07	03/03/20 11:59	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	0.0182	U	0.222	0.222	1.00	0.393	pCi/L	02/10/20 12:27	02/18/20 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					02/10/20 12:27	02/18/20 17:25	1
Y Carrier	86.7		40 - 110					02/10/20 12:27	02/18/20 17:25	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	0.0390	U	0.228	0.228	5.00	0.393	pCi/L		03/04/20 08:50	1

Definitions/Glossary

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

Job ID: 310-175267-2

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)

QC Sample Results

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

Job ID: 310-175267-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-459800/21-A
Matrix: Water
Analysis Batch: 462625

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459800

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.007253	U	0.0361	0.0361	1.00	0.0814	pCi/L	02/10/20 12:07	03/03/20 11:59	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	103		40 - 110					02/10/20 12:07	03/03/20 11:59	1

Lab Sample ID: LCS 160-459800/1-A
Matrix: Water
Analysis Batch: 462625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 459800

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	8.658		0.901	1.00	0.111	pCi/L	76	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	110		40 - 110					02/10/20 12:07	03/03/20 11:59

Lab Sample ID: LCSD 160-459800/2-A
Matrix: Water
Analysis Batch: 462625

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 459800

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	9.170		0.952	1.00	0.0937	pCi/L	81	75 - 125	0.28	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	103		40 - 110					02/10/20 12:27	02/18/20 17:26	1	

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-459801/21-A
Matrix: Water
Analysis Batch: 460917

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459801

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.07100	U	0.183	0.183	1.00	0.346	pCi/L	02/10/20 12:27	02/18/20 17:26	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	103		40 - 110					02/10/20 12:27	02/18/20 17:26	1
Y Carrier	87.9		40 - 110		02/10/20 12:27	02/18/20 17:26	1			

Eurofins TestAmerica, Cedar Falls

QC Sample Results

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

Job ID: 310-175267-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-459801/1-A

Matrix: Water

Analysis Batch: 460918

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 459801

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
									75	125
Radium-228	9.10	7.798		0.934	1.00	0.384	pCi/L	86	75 - 125	
Carrier		LCS %Yield	LCS Qualifier	Limits						
Ba Carrier		110		40 - 110						
Y Carrier		87.1		40 - 110						

Lab Sample ID: LCSD 160-459801/2-A

Matrix: Water

Analysis Batch: 460918

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 459801

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	Limit
									75	125	0.33	1
Radium-228	9.10	8.440		1.01	1.00	0.396	pCi/L	93	75 - 125	0.33	1	
Carrier		LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier		103		40 - 110								
Y Carrier		87.1		40 - 110								

QC Association Summary

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

Job ID: 310-175267-2

Rad

Prep Batch: 459800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	PrecSep-21	
310-175267-2	MW-306	Total/NA	Water	PrecSep-21	
310-175267-3	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-459800/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-459800/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-459800/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 459801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175267-1	MW-305	Total/NA	Water	PrecSep_0	
310-175267-2	MW-306	Total/NA	Water	PrecSep_0	
310-175267-3	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-459801/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-459801/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-459801/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	



Lab Chronicle

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

Job ID: 310-175267-2

Client Sample ID: MW-305

Lab Sample ID: 310-175267-1

Date Collected: 02/04/20 13:35

Matrix: Water

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	903.0		1	462625	03/03/20 11:58	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	904.0		1	460917	02/18/20 17:25	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463040	03/04/20 08:50	SMP	TAL SL

Client Sample ID: MW-306

Lab Sample ID: 310-175267-2

Date Collected: 02/04/20 14:35

Matrix: Water

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	903.0		1	462625	03/03/20 11:59	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	904.0		1	460917	02/18/20 17:25	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463040	03/04/20 08:50	SMP	TAL SL

Client Sample ID: Field Blank

Lab Sample ID: 310-175267-3

Date Collected: 02/04/20 23:59

Matrix: Water

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	903.0		1	462625	03/03/20 11:59	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	904.0		1	460917	02/18/20 17:25	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463040	03/04/20 08:50	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
 Project/Site: M.L. Kapp Ash Pond-25219077

Job ID: 310-175267-2

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	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
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
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
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
Project/Site: M.L. Kapp Ash Pond-25219077

Job ID: 310-175267-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
Pos			
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



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							
	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	x	x	x	x	x	x	x
	Barium	x	x	x	x	x	x	x
	Beryllium							
	Cadmium	x	x	x	x	x	x	x
	Chromium							
	Cobalt	x	x	x	x	x	x	x
	Fluoride							
	Lead	x	x	x	x	x	x	x
	Lithium	x	x	x	x	x	x	x
	Mercury							
	Molybdenum	x	x	x	x	x	x	x
	Selenium	x	x	x	x	x	x	x
	Thallium							
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	

I:\25219077.00\Data and Calculations\Field Work Requests\[IPL_M.L. Kapp_CCR_Rule_Sampling_2002.xls]Sheet1



310-175267 Chain of Custody

Cooler/Sample Receipt and Temperature

Client Information		
Client: <u>JCS Engineers</u>		
City/State: CITY <u>Clive</u> STATE <u>IA</u>	Project: <u>ML Kapp Ash Pond</u>	
Receipt Information		
Date/Time Received: DATE <u>2-6-20</u> TIME <u>1840</u>	Received By: <u>LAB</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>+0.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>2.3</u>	Corrected Temp (°C): <u>2.4</u>	
• Sample Container Temperature		
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		

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Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
MW-305	310-175267-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-305	310-175267-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-305	310-175267-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-175267-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-306	310-175267-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-175267-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-175267-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
Field Blank	310-175267-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-175267-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-175267-2

Login Number: 175267

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bovy, Lorraine L

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	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-175267-2

Login Number: 175267

List Number: 2

Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis

List Creation: 02/08/20 10:20 AM

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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	21.0
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").	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 Pond-25219077

Job ID: 310-175267-2

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)	
310-175267-1	MW-305	90.5	
310-175267-2	MW-306	95.4	
310-175267-3	Field Blank	107	
LCS 160-459800/1-A	Lab Control Sample	110	
LCSD 160-459800/2-A	Lab Control Sample Dup	103	
MB 160-459800/21-A	Method Blank	103	

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)
310-175267-1	MW-305	90.5	83.7
310-175267-2	MW-306	95.4	86.4
310-175267-3	Field Blank	107	86.7
LCS 160-459801/1-A	Lab Control Sample	110	87.1
LCSD 160-459801/2-A	Lab Control Sample Dup	103	87.1
MB 160-459801/21-A	Method Blank	103	87.9

Tracer/Carrier Legend
Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

ANALYTICAL REPORT

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

Laboratory Job ID: 310-175275-1

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:
2/18/2020 12:03:58 PM*

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

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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	7
Definitions	11
QC Sample Results	12
QC Association	14
Chronicle	16
Certification Summary	18
Method Summary	19
Chain of Custody	20
Receipt Checklists	25

Case Narrative

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

Job ID: 310-175275-1

Job ID: 310-175275-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-175275-1

Comments

No additional comments.

Receipt

The samples were received on 2/6/2020 6:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0° C and 2.4° 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.

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Sample Summary

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

Job ID: 310-175275-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-175275-1	MW-301	Wastewater	02/04/20 09:15	02/06/20 18:40	
310-175275-2	MW-302	Wastewater	02/04/20 10:15	02/06/20 18:40	
310-175275-3	MW-303	Wastewater	02/04/20 11:20	02/06/20 18:40	
310-175275-4	MW-304	Wastewater	02/04/20 12:05	02/06/20 18:40	

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Detection Summary

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

Job ID: 310-175275-1

Client Sample ID: MW-301

Lab Sample ID: 310-175275-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	37		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	360		10	7.1	mg/L	10		9056A	Total/NA
Barium	72		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	13000		2000	1000	ug/L	10		6020A	Total/NA
Cadmium	0.11		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	110		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	4.5		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	4.4	J	10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	300		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	790		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	578.07				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-4.2				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.56				mg/L	1		Field Sampling	Total/NA
pH, Field	6.54				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1054				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	10.92				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.15				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302

Lab Sample ID: 310-175275-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	250		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	6.1		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	58		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	5900		800	400	ug/L	4		6020A	Total/NA
Cadmium	0.13		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	64		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.16	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	12		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	280		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	550		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	577.74				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	37.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.49				mg/L	1		Field Sampling	Total/NA
pH, Field	7.79				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	781				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	11.14				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.94				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303

Lab Sample ID: 310-175275-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		10	4.0	mg/L	10		9056A	Total/NA
Sulfate	380		10	7.1	mg/L	10		9056A	Total/NA
Arsenic	4.0		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	48		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	4000		800	400	ug/L	4		6020A	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.46	J	0.50	0.091	ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Detection Summary

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

Job ID: 310-175275-1

Client Sample ID: MW-303 (Continued)

Lab Sample ID: 310-175275-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	26		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	96		2.0	1.1	ug/L	1		6020A	Total/NA
Selenium	2.3	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	760		30	26	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	579.58				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	34.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.73				mg/L	1		Field Sampling	Total/NA
pH, Field	7.26				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1057				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	11.93				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.64				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-175275-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25		10	4.0	mg/L	10		9056A	Total/NA
Sulfate	310		10	7.1	mg/L	10		9056A	Total/NA
Arsenic	3.7		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	78		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	10000		800	400	ug/L	4		6020A	Total/NA
Cadmium	0.31		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	85		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.92		0.50	0.091	ug/L	1		6020A	Total/NA
Molybdenum	950		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	620		30	26	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	578.73				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	36.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.82				mg/L	1		Field Sampling	Total/NA
pH, Field	7.31				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	934				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	12.02				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.94				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175275-1

Client Sample ID: MW-301

Lab Sample ID: 310-175275-1

Date Collected: 02/04/20 09:15

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37		5.0	2.0	mg/L			02/10/20 13:57	5
Sulfate	360		10	7.1	mg/L			02/11/20 00:59	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 19:27	1
Barium	72		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 19:27	1
Boron	13000		2000	1000	ug/L		02/10/20 08:15	02/13/20 15:57	10
Cadmium	0.11		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 19:27	1
Calcium	110		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 19:27	1
Cobalt	4.5		0.50	0.091	ug/L		02/10/20 08:15	02/11/20 19:27	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 19:27	1
Lithium	4.4 J		10	2.3	ug/L		02/10/20 08:15	02/11/20 19:27	1
Molybdenum	300		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 19:27	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 19:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	790		30	26	mg/L			02/10/20 12:05	1
pH	7.0	HF	0.1	0.1	SU			02/06/20 20:44	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	578.07				ft			02/04/20 09:15	1
Oxidation Reduction Potential	-4.2				millivolts			02/04/20 09:15	1
Oxygen, Dissolved, Client Supplied	0.56				mg/L			02/04/20 09:15	1
pH, Field	6.54				SU			02/04/20 09:15	1
Specific Conductance, Field	1054				uS/cm			02/04/20 09:15	1
Temperature, Field	10.92				Degrees C			02/04/20 09:15	1
Turbidity, Field	3.15				NTU			02/04/20 09:15	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175275-1

Client Sample ID: MW-302

Lab Sample ID: 310-175275-2

Date Collected: 02/04/20 10:15

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		5.0	2.0	mg/L			02/10/20 14:12	5
Sulfate	250		5.0	3.6	mg/L			02/10/20 14:12	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.1		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 19:40	1
Barium	58		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 19:40	1
Boron	5900		800	400	ug/L		02/10/20 08:15	02/13/20 16:14	4
Cadmium	0.13		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 19:40	1
Calcium	64		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 19:40	1
Cobalt	0.16	J	0.50	0.091	ug/L		02/10/20 08:15	02/11/20 19:40	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 19:40	1
Lithium	12		10	2.3	ug/L		02/10/20 08:15	02/11/20 19:40	1
Molybdenum	280		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 19:40	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 19:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	550		30	26	mg/L			02/10/20 12:05	1
pH	7.8	HF	0.1	0.1	SU			02/06/20 20:45	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	577.74				ft			02/04/20 10:15	1
Oxidation Reduction Potential	37.7				millivolts			02/04/20 10:15	1
Oxygen, Dissolved, Client Supplied	1.49				mg/L			02/04/20 10:15	1
pH, Field	7.79				SU			02/04/20 10:15	1
Specific Conductance, Field	781				uS/cm			02/04/20 10:15	1
Temperature, Field	11.14				Degrees C			02/04/20 10:15	1
Turbidity, Field	1.94				NTU			02/04/20 10:15	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175275-1

Client Sample ID: MW-303

Lab Sample ID: 310-175275-3

Date Collected: 02/04/20 11:20

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		10	4.0	mg/L			02/10/20 14:28	10
Sulfate	380		10	7.1	mg/L			02/10/20 14:28	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 19:43	1
Barium	48		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 19:43	1
Boron	4000		800	400	ug/L		02/10/20 08:15	02/13/20 16:17	4
Cadmium	<0.039		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 19:43	1
Calcium	130		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 19:43	1
Cobalt	0.46	J	0.50	0.091	ug/L		02/10/20 08:15	02/11/20 19:43	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 19:43	1
Lithium	26		10	2.3	ug/L		02/10/20 08:15	02/11/20 19:43	1
Molybdenum	96		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 19:43	1
Selenium	2.3	J	5.0	1.0	ug/L		02/10/20 08:15	02/11/20 19:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	760		30	26	mg/L			02/10/20 12:05	1
pH	7.6	HF	0.1	0.1	SU			02/06/20 20:48	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	579.58				ft			02/04/20 11:20	1
Oxidation Reduction Potential	34.0				millivolts			02/04/20 11:20	1
Oxygen, Dissolved, Client Supplied	1.73				mg/L			02/04/20 11:20	1
pH, Field	7.26				SU			02/04/20 11:20	1
Specific Conductance, Field	1057				uS/cm			02/04/20 11:20	1
Temperature, Field	11.93				Degrees C			02/04/20 11:20	1
Turbidity, Field	1.64				NTU			02/04/20 11:20	1

Client Sample Results

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

Job ID: 310-175275-1

Client Sample ID: MW-304

Lab Sample ID: 310-175275-4

Date Collected: 02/04/20 12:05

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25		10	4.0	mg/L			02/10/20 14:43	10
Sulfate	310		10	7.1	mg/L			02/10/20 14:43	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.7		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 19:46	1
Barium	78		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 19:46	1
Boron	10000		800	400	ug/L		02/10/20 08:15	02/13/20 16:21	4
Cadmium	0.31		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 19:46	1
Calcium	85		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 19:46	1
Cobalt	0.92		0.50	0.091	ug/L		02/10/20 08:15	02/11/20 19:46	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 19:46	1
Lithium	<2.3		10	2.3	ug/L		02/10/20 08:15	02/11/20 19:46	1
Molybdenum	950		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 19:46	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 19:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	620		30	26	mg/L			02/10/20 12:05	1
pH	7.3	HF	0.1	0.1	SU			02/06/20 20:49	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	578.73				ft			02/04/20 12:05	1
Oxidation Reduction Potential	36.3				millivolts			02/04/20 12:05	1
Oxygen, Dissolved, Client Supplied	0.82				mg/L			02/04/20 12:05	1
pH, Field	7.31				SU			02/04/20 12:05	1
Specific Conductance, Field	934				uS/cm			02/04/20 12:05	1
Temperature, Field	12.02				Degrees C			02/04/20 12:05	1
Turbidity, Field	2.94				NTU			02/04/20 12:05	1

Definitions/Glossary

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

Job ID: 310-175275-1

Qualifiers

Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
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.
α	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 Ash Ponds - 25219077

Job ID: 310-175275-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-270329/3
Matrix: Water
Analysis Batch: 270329

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			02/10/20 10:03	1
Sulfate	<0.71		1.0	0.71	mg/L			02/10/20 10:03	1

Lab Sample ID: LCS 310-270329/4
Matrix: Water
Analysis Batch: 270329

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	9.95		mg/L		99	90 - 110
Sulfate	10.0	10.2		mg/L		102	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-269745/1-A
Matrix: Water
Analysis Batch: 270025

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269745

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		02/10/20 08:15	02/11/20 18:39	1
Barium	<0.90		2.0	0.90	ug/L		02/10/20 08:15	02/11/20 18:39	1
Boron	<100		200	100	ug/L		02/10/20 08:15	02/11/20 18:39	1
Cadmium	<0.039		0.10	0.039	ug/L		02/10/20 08:15	02/11/20 18:39	1
Calcium	<0.19		0.50	0.19	mg/L		02/10/20 08:15	02/11/20 18:39	1
Cobalt	<0.091		0.50	0.091	ug/L		02/10/20 08:15	02/11/20 18:39	1
Lead	<0.27		0.50	0.27	ug/L		02/10/20 08:15	02/11/20 18:39	1
Lithium	<2.3		10	2.3	ug/L		02/10/20 08:15	02/11/20 18:39	1
Molybdenum	<1.1		2.0	1.1	ug/L		02/10/20 08:15	02/11/20 18:39	1
Selenium	<1.0		5.0	1.0	ug/L		02/10/20 08:15	02/11/20 18:39	1

Lab Sample ID: LCS 310-269745/2-A
Matrix: Water
Analysis Batch: 270025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	66.6		ug/L		83	80 - 120
Barium	80.0	72.9		ug/L		91	80 - 120
Boron	1760	1580		ug/L		90	80 - 120
Cadmium	40.0	36.6		ug/L		91	80 - 120
Calcium	4.00	3.60		mg/L		90	80 - 120
Cobalt	40.0	37.0		ug/L		92	80 - 120
Lead	40.0	37.6		ug/L		94	80 - 120
Lithium	200	165		ug/L		82	80 - 120
Selenium	80.0	68.1		ug/L		85	80 - 120

Lab Sample ID: LCS 310-269745/2-A
Matrix: Water
Analysis Batch: 270292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	80.0	75.9		ug/L		95	80 - 120

Eurofins TestAmerica, Cedar Falls

QC Sample Results

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

Job ID: 310-175275-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: 310-175275-1 DU
Matrix: Wastewater
Analysis Batch: 270025

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Arsenic	<0.88		<0.88		ug/L		NC	20
Barium	72		78.1		ug/L		8	20
Cadmium	0.11		0.167	F5	ug/L		39	20
Calcium	110		120		mg/L		10	20
Cobalt	4.5		4.93		ug/L		9	20
Lead	<0.27		<0.27		ug/L		NC	20
Lithium	4.4	J	5.10	J	ug/L		14	20
Molybdenum	300		327		ug/L		8	20
Selenium	<1.0		<1.0		ug/L		NC	20

Lab Sample ID: 310-175275-1 DU
Matrix: Wastewater
Analysis Batch: 270292

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 269745

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Boron	13000		13200		ug/L		0.4	20

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

Lab Sample ID: MB 310-269815/1
Matrix: Water
Analysis Batch: 269815

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<26		30	26	mg/L			02/10/20 12:05	1

Lab Sample ID: LCS 310-269815/2
Matrix: Water
Analysis Batch: 269815

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-269584/1
Matrix: Water
Analysis Batch: 269584

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

QC Association Summary

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

Job ID: 310-175275-1

HPLC/IC

Analysis Batch: 270329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	9056A	
310-175275-1	MW-301	Total/NA	Wastewater	9056A	
310-175275-2	MW-302	Total/NA	Wastewater	9056A	
310-175275-3	MW-303	Total/NA	Wastewater	9056A	
310-175275-4	MW-304	Total/NA	Wastewater	9056A	
MB 310-270329/3	Method Blank	Total/NA	Water	9056A	
LCS 310-270329/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 269745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	3010A	
310-175275-2	MW-302	Total/NA	Wastewater	3010A	
310-175275-3	MW-303	Total/NA	Wastewater	3010A	
310-175275-4	MW-304	Total/NA	Wastewater	3010A	
MB 310-269745/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-175275-1 DU	MW-301	Total/NA	Wastewater	3010A	

Analysis Batch: 270025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	6020A	269745
310-175275-2	MW-302	Total/NA	Wastewater	6020A	269745
310-175275-3	MW-303	Total/NA	Wastewater	6020A	269745
310-175275-4	MW-304	Total/NA	Wastewater	6020A	269745
MB 310-269745/1-A	Method Blank	Total/NA	Water	6020A	269745
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	6020A	269745
310-175275-1 DU	MW-301	Total/NA	Wastewater	6020A	269745

Analysis Batch: 270043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-269745/1-A	Method Blank	Total/NA	Water	6020A	269745
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	6020A	269745

Analysis Batch: 270292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	6020A	269745
310-175275-2	MW-302	Total/NA	Wastewater	6020A	269745
310-175275-3	MW-303	Total/NA	Wastewater	6020A	269745
310-175275-4	MW-304	Total/NA	Wastewater	6020A	269745
LCS 310-269745/2-A	Lab Control Sample	Total/NA	Water	6020A	269745
310-175275-1 DU	MW-301	Total/NA	Wastewater	6020A	269745

General Chemistry

Analysis Batch: 269584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	SM 4500 H+ B	
310-175275-2	MW-302	Total/NA	Wastewater	SM 4500 H+ B	
310-175275-3	MW-303	Total/NA	Wastewater	SM 4500 H+ B	
310-175275-4	MW-304	Total/NA	Wastewater	SM 4500 H+ B	

Eurofins TestAmerica, Cedar Falls

QC Association Summary

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

Job ID: 310-175275-1

General Chemistry (Continued)

Analysis Batch: 269584 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-269584/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 269815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	SM 2540C	
310-175275-2	MW-302	Total/NA	Wastewater	SM 2540C	
310-175275-3	MW-303	Total/NA	Wastewater	SM 2540C	
310-175275-4	MW-304	Total/NA	Wastewater	SM 2540C	
MB 310-269815/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-269815/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 270470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	Field Sampling	
310-175275-2	MW-302	Total/NA	Wastewater	Field Sampling	
310-175275-3	MW-303	Total/NA	Wastewater	Field Sampling	
310-175275-4	MW-304	Total/NA	Wastewater	Field Sampling	

Lab Chronicle

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

Job ID: 310-175275-1

Client Sample ID: MW-301

Date Collected: 02/04/20 09:15

Date Received: 02/06/20 18:40

Lab Sample ID: 310-175275-1

Matrix: Wastewater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	270329	02/10/20 13:57	ACJ	TAL CF
Total/NA	Analysis	9056A		10	270329	02/11/20 00:59	ACJ	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		10	270292	02/13/20 15:57	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 19:27	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:44	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	270470	02/04/20 09:15	EAR	TAL CF

Client Sample ID: MW-302

Date Collected: 02/04/20 10:15

Date Received: 02/06/20 18:40

Lab Sample ID: 310-175275-2

Matrix: Wastewater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	270329	02/10/20 14:12	ACJ	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		4	270292	02/13/20 16:14	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 19:40	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:45	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	270470	02/04/20 10:15	EAR	TAL CF

Client Sample ID: MW-303

Date Collected: 02/04/20 11:20

Date Received: 02/06/20 18:40

Lab Sample ID: 310-175275-3

Matrix: Wastewater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	270329	02/10/20 14:28	ACJ	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		4	270292	02/13/20 16:17	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 19:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:48	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	270470	02/04/20 11:20	EAR	TAL CF

Client Sample ID: MW-304

Date Collected: 02/04/20 12:05

Date Received: 02/06/20 18:40

Lab Sample ID: 310-175275-4

Matrix: Wastewater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	270329	02/10/20 14:43	ACJ	TAL CF

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

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

Job ID: 310-175275-1

Client Sample ID: MW-304

Date Collected: 02/04/20 12:05

Date Received: 02/06/20 18:40

Lab Sample ID: 310-175275-4

Matrix: Wastewater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		4	270292	02/13/20 16:21	SAD	TAL CF
Total/NA	Prep	3010A			269745	02/10/20 08:15	HED	TAL CF
Total/NA	Analysis	6020A		1	270025	02/11/20 19:46	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	269815	02/10/20 12:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	269584	02/06/20 20:49	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	270470	02/04/20 12:05	EAR	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 Ash Ponds - 25219077

Job ID: 310-175275-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

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

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

Job ID: 310-175275-1

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



310-175275 Chain of Custody

Cooler/Sample Receipt and Temperature Log form

Client Information			
Client: <u>S&S Engineers</u>			
City/State:	<u>MN</u>	STATE	Project: <u>ML Kapp Ash Ponds</u>
City: <u>Minneapolis</u>			
Receipt Information			
Date/Time Received:	DATE <u>2-6-20</u>	TIME <u>1840</u>	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<u>2/20</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>M</u>		Correction Factor (°C): <u>+0.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.9</u>		Corrected Temp (°C): <u>2.0</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

1
2
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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>JCS Engineers</u>			
City/State:	CITY <u>Clive</u>	STATE <u>IA</u>	Project: <u>ML Kapp Ash Ponds</u>
Receipt Information			
Date/Time Received:	DATE <u>2-6-20</u>	TIME <u>1840</u>	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<u>2/2/20</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>M</u>	Correction Factor (°C): <u>+0.1</u>	
Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.3</u>	Corrected Temp (°C): <u>2.4</u>	
Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
MW-301	310-175275-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-301	310-175275-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-301	310-175275-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-175275-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-302	310-175275-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-175275-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-175275-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-303	310-175275-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-175275-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-175275-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-304	310-175275-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-175275-D-4	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							
	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	x	x	x	x	x	x	x
	Barium	x	x	x	x	x	x	x
	Beryllium							
	Cadmium	x	x	x	x	x	x	x
	Chromium							
	Cobalt	x	x	x	x	x	x	x
	Fluoride							
	Lead	x	x	x	x	x	x	x
	Lithium	x	x	x	x	x	x	x
	Mercury							
	Molybdenum	x	x	x	x	x	x	x
	Selenium	x	x	x	x	x	x	x
	Thallium							
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	

I:\25219077.00\Data and Calculations\Field Work Requests\[IPL_M.L. Kapp_CCR_Rule_Sampling_2002.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-175275-1

Login Number: 175275

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bindert, Lindsay A

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 310-175275-2
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:
3/4/2020 11:36:00 AM
Jim Knapp, Project Manager II
(630)758-0262
jim.knapp@testamericainc.com

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

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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	10
QC Sample Results	11
QC Association	13
Chronicle	14
Certification Summary	15
Method Summary	16
Chain of Custody	17
Receipt Checklists	21
Tracer Carrier Summary	23

Case Narrative

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

Job ID: 310-175275-2

Job ID: 310-175275-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-175275-2

Comments

No additional comments.

Receipt

The samples were received on 2/6/2020 6:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice.

RAD

Methods 903.0, 9315: Ra-226 Prep Batch 160-459790

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 (310-175275-1), MW-302 (310-175275-2), MW-303 (310-175275-3), MW-304 (310-175275-4), (LCS 160-459790/1-A), (LCSD 160-459790/2-A) and (MB 160-459790/23-A)

Methods 904.0, 9320: Ra-228 Prep Batch 160-459791

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 (310-175275-1), MW-302 (310-175275-2), MW-303 (310-175275-3), MW-304 (310-175275-4), (LCS 160-459791/1-A), (LCSD 160-459791/2-A) and (MB 160-459791/23-A)

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: 310-175275-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-175275-1	MW-301	Wastewater	02/04/20 09:15	02/06/20 18:40	
310-175275-2	MW-302	Wastewater	02/04/20 10:15	02/06/20 18:40	
310-175275-3	MW-303	Wastewater	02/04/20 11:20	02/06/20 18:40	
310-175275-4	MW-304	Wastewater	02/04/20 12:05	02/06/20 18:40	

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Detection Summary

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

Job ID: 310-175275-2

Client Sample ID: MW-301

Lab Sample ID: 310-175275-1

No Detections.

Client Sample ID: MW-302

Lab Sample ID: 310-175275-2

No Detections.

Client Sample ID: MW-303

Lab Sample ID: 310-175275-3

No Detections.

Client Sample ID: MW-304

Lab Sample ID: 310-175275-4

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

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

Job ID: 310-175275-2

Client Sample ID: MW-301

Lab Sample ID: 310-175275-1

Date Collected: 02/04/20 09:15

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.187		0.0854	0.0871	1.00	0.0906	pCi/L	02/10/20 10:38	03/03/20 11:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.8		40 - 110					02/10/20 10:38	03/03/20 11:20	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	0.226	U	0.258	0.258	1.00	0.423	pCi/L	02/10/20 11:00	02/25/20 17:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.8		40 - 110					02/10/20 11:00	02/25/20 17:36	1
Y Carrier	88.6		40 - 110					02/10/20 11:00	02/25/20 17:36	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	0.413	U	0.272	0.272	5.00	0.423	pCi/L		03/04/20 10:45	1

Client Sample Results

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

Job ID: 310-175275-2

Client Sample ID: MW-302

Lab Sample ID: 310-175275-2

Date Collected: 02/04/20 10:15

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.115		0.0700	0.0707	1.00	0.0863	pCi/L	02/10/20 10:38	03/03/20 11:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.8		40 - 110					02/10/20 10:38	03/03/20 11:20	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	0.00694	U	0.253	0.253	1.00	0.450	pCi/L	02/10/20 11:00	02/25/20 17:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.8		40 - 110					02/10/20 11:00	02/25/20 17:37	1
Y Carrier	87.1		40 - 110					02/10/20 11:00	02/25/20 17:37	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	0.122	U	0.263	0.263	5.00	0.450	pCi/L		03/04/20 10:45	1

Client Sample Results

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

Job ID: 310-175275-2

Client Sample ID: MW-303

Lab Sample ID: 310-175275-3

Date Collected: 02/04/20 11:20

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.123		0.0715	0.0723	1.00	0.0852	pCi/L	02/10/20 10:38	03/03/20 11:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110					02/10/20 10:38	03/03/20 11:20	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	0.286	U	0.286	0.287	1.00	0.465	pCi/L	02/10/20 11:00	02/25/20 17:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110					02/10/20 11:00	02/25/20 17:37	1
Y Carrier	81.9		40 - 110					02/10/20 11:00	02/25/20 17:37	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	0.409	U	0.295	0.296	5.00	0.465	pCi/L		03/04/20 10:45	1

Client Sample Results

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

Job ID: 310-175275-2

Client Sample ID: MW-304

Lab Sample ID: 310-175275-4

Date Collected: 02/04/20 12:05

Matrix: Wastewater

Date Received: 02/06/20 18:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.189		0.0885	0.0901	1.00	0.0980	pCi/L	02/10/20 10:38	03/03/20 11:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.5		40 - 110					02/10/20 10:38	03/03/20 11:20	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	0.434	U	0.287	0.290	1.00	0.446	pCi/L	02/10/20 11:00	02/25/20 17:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.5		40 - 110					02/10/20 11:00	02/25/20 17:37	1
Y Carrier	86.7		40 - 110					02/10/20 11:00	02/25/20 17:37	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	0.622		0.300	0.304	5.00	0.446	pCi/L		03/04/20 10:45	1

Definitions/Glossary

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

Job ID: 310-175275-2

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)

QC Sample Results

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

Job ID: 310-175275-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-459790/23-A
Matrix: Water
Analysis Batch: 462630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459790

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.01193	U	0.0438	0.0438	1.00	0.0864	pCi/L	02/10/20 10:38	03/03/20 13:07	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	104		40 - 110		02/10/20 10:38	03/03/20 13:07	1			

Lab Sample ID: LCS 160-459790/1-A
Matrix: Water
Analysis Batch: 462630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 459790

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	9.766		1.03	1.00	0.0863	pCi/L	86	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	98.8		40 - 110						

Lab Sample ID: LCSD 160-459790/2-A
Matrix: Water
Analysis Batch: 462630

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 459790

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	9.634		1.02	1.00	0.135	pCi/L	85	75 - 125	0.06	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	102		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-459791/23-A
Matrix: Water
Analysis Batch: 461694

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459791

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.1138	U	0.204	0.204	1.00	0.347	pCi/L	02/10/20 11:00	02/25/20 17:42	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	104		40 - 110		02/10/20 11:00	02/25/20 17:42	1			
Y Carrier	90.5		40 - 110		02/10/20 11:00	02/25/20 17:42	1			

Eurofins TestAmerica, Cedar Falls

QC Sample Results

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

Job ID: 310-175275-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-459791/1-A

Matrix: Water

Analysis Batch: 461720

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 459791

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
									75	125	
Radium-228	9.08	8.884		1.05	1.00	0.425	pCi/L	98	75	125	
Carrier	%Yield	LCS Qualifier	Limits								
Ba Carrier	98.8		40 - 110								
Y Carrier	88.2		40 - 110								

Lab Sample ID: LCSD 160-459791/2-A

Matrix: Water

Analysis Batch: 461720

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 459791

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	Limit
									75	125	0.25	1
Radium-228	9.08	8.363		0.994	1.00	0.396	pCi/L	92	75	125	0.25	1
Carrier	%Yield	LCSD Qualifier	Limits									
Ba Carrier	102		40 - 110									
Y Carrier	88.2		40 - 110									

QC Association Summary

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

Job ID: 310-175275-2

Rad

Prep Batch: 459790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	PrecSep-21	
310-175275-2	MW-302	Total/NA	Wastewater	PrecSep-21	
310-175275-3	MW-303	Total/NA	Wastewater	PrecSep-21	
310-175275-4	MW-304	Total/NA	Wastewater	PrecSep-21	
MB 160-459790/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-459790/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-459790/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 459791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-175275-1	MW-301	Total/NA	Wastewater	PrecSep_0	
310-175275-2	MW-302	Total/NA	Wastewater	PrecSep_0	
310-175275-3	MW-303	Total/NA	Wastewater	PrecSep_0	
310-175275-4	MW-304	Total/NA	Wastewater	PrecSep_0	
MB 160-459791/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-459791/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-459791/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 310-175275-2

Client Sample ID: MW-301

Lab Sample ID: 310-175275-1

Date Collected: 02/04/20 09:15

Matrix: Wastewater

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459790	02/10/20 10:38	MNH	TAL SL
Total/NA	Analysis	903.0		1	462630	03/03/20 11:20	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459791	02/10/20 11:00	MNH	TAL SL
Total/NA	Analysis	904.0		1	461720	02/25/20 17:36	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463071	03/04/20 10:45	SMP	TAL SL

Client Sample ID: MW-302

Lab Sample ID: 310-175275-2

Date Collected: 02/04/20 10:15

Matrix: Wastewater

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459790	02/10/20 10:38	MNH	TAL SL
Total/NA	Analysis	903.0		1	462630	03/03/20 11:20	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459791	02/10/20 11:00	MNH	TAL SL
Total/NA	Analysis	904.0		1	461720	02/25/20 17:37	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463071	03/04/20 10:45	SMP	TAL SL

Client Sample ID: MW-303

Lab Sample ID: 310-175275-3

Date Collected: 02/04/20 11:20

Matrix: Wastewater

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459790	02/10/20 10:38	MNH	TAL SL
Total/NA	Analysis	903.0		1	462630	03/03/20 11:20	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459791	02/10/20 11:00	MNH	TAL SL
Total/NA	Analysis	904.0		1	461720	02/25/20 17:37	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463071	03/04/20 10:45	SMP	TAL SL

Client Sample ID: MW-304

Lab Sample ID: 310-175275-4

Date Collected: 02/04/20 12:05

Matrix: Wastewater

Date Received: 02/06/20 18:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			459790	02/10/20 10:38	MNH	TAL SL
Total/NA	Analysis	903.0		1	462630	03/03/20 11:20	AJD	TAL SL
Total/NA	Prep	PrecSep_0			459791	02/10/20 11:00	MNH	TAL SL
Total/NA	Analysis	904.0		1	461720	02/25/20 17:37	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	463071	03/04/20 10:45	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
 Project/Site: M.L.Kapp Ash Ponds - 25219077

Job ID: 310-175275-2

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	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
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
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
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
Project/Site: M.L.Kapp Ash Ponds - 25219077

Job ID: 310-175275-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
Pos			
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



310-175275 Chain of Custody

Cooler/Sample Receipt and Temperature Log form

Client Information			
Client: <u>S&S Engineers</u>			
City/State:	<u>MN</u>	STATE	Project: <u>ML Kapp Ash Ponds</u>
City: <u>Minneapolis</u>			
Receipt Information			
Date/Time Received:	DATE <u>2-6-20</u>	TIME <u>1840</u>	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<u>2/20</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>M</u>		Correction Factor (°C): <u>+0.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.9</u>		Corrected Temp (°C): <u>2.0</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>JCS Engineers</u>			
City/State:	CITY <u>Clive</u>	STATE <u>IA</u>	Project: <u>ML Kapp Ash Ponds</u>
Receipt Information			
Date/Time Received:	DATE <u>2-6-20</u>	TIME <u>1840</u>	Received By: <u>LAB</u>
Delivery Type:	<input type="checkbox"/> UPS	<input type="checkbox"/> FedEx	<input type="checkbox"/> FedEx Ground
	<input checked="" type="checkbox"/> Lab Courier	<input type="checkbox"/> Lab Field Services	<input type="checkbox"/> Client Drop-off
		<input type="checkbox"/> US Mail	<input type="checkbox"/> Spee-Dee
			<input type="checkbox"/> Other: _____
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<u>2/2/20</u> <input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice	<input type="checkbox"/> Blue ice	<input type="checkbox"/> Dry ice
			<input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE
Thermometer ID:	<u>M</u>	Correction Factor (°C):	<u>+0.1</u>
Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.3</u>	Corrected Temp (°C):	<u>2.4</u>
Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record



TestAmerica Des Moines SC
214

Client Information		Sampler: <i>Louise Jennings</i>		Lab PM: <i>214</i>		Carrier Tracking No(s):		COC No: 310-47097-14479.1		
Client Contact: Louise Jennings		Phone: <i>608-509-8245</i>		Fredrick, Sandie		E-Mail: sandie.fredrick@testamericainc.com		Page: Page 1 of 1		
Company: SCS Engineers		Address: 8450 Hickman Road Suite 20		City: Clive		State, Zip: IA, 50325		Due Date Requested:		
Phone: <i>515-252-1907</i>		Email: <i>ljennings@scsengineers.com</i>		Project Name: <i>M.L. Kapp Ash Ponds - 25219077</i>		Site:		TAT Requested (days):		
Project #: <i>31011020</i>		SSOW#:		PO #: <i>25219077</i>		WO #:		Analysis Requested		
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_ORGFML_28D, SMI4500_H+		
								Total Number of containers		
								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 - Acetonie		
								J - DI Water V - MCAA		
								K - EDTA W - pH 4-5		
								L - EDA Z - other (specify)		
								Other:		
								Special Instructions/Note:		
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: <i>L Jennings</i>		Date/Time: <i>3/5/20</i>		Company: <i>SCS</i>		Received by: <i>Kinchrey Bundert</i>		Date/Time: <i>2-6-20 (1840)</i>		Company:
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:						

07/01/2021 - Classified Page 19 of 23 Internal - ECRM12620958

3/4/2020



Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
MW-301	310-175275-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-301	310-175275-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-301	310-175275-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-175275-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-302	310-175275-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-175275-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-175275-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-303	310-175275-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-175275-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-175275-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-304	310-175275-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-175275-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-175275-2

Login Number: 175275

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bindert, Lindsay A

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	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-175275-2

Login Number: 175275

List Number: 2

Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis

List Creation: 02/08/20 10:20 AM

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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	21.0
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?	N/A	
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: 310-175275-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Wastewater

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
310-175275-1	MW-301	94.8	
310-175275-2	MW-302	94.8	
310-175275-3	MW-303	95.4	
310-175275-4	MW-304	94.5	
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			

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)	
LCS 160-459790/1-A	Lab Control Sample	98.8	
LCSD 160-459790/2-A	Lab Control Sample Dup	102	
MB 160-459790/23-A	Method Blank	104	
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Wastewater

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-175275-1	MW-301	94.8	88.6
310-175275-2	MW-302	94.8	87.1
310-175275-3	MW-303	95.4	81.9
310-175275-4	MW-304	94.5	86.7
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			
Y Carrier = Y 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)
LCS 160-459791/1-A	Lab Control Sample	98.8	88.2
LCSD 160-459791/2-A	Lab Control Sample Dup	102	88.2
MB 160-459791/23-A	Method Blank	104	90.5
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

C2 April 2020 Assessment Monitoring

ANALYTICAL REPORT

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

Laboratory Job ID: 310-180814-1
Client Project/Site: M.L Kapp - 25220074
Revision: 1

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
5/14/2020 10:09:51 AM

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

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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	8
Definitions	15
QC Sample Results	16
QC Association	20
Chronicle	23
Certification Summary	26
Method Summary	27
Chain of Custody	28
Receipt Checklists	33
Field Data Sheets	34

Case Narrative

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Job ID: 310-180814-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-180814-1

Receipt

The samples were received on 4/30/2020 5:40 PM; the samples arrived in good condition, properly preserved, and where required, on ice. The temperatures of the 2 coolers at receipt time were 1.1°C and 1.6°C

Department HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-303 (310-180814-3) and MW-306 (310-180814-6). Elevated reporting limits (RLs) are provide

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

Department Metals

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

Department General Chemistry

Method 2540C_Calcd: Reanalysis of the following sample was performed outside of the analytical holding time due to secondary analysis required. : Field Blank (310-180814-7

Method 4500_H+ pH: Field Blank (310-180814-7) analyzed 2 times with concurring results. Container / labeling verified. Secondary results included in final report.

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

Department Field Service / Mobile Lab

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 - 25220074

Job ID: 310-180814-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-180814-1	MW-301	Water	04/29/20 08:45	04/30/20 17:40	
310-180814-2	MW-302	Water	04/29/20 09:50	04/30/20 17:40	
310-180814-3	MW-303	Water	04/29/20 10:15	04/30/20 17:40	
310-180814-4	MW-304	Water	04/29/20 12:00	04/30/20 17:40	
310-180814-5	MW-305	Water	04/29/20 13:10	04/30/20 17:40	
310-180814-6	MW-306	Water	04/29/20 14:20	04/30/20 17:40	
310-180814-7	Field Blank	Water	04/29/20 23:59	04/30/20 17:40	

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Detection Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-301

Lab Sample ID: 310-180814-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	48		5.0	2.0	mg/L	5		9056A	Total/NA
Fluoride	0.35	J F1	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	250		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	0.95	J	2.0	0.88	ug/L	1		6020A	Total/NA
Barium	140		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	10000		400	290	ug/L	4		6020A	Total/NA
Cadmium	0.095	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	3.5		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	7.4	J	10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	250		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	720		30	26	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	578.76				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-44.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.13				mg/L	1		Field Sampling	Total/NA
pH, Field	7.08				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1069				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	10.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	9.87				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302

Lab Sample ID: 310-180814-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	17		5.0	2.0	mg/L	5		9056A	Total/NA
Fluoride	0.37	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	230		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	8.6		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	66		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	4700		400	290	ug/L	4		6020A	Total/NA
Cadmium	0.12		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	61		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.23	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	4.0	J	10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	360		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	490		30	26	mg/L	1		SM 2540C	Total/NA
pH	8.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	579.38				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	2.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.14				mg/L	1		Field Sampling	Total/NA
pH, Field	8.45				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	785				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	9.9				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.33				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303

Lab Sample ID: 310-180814-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.0		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	590		10	7.1	mg/L	10		9056A	Total/NA
Arsenic	5.8		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	96		2.0	0.90	ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-303 (Continued)

Lab Sample ID: 310-180814-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	4200		400	290	ug/L	4		6020A	Total/NA
Calcium	220		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.77		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	44		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	74		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1000		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	580.82				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-97.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.22				mg/L	1		Field Sampling	Total/NA
pH, Field	7.33				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1484				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	10.9				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	41.9				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-180814-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	26		5.0	2.0	mg/L	5		9056A	Total/NA
Fluoride	0.32	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	290		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	18		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	420		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	8900		400	290	ug/L	4		6020A	Total/NA
Cadmium	0.43		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	81		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	1.2		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.51		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	2.9	J	10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	1200		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	590		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	580.95				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	74.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.13				mg/L	1		Field Sampling	Total/NA
pH, Field	6.48				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	924				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	10.8				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	49.9				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-180814-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		5.0	2.0	mg/L	5		9056A	Total/NA
Fluoride	0.33	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	690		10	7.1	mg/L	10		9056A	Total/NA
Arsenic	3.1		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	120		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	16000		700	510	ug/L	7		6020A	Total/NA
Cadmium	0.26		0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	190		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.68		0.50	0.091	ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-305 (Continued)

Lab Sample ID: 310-180814-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	20		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	720		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1200		60	52	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	580.40				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-50.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.16				mg/L	1		Field Sampling	Total/NA
pH, Field	6.41				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1545				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	10.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	11.9				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-180814-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	76		10	4.0	mg/L	10		9056A	Total/NA
Sulfate	560		10	7.1	mg/L	10		9056A	Total/NA
Barium	59		2.0	0.90	ug/L	1		6020A	Total/NA
Boron	22000		700	510	ug/L	7		6020A	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.20	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	80		10	2.3	ug/L	1		6020A	Total/NA
Molybdenum	120		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1200		60	52	mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	580.70				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	105.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.11				mg/L	1		Field Sampling	Total/NA
pH, Field	6.59				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1683				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	9.90				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.47				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-180814-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.20		0.10	0.046	mg/L	1		9056A	Total/NA
pH	1.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-301

Lab Sample ID: 310-180814-1

Date Collected: 04/29/20 08:45

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	48		5.0	2.0	mg/L			05/08/20 10:48	5
Fluoride	0.35	J F1	0.50	0.23	mg/L			05/08/20 10:48	5
Sulfate	250		5.0	3.6	mg/L			05/08/20 10:48	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:17	1
Arsenic	0.95	J	2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:17	1
Barium	140		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:17	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:17	1
Boron	10000		400	290	ug/L		05/04/20 08:00	05/07/20 14:51	4
Cadmium	0.095	J	0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:17	1
Calcium	130		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:17	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:17	1
Cobalt	3.5		0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:17	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:17	1
Lithium	7.4	J	10	2.3	ug/L		05/04/20 08:00	05/06/20 16:17	1
Molybdenum	250		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:17	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:17	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:17	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		05/01/20 12:38	05/04/20 13:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	720		30	26	mg/L			05/06/20 08:51	1
pH	7.2	HF	0.1	0.1	SU			04/30/20 20:22	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	578.76				ft			04/29/20 08:45	1
Oxidation Reduction Potential	-44.1				millivolts			04/29/20 08:45	1
Oxygen, Dissolved, Client Supplied	0.13				mg/L			04/29/20 08:45	1
pH, Field	7.08				SU			04/29/20 08:45	1
Specific Conductance, Field	1069				uS/cm			04/29/20 08:45	1
Temperature, Field	10.5				Degrees C			04/29/20 08:45	1
Turbidity, Field	9.87				NTU			04/29/20 08:45	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-302

Lab Sample ID: 310-180814-2

Date Collected: 04/29/20 09:50

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17		5.0	2.0	mg/L			05/08/20 11:40	5
Fluoride	0.37	J	0.50	0.23	mg/L			05/08/20 11:40	5
Sulfate	230		5.0	3.6	mg/L			05/08/20 11:40	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:20	1
Arsenic	8.6		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:20	1
Barium	66		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:20	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:20	1
Boron	4700		400	290	ug/L		05/04/20 08:00	05/07/20 14:54	4
Cadmium	0.12		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:20	1
Calcium	61		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:20	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:20	1
Cobalt	0.23	J	0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:20	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:20	1
Lithium	4.0	J	10	2.3	ug/L		05/04/20 08:00	05/06/20 16:20	1
Molybdenum	360		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:20	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:20	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:20	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		05/01/20 12:38	05/04/20 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	490		30	26	mg/L			05/06/20 08:51	1
pH	8.5	HF	0.1	0.1	SU			04/30/20 20:26	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	579.38				ft			04/29/20 09:50	1
Oxidation Reduction Potential	2.7				millivolts			04/29/20 09:50	1
Oxygen, Dissolved, Client Supplied	0.14				mg/L			04/29/20 09:50	1
pH, Field	8.45				SU			04/29/20 09:50	1
Specific Conductance, Field	785				uS/cm			04/29/20 09:50	1
Temperature, Field	9.9				Degrees C			04/29/20 09:50	1
Turbidity, Field	1.33				NTU			04/29/20 09:50	1

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Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-303

Lab Sample ID: 310-180814-3

Date Collected: 04/29/20 10:15

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.0		5.0	2.0	mg/L			05/08/20 11:57	5
Fluoride	<0.23		0.50	0.23	mg/L			05/08/20 11:57	5
Sulfate	590		10	7.1	mg/L			05/08/20 18:16	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:25	1
Arsenic	5.8		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:25	1
Barium	96		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:25	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:25	1
Boron	4200		400	290	ug/L		05/04/20 08:00	05/07/20 14:59	4
Cadmium	<0.039		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:25	1
Calcium	220		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:25	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:25	1
Cobalt	0.77		0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:25	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:25	1
Lithium	44		10	2.3	ug/L		05/04/20 08:00	05/06/20 16:25	1
Molybdenum	74		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:25	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:25	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:25	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		05/01/20 12:38	05/04/20 13:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	26	mg/L			05/06/20 08:51	1
pH	7.8	HF	0.1	0.1	SU			04/30/20 20:26	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	580.82				ft			04/29/20 10:15	1
Oxidation Reduction Potential	-97.7				millivolts			04/29/20 10:15	1
Oxygen, Dissolved, Client Supplied	0.22				mg/L			04/29/20 10:15	1
pH, Field	7.33				SU			04/29/20 10:15	1
Specific Conductance, Field	1484				uS/cm			04/29/20 10:15	1
Temperature, Field	10.9				Degrees C			04/29/20 10:15	1
Turbidity, Field	41.9				NTU			04/29/20 10:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-304

Lab Sample ID: 310-180814-4

Date Collected: 04/29/20 12:00

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26		5.0	2.0	mg/L			05/08/20 12:14	5
Fluoride	0.32	J	0.50	0.23	mg/L			05/08/20 12:14	5
Sulfate	290		5.0	3.6	mg/L			05/08/20 12:14	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:27	1
Arsenic	18		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:27	1
Barium	420		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:27	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:27	1
Boron	8900		400	290	ug/L		05/04/20 08:00	05/07/20 15:10	4
Cadmium	0.43		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:27	1
Calcium	81		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:27	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:27	1
Cobalt	1.2		0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:27	1
Lead	0.51		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:27	1
Lithium	2.9	J	10	2.3	ug/L		05/04/20 08:00	05/06/20 16:27	1
Molybdenum	1200		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:27	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:27	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:27	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		05/01/20 12:38	05/04/20 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	590		30	26	mg/L			05/06/20 08:51	1
pH	7.5	HF	0.1	0.1	SU			04/30/20 20:27	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	580.95				ft			04/29/20 12:00	1
Oxidation Reduction Potential	74.5				millivolts			04/29/20 12:00	1
Oxygen, Dissolved, Client Supplied	0.13				mg/L			04/29/20 12:00	1
pH, Field	6.48				SU			04/29/20 12:00	1
Specific Conductance, Field	924				umhos/cm			04/29/20 12:00	1
Temperature, Field	10.8				Degrees C			04/29/20 12:00	1
Turbidity, Field	49.9				NTU			04/29/20 12:00	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-305

Lab Sample ID: 310-180814-5

Date Collected: 04/29/20 13:10

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		5.0	2.0	mg/L			05/08/20 12:32	5
Fluoride	0.33	J	0.50	0.23	mg/L			05/08/20 12:32	5
Sulfate	690		10	7.1	mg/L			05/08/20 18:33	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:30	1
Arsenic	3.1		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:30	1
Barium	120		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:30	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:30	1
Boron	16000		700	510	ug/L		05/04/20 08:00	05/07/20 15:12	7
Cadmium	0.26		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:30	1
Calcium	190		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:30	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:30	1
Cobalt	0.68		0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:30	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:30	1
Lithium	20		10	2.3	ug/L		05/04/20 08:00	05/06/20 16:30	1
Molybdenum	720		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:30	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:30	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:30	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		05/01/20 12:38	05/04/20 13:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1200		60	52	mg/L			05/06/20 08:51	1
pH	7.6	HF	0.1	0.1	SU			04/30/20 20:28	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	580.40				ft			04/29/20 13:10	1
Oxidation Reduction Potential	-50.8				millivolts			04/29/20 13:10	1
Oxygen, Dissolved, Client Supplied	0.16				mg/L			04/29/20 13:10	1
pH, Field	6.41				SU			04/29/20 13:10	1
Specific Conductance, Field	1545				uS/cm			04/29/20 13:10	1
Temperature, Field	10.1				Degrees C			04/29/20 13:10	1
Turbidity, Field	11.9				NTU			04/29/20 13:10	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-306

Lab Sample ID: 310-180814-6

Date Collected: 04/29/20 14:20

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	76		10	4.0	mg/L			05/08/20 12:49	10
Fluoride	<0.46		1.0	0.46	mg/L			05/08/20 12:49	10
Sulfate	560		10	7.1	mg/L			05/08/20 12:49	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:32	1
Arsenic	<0.88		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:32	1
Barium	59		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:32	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:32	1
Boron	22000		700	510	ug/L		05/04/20 08:00	05/07/20 15:15	7
Cadmium	<0.039		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:32	1
Calcium	130		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:32	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:32	1
Cobalt	0.20	J	0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:32	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:32	1
Lithium	80		10	2.3	ug/L		05/04/20 08:00	05/06/20 16:32	1
Molybdenum	120		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:32	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:32	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:32	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		05/01/20 12:38	05/04/20 13:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1200		60	52	mg/L			05/06/20 08:51	1
pH	7.8	HF	0.1	0.1	SU			04/30/20 20:29	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	580.70				ft			04/29/20 14:20	1
Oxidation Reduction Potential	105.4				millivolts			04/29/20 14:20	1
Oxygen, Dissolved, Client Supplied	0.11				mg/L			04/29/20 14:20	1
pH, Field	6.59				SU			04/29/20 14:20	1
Specific Conductance, Field	1683				uS/cm			04/29/20 14:20	1
Temperature, Field	9.90				Degrees C			04/29/20 14:20	1
Turbidity, Field	1.47				NTU			04/29/20 14:20	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: Field Blank

Lab Sample ID: 310-180814-7

Date Collected: 04/29/20 23:59

Matrix: Water

Date Received: 04/30/20 17:40

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			05/08/20 13:40	1
Fluoride	0.20		0.10	0.046	mg/L			05/08/20 13:40	1
Sulfate	<0.71		1.0	0.71	mg/L			05/08/20 13:40	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 16:35	1
Arsenic	<0.88		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 16:35	1
Barium	<0.90		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 16:35	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 16:35	1
Boron	<73		100	73	ug/L		05/04/20 08:00	05/07/20 15:17	1
Cadmium	<0.039		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 16:35	1
Calcium	<0.19		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 16:35	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:35	1
Cobalt	<0.091		0.50	0.091	ug/L		05/04/20 08:00	05/06/20 16:35	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 16:35	1
Lithium	<2.3		10	2.3	ug/L		05/04/20 08:00	05/06/20 16:35	1
Molybdenum	<1.1		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 16:35	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 16:35	1
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 16:35	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		05/01/20 12:38	05/04/20 13:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26	H	30	26	mg/L			05/07/20 15:54	1
pH	1.6	HF	0.1	0.1	SU			04/30/20 20:30	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Qualifiers

HPLC/IC

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.
F1	MS and/or MSD recovery exceeds control limits.
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
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
H	Sample was prepped or analyzed beyond the specified holding time
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.
α	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)
MQL	Method Quantitation Limit
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 - 25220074

Job ID: 310-180814-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-278446/3
Matrix: Water
Analysis Batch: 278446

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			05/08/20 10:14	1
Fluoride	<0.046		0.10	0.046	mg/L			05/08/20 10:14	1
Sulfate	<0.71		1.0	0.71	mg/L			05/08/20 10:14	1

Lab Sample ID: LCS 310-278446/4
Matrix: Water
Analysis Batch: 278446

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	9.76		mg/L		98	90 - 110
Fluoride	2.00	2.04		mg/L		102	90 - 110
Sulfate	10.0	10.4		mg/L		104	90 - 110

Lab Sample ID: 310-180814-1 MS
Matrix: Water
Analysis Batch: 278446

Client Sample ID: MW-301
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	48		25.0	74.9		mg/L		108	80 - 120
Fluoride	0.35	J F1	5.00	5.82		mg/L		109	80 - 120
Sulfate	250		25.0	267	4	mg/L		67	80 - 120

Lab Sample ID: 310-180814-1 MSD
Matrix: Water
Analysis Batch: 278446

Client Sample ID: MW-301
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	48		25.0	74.4		mg/L		106	80 - 120	1	15
Fluoride	0.35	J F1	5.00	5.47		mg/L		102	80 - 120	6	15
Sulfate	250		25.0	274	4	mg/L		93	80 - 120	2	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-277555/1-A
Matrix: Water
Analysis Batch: 278040

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 277555

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.58		1.0	0.58	ug/L		05/04/20 08:00	05/06/20 15:23	1
Arsenic	<0.88		2.0	0.88	ug/L		05/04/20 08:00	05/06/20 15:23	1
Barium	<0.90		2.0	0.90	ug/L		05/04/20 08:00	05/06/20 15:23	1
Beryllium	<0.27		1.0	0.27	ug/L		05/04/20 08:00	05/06/20 15:23	1
Cadmium	<0.039		0.10	0.039	ug/L		05/04/20 08:00	05/06/20 15:23	1
Calcium	<0.19		0.50	0.19	mg/L		05/04/20 08:00	05/06/20 15:23	1
Chromium	<1.1		5.0	1.1	ug/L		05/04/20 08:00	05/06/20 15:23	1
Cobalt	<0.091		0.50	0.091	ug/L		05/04/20 08:00	05/06/20 15:23	1
Lead	<0.27		0.50	0.27	ug/L		05/04/20 08:00	05/06/20 15:23	1
Lithium	<2.3		10	2.3	ug/L		05/04/20 08:00	05/06/20 15:23	1
Molybdenum	<1.1		2.0	1.1	ug/L		05/04/20 08:00	05/06/20 15:23	1
Selenium	<1.0		5.0	1.0	ug/L		05/04/20 08:00	05/06/20 15:23	1

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QC Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 310-277555/1-A
Matrix: Water
Analysis Batch: 278040

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 277555

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.26		1.0	0.26	ug/L		05/04/20 08:00	05/06/20 15:23	1

Lab Sample ID: MB 310-277555/1-A
Matrix: Water
Analysis Batch: 278208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 277555

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<73		100	73	ug/L		05/04/20 08:00	05/07/20 13:52	1

Lab Sample ID: LCS 310-277555/2-A
Matrix: Water
Analysis Batch: 278040

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 277555

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	40.0	35.0		ug/L		87	80 - 120
Arsenic	80.0	77.1		ug/L		96	80 - 120
Barium	80.0	85.4		ug/L		107	80 - 120
Beryllium	40.0	45.8		ug/L		115	80 - 120
Cadmium	40.0	44.7		ug/L		112	80 - 120
Calcium	4.00	4.22		mg/L		105	80 - 120
Chromium	80.0	85.4		ug/L		107	80 - 120
Cobalt	40.0	43.6		ug/L		109	80 - 120
Lead	40.0	43.0		ug/L		108	80 - 120
Lithium	200	222		ug/L		111	80 - 120
Molybdenum	80.0	73.1		ug/L		91	80 - 120
Selenium	80.0	78.3		ug/L		98	80 - 120
Thallium	32.0	33.0		ug/L		103	80 - 120

Lab Sample ID: LCS 310-277555/2-A
Matrix: Water
Analysis Batch: 278208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 277555

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Boron	1760	1810		ug/L		103	80 - 120

Lab Sample ID: 310-180814-2 DU
Matrix: Water
Analysis Batch: 278040

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 277555

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.58		<0.58		ug/L		NC	20
Arsenic	8.6		8.50		ug/L		1	20
Barium	66		64.1		ug/L		3	20
Beryllium	<0.27		<0.27		ug/L		NC	20
Cadmium	0.12		0.132		ug/L		9	20
Calcium	61		59.4		mg/L		2	20
Chromium	<1.1		<1.1		ug/L		NC	20
Cobalt	0.23	J	0.231	J	ug/L		0.4	20
Lead	<0.27		<0.27		ug/L		NC	20
Lithium	4.0	J	3.87	J	ug/L		3	20

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QC Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-180814-2 DU
Matrix: Water
Analysis Batch: 278040

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 277555

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Molybdenum	360		352		ug/L		3	20
Selenium	<1.0		<1.0		ug/L		NC	20
Thallium	<0.26		<0.26		ug/L		NC	20

Lab Sample ID: 310-180814-2 DU
Matrix: Water
Analysis Batch: 278208

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 277555

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Boron	4700		4590		ug/L		3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-277514/1-A
Matrix: Water
Analysis Batch: 277770

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 277514

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.10		0.20	0.10	ug/L		05/01/20 12:38	05/04/20 13:14	1

Lab Sample ID: LCS 310-277514/2-A
Matrix: Water
Analysis Batch: 277770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 277514
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits

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

Lab Sample ID: MB 310-277935/1
Matrix: Water
Analysis Batch: 277935

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<26		30	26	mg/L			05/06/20 08:51	1

Lab Sample ID: LCS 310-277935/2
Matrix: Water
Analysis Batch: 277935

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits

Lab Sample ID: MB 310-278144/1
Matrix: Water
Analysis Batch: 278144

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<26		30	26	mg/L			05/07/20 15:54	1

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QC Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

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

Lab Sample ID: LCS 310-278144/2
Matrix: Water
Analysis Batch: 278144

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	1030		mg/L		103	90 - 110

Lab Sample ID: 310-180814-7 DU
Matrix: Water
Analysis Batch: 278144

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	<26	H	<26		mg/L		NC	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-277421/1
Matrix: Water
Analysis Batch: 277421

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: 310-180814-1 DU
Matrix: Water
Analysis Batch: 277421

Client Sample ID: MW-301
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

Lab Sample ID: LCS 310-278555/1
Matrix: Water
Analysis Batch: 278555

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: 310-180814-7 DU
Matrix: Water
Analysis Batch: 278555

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	1.7	HF	1.7		SU		0	20

QC Association Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

HPLC/IC

Analysis Batch: 278446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	9056A	
310-180814-2	MW-302	Total/NA	Water	9056A	
310-180814-3	MW-303	Total/NA	Water	9056A	
310-180814-3	MW-303	Total/NA	Water	9056A	
310-180814-4	MW-304	Total/NA	Water	9056A	
310-180814-5	MW-305	Total/NA	Water	9056A	
310-180814-5	MW-305	Total/NA	Water	9056A	
310-180814-6	MW-306	Total/NA	Water	9056A	
310-180814-7	Field Blank	Total/NA	Water	9056A	
MB 310-278446/3	Method Blank	Total/NA	Water	9056A	
LCS 310-278446/4	Lab Control Sample	Total/NA	Water	9056A	
310-180814-1 MS	MW-301	Total/NA	Water	9056A	
310-180814-1 MSD	MW-301	Total/NA	Water	9056A	

Metals

Prep Batch: 277514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	7470A	
310-180814-2	MW-302	Total/NA	Water	7470A	
310-180814-3	MW-303	Total/NA	Water	7470A	
310-180814-4	MW-304	Total/NA	Water	7470A	
310-180814-5	MW-305	Total/NA	Water	7470A	
310-180814-6	MW-306	Total/NA	Water	7470A	
310-180814-7	Field Blank	Total/NA	Water	7470A	
MB 310-277514/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-277514/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 277555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	3010A	
310-180814-2	MW-302	Total/NA	Water	3010A	
310-180814-3	MW-303	Total/NA	Water	3010A	
310-180814-4	MW-304	Total/NA	Water	3010A	
310-180814-5	MW-305	Total/NA	Water	3010A	
310-180814-6	MW-306	Total/NA	Water	3010A	
310-180814-7	Field Blank	Total/NA	Water	3010A	
MB 310-277555/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-277555/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-180814-2 DU	MW-302	Total/NA	Water	3010A	

Analysis Batch: 277770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	7470A	277514
310-180814-2	MW-302	Total/NA	Water	7470A	277514
310-180814-3	MW-303	Total/NA	Water	7470A	277514
310-180814-4	MW-304	Total/NA	Water	7470A	277514
310-180814-5	MW-305	Total/NA	Water	7470A	277514
310-180814-6	MW-306	Total/NA	Water	7470A	277514
310-180814-7	Field Blank	Total/NA	Water	7470A	277514
MB 310-277514/1-A	Method Blank	Total/NA	Water	7470A	277514

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QC Association Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Metals (Continued)

Analysis Batch: 277770 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-277514/2-A	Lab Control Sample	Total/NA	Water	7470A	277514

Analysis Batch: 278040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	6020A	277555
310-180814-2	MW-302	Total/NA	Water	6020A	277555
310-180814-3	MW-303	Total/NA	Water	6020A	277555
310-180814-4	MW-304	Total/NA	Water	6020A	277555
310-180814-5	MW-305	Total/NA	Water	6020A	277555
310-180814-6	MW-306	Total/NA	Water	6020A	277555
310-180814-7	Field Blank	Total/NA	Water	6020A	277555
MB 310-277555/1-A	Method Blank	Total/NA	Water	6020A	277555
LCS 310-277555/2-A	Lab Control Sample	Total/NA	Water	6020A	277555
310-180814-2 DU	MW-302	Total/NA	Water	6020A	277555

Analysis Batch: 278208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	6020A	277555
310-180814-2	MW-302	Total/NA	Water	6020A	277555
310-180814-3	MW-303	Total/NA	Water	6020A	277555
310-180814-4	MW-304	Total/NA	Water	6020A	277555
310-180814-5	MW-305	Total/NA	Water	6020A	277555
310-180814-6	MW-306	Total/NA	Water	6020A	277555
310-180814-7	Field Blank	Total/NA	Water	6020A	277555
MB 310-277555/1-A	Method Blank	Total/NA	Water	6020A	277555
LCS 310-277555/2-A	Lab Control Sample	Total/NA	Water	6020A	277555
310-180814-2 DU	MW-302	Total/NA	Water	6020A	277555

General Chemistry

Analysis Batch: 277421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-180814-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-180814-3	MW-303	Total/NA	Water	SM 4500 H+ B	
310-180814-4	MW-304	Total/NA	Water	SM 4500 H+ B	
310-180814-5	MW-305	Total/NA	Water	SM 4500 H+ B	
310-180814-6	MW-306	Total/NA	Water	SM 4500 H+ B	
310-180814-7	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-277421/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-180814-1 DU	MW-301	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 277935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	SM 2540C	
310-180814-2	MW-302	Total/NA	Water	SM 2540C	
310-180814-3	MW-303	Total/NA	Water	SM 2540C	
310-180814-4	MW-304	Total/NA	Water	SM 2540C	
310-180814-5	MW-305	Total/NA	Water	SM 2540C	
310-180814-6	MW-306	Total/NA	Water	SM 2540C	
MB 310-277935/1	Method Blank	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

General Chemistry (Continued)

Analysis Batch: 277935 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-277935/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 278144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-7	Field Blank	Total/NA	Water	SM 2540C	
MB 310-278144/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-278144/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-180814-7 DU	Field Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 278555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-7	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-278555/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-180814-7 DU	Field Blank	Total/NA	Water	SM 4500 H+ B	

Field Service / Mobile Lab

Analysis Batch: 277869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	Field Sampling	
310-180814-2	MW-302	Total/NA	Water	Field Sampling	
310-180814-3	MW-303	Total/NA	Water	Field Sampling	
310-180814-4	MW-304	Total/NA	Water	Field Sampling	
310-180814-5	MW-305	Total/NA	Water	Field Sampling	
310-180814-6	MW-306	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-301

Lab Sample ID: 310-180814-1

Date Collected: 04/29/20 08:45

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	278446	05/08/20 10:48	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:17	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	278208	05/07/20 14:51	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:31	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	277935	05/06/20 08:51	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:22	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	277869	04/29/20 08:45	ANO	TAL CF

Client Sample ID: MW-302

Lab Sample ID: 310-180814-2

Date Collected: 04/29/20 09:50

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	278446	05/08/20 11:40	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:20	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	278208	05/07/20 14:54	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:33	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	277935	05/06/20 08:51	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:26	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	277869	04/29/20 09:50	ANO	TAL CF

Client Sample ID: MW-303

Lab Sample ID: 310-180814-3

Date Collected: 04/29/20 10:15

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	278446	05/08/20 11:57	SAD	TAL CF
Total/NA	Analysis	9056A		10	278446	05/08/20 18:16	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:25	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	278208	05/07/20 14:59	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:36	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	277935	05/06/20 08:51	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:26	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	277869	04/29/20 10:15	ANO	TAL CF

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: MW-304

Lab Sample ID: 310-180814-4

Date Collected: 04/29/20 12:00

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	278446	05/08/20 12:14	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:27	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	278208	05/07/20 15:10	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:38	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	277935	05/06/20 08:51	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:27	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	277869	04/29/20 12:00	ANO	TAL CF

Client Sample ID: MW-305

Lab Sample ID: 310-180814-5

Date Collected: 04/29/20 13:10

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	278446	05/08/20 12:32	SAD	TAL CF
Total/NA	Analysis	9056A		10	278446	05/08/20 18:33	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:30	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		7	278208	05/07/20 15:12	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:40	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	277935	05/06/20 08:51	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:28	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	277869	04/29/20 13:10	ANO	TAL CF

Client Sample ID: MW-306

Lab Sample ID: 310-180814-6

Date Collected: 04/29/20 14:20

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	278446	05/08/20 12:49	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:32	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		7	278208	05/07/20 15:15	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:42	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	277935	05/06/20 08:51	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:29	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	277869	04/29/20 14:20	ANO	TAL CF

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

Client Sample ID: Field Blank

Lab Sample ID: 310-180814-7

Date Collected: 04/29/20 23:59

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	278446	05/08/20 13:40	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278040	05/06/20 16:35	SAD	TAL CF
Total/NA	Prep	3010A			277555	05/04/20 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	278208	05/07/20 15:17	SAD	TAL CF
Total/NA	Prep	7470A			277514	05/01/20 12:38	HIS	TAL CF
Total/NA	Analysis	7470A		1	277770	05/04/20 13:44	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	278144	05/07/20 15:54	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	277421	04/30/20 20:30	JMH	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	278555	05/12/20 11:52	BER	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 - 25220074

Job ID: 310-180814-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-21

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Method Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-1

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

Eurofins TestAmerica, Cedar Falls



310-180814 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS Engineers</u>			
City/State: <u>Clive</u>	CITY	STATE: <u>IA</u>	Project: <u>ML Knapp</u>
Receipt Information			
Date/Time Received: <u>4-30-20</u>	DATE	<u>1740</u>	TIME
Received By: <u>ZB</u>			
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>+0.1</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.0</u>	Corrected Temp (°C): <u>1.1</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

214

Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>Clive</u> <small>CITY</small>	<u>IA</u> <small>STATE</small>	Project: <u>ML Knapp</u>
Receipt Information		
Date/Time Received: <u>4-30-20</u> <small>DATE</small> <u>1740</u> <small>TIME</small>	Received By: <u>ZB</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): _____	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>1.5</u>	Corrected Temp (°C): <u>1.6</u>	
• Sample Container Temperature		
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		

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Chain of Custody Record

Client Information		Sampler: Louise Jennings		Lab PM: Fredrick, Sandie		Carrier Tracking No(s):		COC No: 310-49200-14045.2																																																																																																																																																																																																																																																																																																																												
Client Contact: Louise Jennings		Phone: 608-509-8245		E-Mail: sandie.fredrick@testamericainc.com				Page: Page 2 of 2																																																																																																																																																																																																																																																																																																																												
Company: SCS Engineers				Analysis Requested						Job #:																																																																																																																																																																																																																																																																																																																										
Address: 8450 Hickman Road Suite 20		Due Date Requested:		<table border="1"> <tr> <td rowspan="5">Field Filtered Sample (Yes or No)</td> <td rowspan="5">Perform MS/MSD (Yes or No)</td> <td rowspan="5">6020A, 7470A</td> <td rowspan="5">2540C_Calcd, 9056A_ORGFM_28D, SMA4500_H+</td> <td rowspan="5">903.0 - Radium 226</td> <td rowspan="5">904.0 - Radium 228</td> <td rowspan="5">Total Number of containers</td> <td colspan="2">Preservation Codes:</td> </tr> <tr> <td>A - HCL</td> <td>M - Hexane</td> </tr> <tr> <td>B - NaOH</td> <td>N - None</td> </tr> <tr> <td>C - Zn Acetate</td> <td>O - AsNaO2</td> </tr> <tr> <td>D - Nitric Acid</td> <td>P - Na2O4S</td> </tr> <tr> <td>E - NaHSO4</td> <td>Q - Na2SO3</td> </tr> <tr> <td>F - MeOH</td> <td>R - Na2S2O3</td> </tr> <tr> <td>G - Amchlor</td> <td>S - H2SO4</td> </tr> <tr> <td>H - Ascorbic Acid</td> <td>T - TSP Dodecahydrate</td> </tr> <tr> <td>I - Ice</td> <td>U - Acetone</td> </tr> <tr> <td>J - DI Water</td> <td>V - MCAA</td> </tr> <tr> <td>K - EDTA</td> <td>W - pH 4-5</td> </tr> <tr> <td>L - EDA</td> <td>Z - other (specify)</td> </tr> <tr> <td colspan="2">City: Clive</td> <td colspan="2">TAT Requested (days): Standard</td> <td colspan="6">Other:</td> </tr> <tr> <td colspan="2">State, Zip: IA, 50325</td> <td colspan="2">PO #: 25220074</td> <td colspan="6"></td> </tr> <tr> <td colspan="2">Phone:</td> <td colspan="2">WO #:</td> <td colspan="6"></td> </tr> <tr> <td colspan="2">Email: ljennings@scsengineers.com</td> <td colspan="2">Project #: 31011020</td> <td colspan="6"></td> </tr> <tr> <td colspan="2">Project Name: M.L. Knapp</td> <td colspan="2">SSOW#:</td> <td colspan="6"></td> </tr> <tr> <td colspan="2">Site:</td> <td colspan="2"></td> <td colspan="6"></td> </tr> <tr> <td colspan="2">Sample Identification</td> <td colspan="1">Sample Date</td> <td colspan="1">Sample Time</td> <td colspan="1">Sample Type (C=comp, G=grab)</td> <td colspan="1">Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</td> <td colspan="1">Field Filtered Sample (Yes or No)</td> <td colspan="1">Perform MS/MSD (Yes or No)</td> <td colspan="1">6020A, 7470A</td> <td colspan="1">2540C_Calcd, 9056A_ORGFM_28D, SMA4500_H+</td> <td colspan="1">903.0 - Radium 226</td> <td colspan="1">904.0 - Radium 228</td> <td colspan="1">Total Number of containers</td> <td colspan="1">Special Instructions/Note:</td> </tr> <tr> <td colspan="2"></td> <td colspan="1"></td> <td colspan="1"></td> <td colspan="1">Preservation Code:</td> <td colspan="1"></td> <td colspan="1"></td> <td colspan="1"></td> <td colspan="1"></td> <td colspan="1"></td> <td 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07/01/2021 - Classified Page 30 of 34 Internal - ECRM12620958

5/14/2020 (Rev. 1)



Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container		Preservative	
			pH	Temp	Added (mls)	Lot #
MW-301	310-180814-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-301	310-180814-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-301	310-180814-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-180814-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-302	310-180814-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-180814-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-180814-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-303	310-180814-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-180814-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-180814-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-304	310-180814-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-180814-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-305	310-180814-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-305	310-180814-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-305	310-180814-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-180814-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-306	310-180814-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-180814-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-180814-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
Field Blank	310-180814-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-180814-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
 20

	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	

I:\25219077.00\Data and Calculations\Field Work Requests\[IPL_M.L. Kapp_CCR_Rule_Sampling_1912.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-180814-1

SDG Number:

Login Number: 180814

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Homolar, Dana J

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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 #25220077.00
April 2020

Sample	Sample Date/Time	GW Elevation (ft amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µs/cm)	ORP (mV)	Turbidity
MW-301	4/29/20 @ 0845	578.76	10.5	7.08	0.13	1,069	-44.1	9.87
MW-302	4/29/20 @ 0950	579.38	9.9	8.45	0.14	785	2.7	1.33
MW-303	4/29/20 @ 1055	580.82	10.9	7.33	0.22	1,484	-97.7	41.9
MW-304	4/29/20 @ 1200	580.95	10.8	6.48	0.13	924	74.5	49.9
MW-305	4/29/20 @ 1310	580.40	10.1	6.41	0.16	1545	-50.8	11.9
MW-306	4/29/20 @ 1420	580.70	9.90	6.59	0.11	1,683	105.4	1.47

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: 5/1/2020
 Checked by: AJR Date: 5/1/2020

\\Mad-fs01\data\Projects\25220077.00\Data and Calculations\Tables\Field Data\[2004_M.L. Kapp_CCR_Field.xlsx]GW Field Parameters



ANALYTICAL REPORT

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

Laboratory Job ID: 310-180814-2
Client Project/Site: M.L Kapp - 25220074

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
6/2/2020 5:14:05 PM

Sandie Fredrick, Project Manager II
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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	5
Detection Summary	6
Client Sample Results	7
Definitions	14
QC Sample Results	15
QC Association	17
Chronicle	18
Certification Summary	20
Method Summary	21
Chain of Custody	22
Receipt Checklists	27
Tracer Carrier Summary	29

Case Narrative

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Job ID: 310-180814-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-180814-2

Receipt

The samples were received on 4/30/2020 5:40 PM; the samples arrived in good condition, properly preserved, and where required, on ice. The temperatures of the 2 coolers at receipt time were 1.1°C and 1.6°C

Gas Flow Proportional Counter

Method 903.0: Radium 226 Prep Batch 160-469978: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6) and Field Blank (310-180814-7). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 903.0: Radium 226 Prep Batch 160-469978: The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: MW-302 (310-180814-2) and MW-305 (310-180814-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Samples 310-180814-2 and 310-180814-5 have a yellow discoloration. Samples 180-105226-1, 240-129691-2, 240-129714-2 and 240-129714-3 have a cloudy appearance.

Method 903.0: Radium-226 Prep Batch: 160-469978 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 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6), Field Blank (310-180814-7), (LCS 160-469978/1-A), (LCSD 160-469978/2-A) and (MB 160-469978/23-A)

Method 904.0: Radium 228 Prep Batch 160-469981: The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: MW-302 (310-180814-2) and MW-305 (310-180814-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Samples 310-180814-2 and 310-180814-5 have a yellow discoloration. Samples 180-105226-1, 240-129691-2, 240-129714-2 and 240-129714-3 have a cloudy appearance.

Method 904.0: Radium 228 Prep Batch 160-469981: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6) and Field Blank (310-180814-7). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 904.0: Ra-228 Prep Batch 160-469981 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 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6), Field Blank (310-180814-7), (LCS 160-469981/1-A), (LCSD 160-469981/2-A) and (MB 160-469981/23-A)

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

RAD

Methods 903.0, 9315: Radium-226 Prep Batch: 160-469978 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 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6), Field Blank (310-180814-7), (LCS 160-469978/1-A), (LCSD 160-469978/2-A) and (MB 160-469978/23-A)

Methods 904.0, 9320: Ra-228 Prep Batch 160-469981 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.

Case Narrative

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Job ID: 310-180814-2 (Continued)

Laboratory: Eurofins TestAmerica, Cedar Falls (Continued)

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6), Field Blank (310-180814-7), (LCS 160-469981/1-A), (LCSD 160-469981/2-A) and (MB 160-469981/23-A)

Method PrecSep_0: Radium 228 Prep Batch 160-469981: The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: MW-302 (310-180814-2) and MW-305 (310-180814-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Samples 310-180814-2 and 310-180814-5 have a yellow discoloration. Samples 180-105226-1, 240-129691-2, 240-129714-2 and 240-129714-3 have a cloudy appearance.

Method PrecSep_0: Radium 228 Prep Batch 160-469981: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6) and Field Blank (310-180814-7). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-469978: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-180814-1), MW-302 (310-180814-2), MW-303 (310-180814-3), MW-304 (310-180814-4), MW-305 (310-180814-5), MW-306 (310-180814-6) and Field Blank (310-180814-7). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-469978: The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: MW-302 (310-180814-2) and MW-305 (310-180814-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Samples 310-180814-2 and 310-180814-5 have a yellow discoloration. Samples 180-105226-1, 240-129691-2, 240-129714-2 and 240-129714-3 have a cloudy appearance.

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 - 25220074

Job ID: 310-180814-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-180814-1	MW-301	Water	04/29/20 08:45	04/30/20 17:40	
310-180814-2	MW-302	Water	04/29/20 09:50	04/30/20 17:40	
310-180814-3	MW-303	Water	04/29/20 10:15	04/30/20 17:40	
310-180814-4	MW-304	Water	04/29/20 12:00	04/30/20 17:40	
310-180814-5	MW-305	Water	04/29/20 13:10	04/30/20 17:40	
310-180814-6	MW-306	Water	04/29/20 14:20	04/30/20 17:40	
310-180814-7	Field Blank	Water	04/29/20 23:59	04/30/20 17:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Detection Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-301

Lab Sample ID: 310-180814-1

No Detections.

Client Sample ID: MW-302

Lab Sample ID: 310-180814-2

No Detections.

Client Sample ID: MW-303

Lab Sample ID: 310-180814-3

No Detections.

Client Sample ID: MW-304

Lab Sample ID: 310-180814-4

No Detections.

Client Sample ID: MW-305

Lab Sample ID: 310-180814-5

No Detections.

Client Sample ID: MW-306

Lab Sample ID: 310-180814-6

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 310-180814-7

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-301

Lab Sample ID: 310-180814-1

Date Collected: 04/29/20 08:45

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.156		0.110	0.111	1.00	0.156	pCi/L	05/11/20 07:19	06/02/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		40 - 110					05/11/20 07:19	06/02/20 06:23	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	0.382		0.233	0.236	1.00	0.350	pCi/L	05/11/20 07:48	05/28/20 15:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		40 - 110					05/11/20 07:48	05/28/20 15:32	1
Y Carrier	86.7		40 - 110					05/11/20 07:48	05/28/20 15:32	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	0.538		0.258	0.261	5.00	0.350	pCi/L		06/02/20 16:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-302

Lab Sample ID: 310-180814-2

Date Collected: 04/29/20 09:50

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0158	U	0.117	0.117	1.00	0.226	pCi/L	05/11/20 07:19	06/02/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		40 - 110					05/11/20 07:19	06/02/20 06:23	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	0.562	U	0.387	0.390	1.00	0.603	pCi/L	05/11/20 07:48	05/28/20 15:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		40 - 110					05/11/20 07:48	05/28/20 15:33	1
Y Carrier	86.7		40 - 110					05/11/20 07:48	05/28/20 15:33	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	0.577	U	0.404	0.407	5.00	0.603	pCi/L		06/02/20 16:59	1

Client Sample Results

Client: SCS Engineers
 Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-303

Lab Sample ID: 310-180814-3

Date Collected: 04/29/20 10:15

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.154	U	0.111	0.112	1.00	0.156	pCi/L	05/11/20 07:19	06/02/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.2		40 - 110					05/11/20 07:19	06/02/20 06:23	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	0.194	U	0.235	0.235	1.00	0.388	pCi/L	05/11/20 07:48	05/28/20 15:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.2		40 - 110					05/11/20 07:48	05/28/20 15:33	1
Y Carrier	92.0		40 - 110					05/11/20 07:48	05/28/20 15:33	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	0.348	U	0.260	0.260	5.00	0.388	pCi/L		06/02/20 16:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-304

Lab Sample ID: 310-180814-4

Date Collected: 04/29/20 12:00

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.31		0.335	0.395	1.00	0.174	pCi/L	05/11/20 07:19	06/02/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.0		40 - 110					05/11/20 07:19	06/02/20 06:23	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	2.08		0.413	0.455	1.00	0.456	pCi/L	05/11/20 07:48	05/28/20 15:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.0		40 - 110					05/11/20 07:48	05/28/20 15:33	1
Y Carrier	89.3		40 - 110					05/11/20 07:48	05/28/20 15:33	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	4.39		0.532	0.603	5.00	0.456	pCi/L		06/02/20 16:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-305

Lab Sample ID: 310-180814-5

Date Collected: 04/29/20 13:10

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0301	U	0.123	0.123	1.00	0.234	pCi/L	05/11/20 07:19	06/02/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		40 - 110					05/11/20 07:19	06/02/20 06:23	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	-0.0563	U	0.328	0.328	1.00	0.598	pCi/L	05/11/20 07:48	05/28/20 15:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		40 - 110					05/11/20 07:48	05/28/20 15:33	1
Y Carrier	85.2		40 - 110					05/11/20 07:48	05/28/20 15:33	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	0.0301	U	0.350	0.350	5.00	0.598	pCi/L		06/02/20 16:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-306

Lab Sample ID: 310-180814-6

Date Collected: 04/29/20 14:20

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0300	U	0.0862	0.0862	1.00	0.160	pCi/L	05/11/20 07:19	06/02/20 08:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.2		40 - 110					05/11/20 07:19	06/02/20 08:11	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	0.107	U	0.264	0.264	1.00	0.456	pCi/L	05/11/20 07:48	05/28/20 15:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.2		40 - 110					05/11/20 07:48	05/28/20 15:33	1
Y Carrier	85.2		40 - 110					05/11/20 07:48	05/28/20 15:33	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	0.137	U	0.278	0.278	5.00	0.456	pCi/L		06/02/20 16:59	1

Client Sample Results

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: Field Blank

Lab Sample ID: 310-180814-7

Date Collected: 04/29/20 23:59

Matrix: Water

Date Received: 04/30/20 17:40

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0268	U	0.0993	0.0994	1.00	0.190	pCi/L	05/11/20 07:19	06/02/20 08:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.7		40 - 110					05/11/20 07:19	06/02/20 08:11	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	0.0113	U	0.389	0.389	1.00	0.695	pCi/L	05/11/20 07:48	05/28/20 15:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.7		40 - 110					05/11/20 07:48	05/28/20 15:34	1
Y Carrier	72.5		40 - 110					05/11/20 07:48	05/28/20 15:34	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	0.0381	U	0.401	0.401	5.00	0.695	pCi/L		06/02/20 16:59	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

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)
MQL	Method Quantitation Limit
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 - 25220074

Job ID: 310-180814-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469978/23-A
Matrix: Water
Analysis Batch: 471828

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469978

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.001978	U	0.0587	0.0587	1.00	0.127	pCi/L	05/11/20 07:19	06/02/20 08:14	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	82.8		40 - 110			05/11/20 07:19	06/02/20 08:14	1		

Lab Sample ID: LCS 160-469978/1-A
Matrix: Water
Analysis Batch: 471668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469978

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.52		1.13	1.00	0.117	pCi/L	93	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Ba Carrier	90.1		40 - 110						

Lab Sample ID: LCSD 160-469978/2-A
Matrix: Water
Analysis Batch: 471668

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469978

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	9.427		1.05	1.00	0.150	pCi/L	83	75 - 125	0.50	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits			Prepared	Analyzed	Dil Fac			
Ba Carrier	87.7		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469981/23-A
Matrix: Water
Analysis Batch: 471359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469981

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.09574	U	0.247	0.247	1.00	0.460	pCi/L	05/11/20 07:48	05/28/20 15:52	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	82.8		40 - 110			05/11/20 07:48	05/28/20 15:52	1		
Y Carrier	84.1		40 - 110			05/11/20 07:48	05/28/20 15:52	1		

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
 Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-469981/1-A
Matrix: Water
Analysis Batch: 471394

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469981

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.80	8.378		1.02	1.00	0.401	pCi/L	95	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.1		40 - 110
Y Carrier	80.4		40 - 110

Lab Sample ID: LCSD 160-469981/2-A
Matrix: Water
Analysis Batch: 471394

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469981

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.80	7.349		0.910	1.00	0.339	pCi/L	83	75 - 125	0.53	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	87.7		40 - 110
Y Carrier	85.2		40 - 110

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QC Association Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Rad

Prep Batch: 469978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	PrecSep-21	
310-180814-2	MW-302	Total/NA	Water	PrecSep-21	
310-180814-3	MW-303	Total/NA	Water	PrecSep-21	
310-180814-4	MW-304	Total/NA	Water	PrecSep-21	
310-180814-5	MW-305	Total/NA	Water	PrecSep-21	
310-180814-6	MW-306	Total/NA	Water	PrecSep-21	
310-180814-7	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-469978/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469978/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-469978/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 469981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-180814-1	MW-301	Total/NA	Water	PrecSep_0	
310-180814-2	MW-302	Total/NA	Water	PrecSep_0	
310-180814-3	MW-303	Total/NA	Water	PrecSep_0	
310-180814-4	MW-304	Total/NA	Water	PrecSep_0	
310-180814-5	MW-305	Total/NA	Water	PrecSep_0	
310-180814-6	MW-306	Total/NA	Water	PrecSep_0	
310-180814-7	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-469981/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469981/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-469981/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-301

Lab Sample ID: 310-180814-1

Date Collected: 04/29/20 08:45

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 06:23	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:32	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Client Sample ID: MW-302

Lab Sample ID: 310-180814-2

Date Collected: 04/29/20 09:50

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 06:23	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:33	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Client Sample ID: MW-303

Lab Sample ID: 310-180814-3

Date Collected: 04/29/20 10:15

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 06:23	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:33	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Client Sample ID: MW-304

Lab Sample ID: 310-180814-4

Date Collected: 04/29/20 12:00

Matrix: Water

Date Received: 04/30/20 17:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 06:23	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:33	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Lab Chronicle

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Client Sample ID: MW-305

Date Collected: 04/29/20 13:10

Date Received: 04/30/20 17:40

Lab Sample ID: 310-180814-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 06:23	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:33	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Client Sample ID: MW-306

Date Collected: 04/29/20 14:20

Date Received: 04/30/20 17:40

Lab Sample ID: 310-180814-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 08:11	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:33	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Client Sample ID: Field Blank

Date Collected: 04/29/20 23:59

Date Received: 04/30/20 17:40

Lab Sample ID: 310-180814-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			469978	05/11/20 07:19	RBR	TAL SL
Total/NA	Analysis	903.0		1	471668	06/02/20 08:11	KLS	TAL SL
Total/NA	Prep	PrecSep_0			469981	05/11/20 07:48	RBR	TAL SL
Total/NA	Analysis	904.0		1	471394	05/28/20 15:34	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	471834	06/02/20 16:59	SMP	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Eurofins TestAmerica, Cedar Falls

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-21

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
Alaska (UST)	State	20-001	05-06-22
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
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
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	04-01-21
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	02-28-21
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	03-11-23
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

Eurofins TestAmerica, Cedar Falls

Method Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

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



310-180814 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS Engineers</u>			
City/State: <u>Clive</u>	CITY	STATE: <u>IA</u>	Project: <u>ML Knapp</u>
Receipt Information			
Date/Time Received: <u>4-30-20</u>	DATE	<u>1740</u>	TIME
Received By: <u>ZB</u>			
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>+0.1</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.0</u>	Corrected Temp (°C): <u>1.1</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

214

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS Engineers</u>			
City/State: <u>Clive</u>	CITY	STATE <u>IA</u>	Project: <u>ML Knapp</u>
Receipt Information			
Date/Time Received: <u>4-30-20</u>	DATE	<u>1740</u>	TIME
Received By: <u>ZB</u>			
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>M</u>	Correction Factor (°C):		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.5</u>	Corrected Temp (°C): <u>1.6</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

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Chain of Custody Record

Client Information				Sampler: Louise Jennings		Lab PM: Fredrick, Sandie		Carrier Tracking No(s):			COC No: 310-49200-14045.2				
Client Contact: Louise Jennings				Phone: 608-509-8245		E-Mail: sandie.fredrick@testamericainc.com					Page: Page 2 of 2				
Company: SCS Engineers								Analysis Requested			Job #:				
Address: 8450 Hickman Road Suite 20				Due Date 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)				
City: Clive				TAT Requested (days): Standard											
State, Zip: IA, 50325															
Phone:				PO #: 25220074											
Email: ljennings@scsengineers.com				WO #:											
Project Name: M.L. Knapp				Project #: 31011020											
Site:				SSOW#:											
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, SMA500_H+	903.0 - Radium 226	904.0 - Radium 228	Total Number of containers	Special Instructions/Note:
Preservation Code:															
MW-301				4/29/20	0845	G	Water			X	X	X			
MW-302					0950										
MW-303					1055										
MW-304					1200										
MW-305					1310										
MW-306					1420										
Field blank					2359										
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: 4/30/20 2:15PM		Company:		Received by:				Date/Time:		Company:	
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:											

07/01/2021 - Classified Page 24 of 29 Internal - ECRMI2620958

6/2/2020



Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container		Preservative	
			pH	Temp	Added (mls)	Lot #
MW-301	310-180814-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-301	310-180814-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-301	310-180814-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-180814-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-302	310-180814-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-302	310-180814-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-180814-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-303	310-180814-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-303	310-180814-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-180814-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-304	310-180814-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-304	310-180814-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-305	310-180814-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-305	310-180814-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-305	310-180814-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-180814-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
MW-306	310-180814-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-306	310-180814-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-180814-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____	_____
Field Blank	310-180814-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
Field Blank	310-180814-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
 20

	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		

I:\25219077.00\Data and Calculations\Field Work Requests\IPL_M.L. Kapp_CCR_Rule_Sampling_1912.xls)Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-180814-2

SDG Number:

Login Number: 180814

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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: 310-180814-2

SDG Number:

Login Number: 180814

List Number: 2

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 05/04/20 04:56 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	N/A	
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: M.L Kapp - 25220074

Job ID: 310-180814-2

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)
310-180814-1	MW-301	85.8
310-180814-2	MW-302	84.0
310-180814-3	MW-303	82.2
310-180814-4	MW-304	75.0
310-180814-5	MW-305	81.0
310-180814-6	MW-306	79.2
310-180814-7	Field Blank	61.7
LCS 160-469978/1-A	Lab Control Sample	90.1
LCSD 160-469978/2-A	Lab Control Sample Dup	87.7
MB 160-469978/23-A	Method Blank	82.8

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)
310-180814-1	MW-301	85.8	86.7
310-180814-2	MW-302	84.0	86.7
310-180814-3	MW-303	82.2	92.0
310-180814-4	MW-304	75.0	89.3
310-180814-5	MW-305	81.0	85.2
310-180814-6	MW-306	79.2	85.2
310-180814-7	Field Blank	61.7	72.5
LCS 160-469981/1-A	Lab Control Sample	90.1	80.4
LCSD 160-469981/2-A	Lab Control Sample Dup	87.7	85.2
MB 160-469981/23-A	Method Blank	82.8	84.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

C3 July 2020 Assessment Monitoring

ANALYTICAL REPORT

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

Laboratory Job ID: 310-185780-1

Client Project/Site: ML Kapp Groundwater Monitoring 25220077

For:

SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



*Authorized for release by:
7/13/2020 5:01:38 PM*

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

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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	9
QC Sample Results	10
QC Association	14
Chronicle	16
Certification Summary	17
Method Summary	18
Chain of Custody	19
Receipt Checklists	22
Field Data Sheets	23

Case Narrative

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Job ID: 310-185780-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-185780-1

Comments

No additional comments.

Receipt

The samples were received on 7/8/2020 5:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.0° C.

HPLC/IC

Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-307 (310-185780-2). 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 3010A: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW-307 (310-185780-2). The sample(s) was preserved to the appropriate pH in the laboratory.

Methods 245.1, 7470A: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW-307 (310-185780-2). The sample(s) was preserved to the appropriate pH in the laboratory.

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: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-185780-1	MW-304	Water	07/07/20 14:25	07/08/20 17:00	
310-185780-2	MW-307	Water	07/07/20 12:15	07/08/20 17:00	
310-185780-3	Field Blank	Water	07/07/20 12:30	07/08/20 17:00	

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Detection Summary

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Client Sample ID: MW-304

Lab Sample ID: 310-185780-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.4		2.0	0.88	ug/L	1		6020A	Total/NA
Ground Water Elevation	577.15				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-23.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.28				mg/L	1		Field Sampling	Total/NA
pH, Field	6.81				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1004				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.4				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	12.8				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307

Lab Sample ID: 310-185780-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	53		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	15		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	1.7	J	2.0	0.88	ug/L	1		6020A	Total/NA
Barium	320		2.0	0.28	ug/L	1		6020A	Total/NA
Boron	280		100	80	ug/L	1		6020A	Total/NA
Cadmium	0.098	J	0.10	0.049	ug/L	1		6020A	Total/NA
Calcium	260		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	6.3		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.12	J	0.50	0.11	ug/L	1		6020A	Total/NA
Molybdenum	2.5		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1100		60	52	mg/L	1		SM 2540C	Total/NA
pH	6.7	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	593.85				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-0.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.39				mg/L	1		Field Sampling	Total/NA
pH, Field	6.57				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1911				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.2				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.5				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-185780-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	130		100	80	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.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Client Sample ID: MW-304

Lab Sample ID: 310-185780-1

Date Collected: 07/07/20 14:25

Matrix: Water

Date Received: 07/08/20 17:00

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.4		2.0	0.88	ug/L		07/10/20 08:04	07/10/20 18:34	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	577.15				ft			07/07/20 14:25	1
Oxidation Reduction Potential	-23.6				millivolts			07/07/20 14:25	1
Oxygen, Dissolved, Client Supplied	0.28				mg/L			07/07/20 14:25	1
pH, Field	6.81				SU			07/07/20 14:25	1
Specific Conductance, Field	1004				umhos/cm			07/07/20 14:25	1
Temperature, Field	13.4				Degrees C			07/07/20 14:25	1
Turbidity, Field	12.8				NTU			07/07/20 14:25	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Client Sample ID: MW-307

Lab Sample ID: 310-185780-2

Date Collected: 07/07/20 12:15

Matrix: Water

Date Received: 07/08/20 17:00

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	53		5.0	2.0	mg/L			07/10/20 11:00	5
Fluoride	<0.23		0.50	0.23	mg/L			07/10/20 11:00	5
Sulfate	15		5.0	3.6	mg/L			07/10/20 11:00	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.51		1.0	0.51	ug/L		07/10/20 08:04	07/10/20 18:53	1
Arsenic	1.7	J	2.0	0.88	ug/L		07/10/20 08:04	07/10/20 18:53	1
Barium	320		2.0	0.28	ug/L		07/10/20 08:04	07/10/20 18:53	1
Beryllium	<0.27		1.0	0.27	ug/L		07/10/20 08:04	07/10/20 18:53	1
Boron	280		100	80	ug/L		07/10/20 08:04	07/10/20 18:53	1
Cadmium	0.098	J	0.10	0.049	ug/L		07/10/20 08:04	07/10/20 18:53	1
Calcium	260		0.50	0.19	mg/L		07/10/20 08:04	07/10/20 18:53	1
Chromium	<1.1		5.0	1.1	ug/L		07/10/20 08:04	07/10/20 18:53	1
Cobalt	6.3		0.50	0.091	ug/L		07/10/20 08:04	07/10/20 18:53	1
Lead	0.12	J	0.50	0.11	ug/L		07/10/20 08:04	07/10/20 18:53	1
Lithium	<2.5		10	2.5	ug/L		07/10/20 08:04	07/10/20 18:53	1
Molybdenum	2.5		2.0	1.1	ug/L		07/10/20 08:04	07/10/20 18:53	1
Selenium	<1.0		5.0	1.0	ug/L		07/10/20 08:04	07/10/20 18:53	1
Thallium	<0.26		1.0	0.26	ug/L		07/10/20 08:04	07/10/20 18:53	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		07/10/20 11:21	07/13/20 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		60	52	mg/L			07/09/20 14:52	1
pH	6.7	HF	0.1	0.1	SU			07/09/20 00:21	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	593.85				ft			07/07/20 12:15	1
Oxidation Reduction Potential	-0.4				millivolts			07/07/20 12:15	1
Oxygen, Dissolved, Client Supplied	0.39				mg/L			07/07/20 12:15	1
pH, Field	6.57				SU			07/07/20 12:15	1
Specific Conductance, Field	1911				umhos/cm			07/07/20 12:15	1
Temperature, Field	14.2				Degrees C			07/07/20 12:15	1
Turbidity, Field	3.5				NTU			07/07/20 12:15	1

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Client Sample ID: Field Blank

Lab Sample ID: 310-185780-3

Date Collected: 07/07/20 12:30

Matrix: Water

Date Received: 07/08/20 17:00

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			07/10/20 11:00	1
Fluoride	<0.046		0.10	0.046	mg/L			07/10/20 11:00	1
Sulfate	<0.71		1.0	0.71	mg/L			07/10/20 11:00	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.51		1.0	0.51	ug/L		07/10/20 08:04	07/10/20 18:55	1
Arsenic	<0.88		2.0	0.88	ug/L		07/10/20 08:04	07/10/20 18:55	1
Barium	<0.28		2.0	0.28	ug/L		07/10/20 08:04	07/10/20 18:55	1
Beryllium	<0.27		1.0	0.27	ug/L		07/10/20 08:04	07/10/20 18:55	1
Boron	130		100	80	ug/L		07/10/20 08:04	07/10/20 18:55	1
Cadmium	<0.049		0.10	0.049	ug/L		07/10/20 08:04	07/10/20 18:55	1
Calcium	<0.19		0.50	0.19	mg/L		07/10/20 08:04	07/10/20 18:55	1
Chromium	<1.1		5.0	1.1	ug/L		07/10/20 08:04	07/10/20 18:55	1
Cobalt	<0.091		0.50	0.091	ug/L		07/10/20 08:04	07/10/20 18:55	1
Lead	<0.11		0.50	0.11	ug/L		07/10/20 08:04	07/10/20 18:55	1
Lithium	<2.5		10	2.5	ug/L		07/10/20 08:04	07/10/20 18:55	1
Molybdenum	<1.1		2.0	1.1	ug/L		07/10/20 08:04	07/10/20 18:55	1
Selenium	<1.0		5.0	1.0	ug/L		07/10/20 08:04	07/10/20 18:55	1
Thallium	<0.26		1.0	0.26	ug/L		07/10/20 08:04	07/10/20 18:55	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		07/10/20 11:21	07/13/20 12:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		30	26	mg/L			07/09/20 14:52	1
pH	6.0	HF	0.1	0.1	SU			07/09/20 00:24	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Qualifiers

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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

QC Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-284965/3
Matrix: Water
Analysis Batch: 284965

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			07/10/20 11:00	1
Fluoride	<0.046		0.10	0.046	mg/L			07/10/20 11:00	1
Sulfate	<0.71		1.0	0.71	mg/L			07/10/20 11:00	1

Lab Sample ID: LCS 310-284965/4
Matrix: Water
Analysis Batch: 284965

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	9.50		mg/L		95	90 - 110
Fluoride	2.00	2.04		mg/L		102	90 - 110
Sulfate	10.0	9.96		mg/L		100	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-284709/1-A
Matrix: Water
Analysis Batch: 284952

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284709

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.51		1.0	0.51	ug/L		07/10/20 08:04	07/10/20 18:29	1
Arsenic	<0.88		2.0	0.88	ug/L		07/10/20 08:04	07/10/20 18:29	1
Barium	<0.28		2.0	0.28	ug/L		07/10/20 08:04	07/10/20 18:29	1
Beryllium	<0.27		1.0	0.27	ug/L		07/10/20 08:04	07/10/20 18:29	1
Boron	<80		100	80	ug/L		07/10/20 08:04	07/10/20 18:29	1
Cadmium	<0.049		0.10	0.049	ug/L		07/10/20 08:04	07/10/20 18:29	1
Calcium	<190		500	190	ug/L		07/10/20 08:04	07/10/20 18:29	1
Chromium	<1.1		5.0	1.1	ug/L		07/10/20 08:04	07/10/20 18:29	1
Cobalt	<0.091		0.50	0.091	ug/L		07/10/20 08:04	07/10/20 18:29	1
Lead	<0.11		0.50	0.11	ug/L		07/10/20 08:04	07/10/20 18:29	1
Lithium	<2.5		10	2.5	ug/L		07/10/20 08:04	07/10/20 18:29	1
Molybdenum	<1.1		2.0	1.1	ug/L		07/10/20 08:04	07/10/20 18:29	1
Selenium	<1.0		5.0	1.0	ug/L		07/10/20 08:04	07/10/20 18:29	1
Thallium	<0.26		1.0	0.26	ug/L		07/10/20 08:04	07/10/20 18:29	1

Lab Sample ID: LCS 310-284709/2-A
Matrix: Water
Analysis Batch: 284952

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	80.0	68.2		ug/L		85	80 - 120
Barium	80.0	74.9		ug/L		94	80 - 120
Beryllium	40.0	40.5		ug/L		101	80 - 120
Boron	1760	1640		ug/L		93	80 - 120
Cadmium	40.0	38.4		ug/L		96	80 - 120
Calcium	4000	3900		ug/L		98	80 - 120
Chromium	80.0	79.9		ug/L		100	80 - 120
Cobalt	40.0	38.3		ug/L		96	80 - 120
Lead	40.0	39.5		ug/L		99	80 - 120

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-284709/2-A
Matrix: Water
Analysis Batch: 284952

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	200	192		ug/L		96	80 - 120
Molybdenum	80.0	66.2		ug/L		83	80 - 120
Selenium	80.0	64.3		ug/L		80	80 - 120
Thallium	32.0	30.3		ug/L		95	80 - 120

Lab Sample ID: LCS 310-284709/2-A
Matrix: Water
Analysis Batch: 284993

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	36.9		ug/L		92	80 - 120

Lab Sample ID: 310-185780-1 MS
Matrix: Water
Analysis Batch: 284952

Client Sample ID: MW-304
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.51		40.0	36.4		ug/L		91	75 - 125
Arsenic	4.4		80.0	78.4		ug/L		93	75 - 125
Barium	110		80.0	192		ug/L		100	75 - 125
Beryllium	<0.27		40.0	42.6		ug/L		106	75 - 125
Cadmium	0.32		40.0	42.3		ug/L		105	75 - 125
Calcium	98000		4.00	99.6	4	mg/L		-2439 814	75 - 125
Chromium	<1.1		80.0	84.8		ug/L		106	75 - 125
Cobalt	0.98		40.0	41.2		ug/L		101	75 - 125
Lead	0.16	J	40.0	41.8		ug/L		104	75 - 125
Lithium	2.7	J	200	206		ug/L		102	75 - 125
Molybdenum	900		80.0	984	4	ug/L		100	75 - 125
Selenium	<1.0		80.0	73.4		ug/L		92	75 - 125
Thallium	<0.26		32.0	31.8		ug/L		99	75 - 125

Lab Sample ID: 310-185780-1 MS
Matrix: Water
Analysis Batch: 284994

Client Sample ID: MW-304
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	9600		1760	10500	4	ug/L		51	75 - 125

Lab Sample ID: 310-185780-1 MSD
Matrix: Water
Analysis Batch: 284952

Client Sample ID: MW-304
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	<0.51		40.0	38.2		ug/L		96	75 - 125	5	20
Arsenic	4.4		80.0	83.2		ug/L		99	75 - 125	6	20
Barium	110		80.0	203		ug/L		114	75 - 125	6	20
Beryllium	<0.27		40.0	45.6		ug/L		114	75 - 125	7	20
Cadmium	0.32		40.0	45.2		ug/L		112	75 - 125	6	20

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-185780-1 MSD
Matrix: Water
Analysis Batch: 284952

Client Sample ID: MW-304
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	98000		4.00	107	4	mg/L		-2439 628	75 - 125	7	20
Chromium	<1.1		80.0	90.3		ug/L		113	75 - 125	6	20
Cobalt	0.98		40.0	43.6		ug/L		107	75 - 125	6	20
Lead	0.16	J	40.0	44.4		ug/L		111	75 - 125	6	20
Lithium	2.7	J	200	221		ug/L		109	75 - 125	7	20
Molybdenum	900		80.0	1060	4	ug/L		191	75 - 125	7	20
Selenium	<1.0		80.0	75.9		ug/L		95	75 - 125	3	20
Thallium	<0.26		32.0	33.9		ug/L		106	75 - 125	6	20

Lab Sample ID: 310-185780-1 MSD
Matrix: Water
Analysis Batch: 284994

Client Sample ID: MW-304
Prep Type: Total/NA
Prep Batch: 284709

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	9600		1760	10600	4	ug/L		54	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-284760/1-A
Matrix: Water
Analysis Batch: 285005

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		07/10/20 11:21	07/13/20 12:22	1

Lab Sample ID: LCS 310-284760/2-A
Matrix: Water
Analysis Batch: 285005

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.67	1.67		ug/L		100	80 - 120

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

Lab Sample ID: MB 310-284648/1
Matrix: Water
Analysis Batch: 284648

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	<26		30	26	mg/L			07/09/20 14:52	1

Lab Sample ID: LCS 310-284648/2
Matrix: Water
Analysis Batch: 284648

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	980		mg/L		98	90 - 110

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-284535/1
Matrix: Water
Analysis Batch: 284535

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		99	98 - 102

Lab Sample ID: 310-185780-2 DU
Matrix: Water
Analysis Batch: 284535

Client Sample ID: MW-307
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.7	HF	6.7		SU		0.1	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

HPLC/IC

Analysis Batch: 284965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	9056A	
310-185780-3	Field Blank	Total/NA	Water	9056A	
MB 310-284965/3	Method Blank	Total/NA	Water	9056A	
LCS 310-284965/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 284709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-1	MW-304	Total/NA	Water	3010A	
310-185780-2	MW-307	Total/NA	Water	3010A	
310-185780-3	Field Blank	Total/NA	Water	3010A	
MB 310-284709/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-284709/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-185780-1 MS	MW-304	Total/NA	Water	3010A	
310-185780-1 MSD	MW-304	Total/NA	Water	3010A	

Prep Batch: 284760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	7470A	
310-185780-3	Field Blank	Total/NA	Water	7470A	
MB 310-284760/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-284760/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 284952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-1	MW-304	Total/NA	Water	6020A	284709
310-185780-2	MW-307	Total/NA	Water	6020A	284709
310-185780-3	Field Blank	Total/NA	Water	6020A	284709
MB 310-284709/1-A	Method Blank	Total/NA	Water	6020A	284709
LCS 310-284709/2-A	Lab Control Sample	Total/NA	Water	6020A	284709
310-185780-1 MS	MW-304	Total/NA	Water	6020A	284709
310-185780-1 MSD	MW-304	Total/NA	Water	6020A	284709

Analysis Batch: 284993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-284709/2-A	Lab Control Sample	Total/NA	Water	6020A	284709

Analysis Batch: 284994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-1 MS	MW-304	Total/NA	Water	6020A	284709
310-185780-1 MSD	MW-304	Total/NA	Water	6020A	284709

Analysis Batch: 285005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	7470A	284760
310-185780-3	Field Blank	Total/NA	Water	7470A	284760
MB 310-284760/1-A	Method Blank	Total/NA	Water	7470A	284760
LCS 310-284760/2-A	Lab Control Sample	Total/NA	Water	7470A	284760

Eurofins TestAmerica, Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

General Chemistry

Analysis Batch: 284535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	SM 4500 H+ B	
310-185780-3	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-284535/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-185780-2 DU	MW-307	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 284648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	SM 2540C	
310-185780-3	Field Blank	Total/NA	Water	SM 2540C	
MB 310-284648/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-284648/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 284702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-1	MW-304	Total/NA	Water	Field Sampling	
310-185780-2	MW-307	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Client Sample ID: MW-304

Date Collected: 07/07/20 14:25

Date Received: 07/08/20 17:00

Lab Sample ID: 310-185780-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			284709	07/10/20 08:04	HED	TAL CF
Total/NA	Analysis	6020A		1	284952	07/10/20 18:34	SAD	TAL CF
Total/NA	Analysis	Field Sampling		1	284702	07/07/20 14:25	SJF	TAL CF

Client Sample ID: MW-307

Date Collected: 07/07/20 12:15

Date Received: 07/08/20 17:00

Lab Sample ID: 310-185780-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	284965	07/10/20 11:00	ACJ	TAL CF
Total/NA	Prep	3010A			284709	07/10/20 08:04	HED	TAL CF
Total/NA	Analysis	6020A		1	284952	07/10/20 18:53	SAD	TAL CF
Total/NA	Prep	7470A			284760	07/10/20 11:21	HIS	TAL CF
Total/NA	Analysis	7470A		1	285005	07/13/20 12:54	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	284648	07/09/20 14:52	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	284535	07/09/20 00:21	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	284702	07/07/20 12:15	SJF	TAL CF

Client Sample ID: Field Blank

Date Collected: 07/07/20 12:30

Date Received: 07/08/20 17:00

Lab Sample ID: 310-185780-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	284965	07/10/20 11:00	ACJ	TAL CF
Total/NA	Prep	3010A			284709	07/10/20 08:04	HED	TAL CF
Total/NA	Analysis	6020A		1	284952	07/10/20 18:55	SAD	TAL CF
Total/NA	Prep	7470A			284760	07/10/20 11:21	HIS	TAL CF
Total/NA	Analysis	7470A		1	285005	07/13/20 12:56	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	284648	07/09/20 14:52	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	284535	07/09/20 00:24	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
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-21

- 1
- 2
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Method Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-1

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

Eurofins TestAmerica, Cedar Falls



Environment Testing
TestAmerica



310-185780 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>Madison WI</u>	Project: <u>GW Montong</u>	
Receipt Information		
Date/Time Received: <u>7/18/20</u> <u>1700</u>	Received By: <u>JJ</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>TD.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>0.9</u>	Corrected Temp (°C): <u>1.0</u>	
• Sample Container Temperature		
Container(s) used:	CONTAINER 1	CONTAINER 2
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		

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Chain of Custody Record

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277.2425

Regulatory Program: DW NPDES RCRA Other: CCR

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact						Project Manager: <u>Meg Blodgett</u>						Site Contact:						COC No.: <u>1</u> of <u>1</u> COCs					
Your Company Name here: <u>SLS Engineers</u>						Email: <u>mbloджетт@slesengineers.com</u>						Lab Contact:						TALS Project #:					
Address: <u>2830 Dairy Drive</u>						Tel/Fax: <u>608-345-9221</u>						Carrier:						Sampler: <u>Matthew Cahalan</u>					
City/State/Zip: <u>Madiison, WI 53718</u>						Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						Filtered Sample (Y/N)						Perform MS/MSD (Y/N) <u>Arsenic</u> <u>CCR App. III analytes</u> <u>CCR App. IV analytes</u>					
(xxx) xxx-xxxx: <u>608-224-2830</u>						TAT if different from Below: <u>3 days</u>																	
(xxx) xxx-xxxx: <u>FAX</u>						<input type="checkbox"/> 2 weeks																	
Project Name: <u>ML Kapp Groundwater Monitoring</u>						<input type="checkbox"/> 1 week																	
Site: <u>Alliant, ML Kapp, Clinton, Iowa</u>						<input type="checkbox"/> 2 days						non-radium analytes											
P O # <u>25220077.00</u>						<input type="checkbox"/> 1 day																	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Perform MS/MSD (Y/N)			Filtered Sample (Y/N)			Sample Specific Notes:										
MW-304		7/7/20	1425	G	W	1	N	N	X				Arsenic analysis only										
MW-307		7/7/20	1215	G	W	3	N	N		X	X		CCR App. III + IV analytes										
Field Blank		7/7/20	1230	G	W	3	N	N		X	X		CCR App. III + IV analytes										
													* 3-Day TAT for all non-radium analytes *										
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for _____ Months											
Special Instructions/QC Requirements & Comments: <u>See attached parameter list for CCR Appendix III + IV analytes.</u>																							
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						Custody Seal No.:						Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.:											
Relinquished by: <u>Matthew Cahalan</u>			Company: <u>SLS Engineers</u>			Date/Time: <u>7/8/20 1315</u>			Received by:			Company: _____			Date/Time: _____								
Relinquished by:			Company:			Date/Time:			Received by:			Company:			Date/Time:								
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Company:			Date/Time: <u>7/8/20 1700</u>								

07/01/2021 - Classified Page 20 of 25 Internal - ECRM12620958

7/13/2020



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Table 3. Parameters for Groundwater Monitoring to meet Federal Requirements

Appendix III	Boron
	Calcium
	Chloride
	Fluoride
	pH
	Sulfate
	TDS
Appendix IV	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Fluoride
	Lead
	Lithium
	Mercury
	Molybdenum
	Selenium
	Thallium
	Radium

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-185780-1

SDG Number:

Login Number: 185780

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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	



Fredrick, Sandie

From: Blodgett, Meghan <mblodgett@scsengineers.com>
Sent: Thursday, July 09, 2020 9:52 PM
To: Fredrick, Sandie
Cc: Kron, Nicole
Subject: RE: Eurofins TestAmerica Sample Login Confirmation files from 310-185780 ML Kapp Groundwater Monitoring 25220077

EXTERNAL EMAIL*

Sandie,

Field data for these samples are as follows:

MW-304:

Groundwater elevation: 577.15 ft amsl

pH: 6.81 std. units

Spec. Cond.: 1004 uS/cm

Temperature: 13.4 deg. C

Turbidity: 12.8 NTU

DO: 0.28 mg/L

ORP: -23.6 mV

MW-307:

Groundwater elevation: 593.85 ft amsl

pH: 6.57 std. units

Spec. Cond.: 1911 uS/cm

Temperature: 14.2 deg. C

Turbidity: 3.5 NTU

DO: 0.39 mg/L

ORP: -0.4 mV

Meghan Blodgett

SCS Engineers

Madison, WI

608-345-9221 (C)

mblodgett@scsengineers.com

www.scsengineers.com

From: Sandie Fredrick <sandie.fredrick@testamericainc.com>

Sent: Thursday, July 9, 2020 3:51 PM

To: Blodgett, Meghan <mblodgett@scsengineers.com>; Kron, Nicole <NKron@scsengineers.com>; Karwoski, Thomas <TKarwoski@scsengineers.com>

Subject: Eurofins TestAmerica Sample Login Confirmation files from 310-185780 ML Kapp Groundwater Monitoring 25220077

This email originated from outside of SCS Engineers. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Everyone,

Logged for RUSH TAT. Can you please send field data as soon as possible to log with?
Thanks,
Sandie

Attached, please find the Sample Confirmation files for job 310-185780; ML Kapp Groundwater Monitoring 25220077

Please feel free to contact me if you have any questions.

Thank you.

Sandie Fredrick
Project Manager

TestAmerica Laboratories, Inc.
Phone: 920-261-1660

E-mail: sandie.fredrick@testamericainc.com
www.eurofinsus.com/env



Reference: [310-440020]
Attachments: 5

Please let us know if we met your expectations by rating the service you received from Eurofins TestAmerica on this project by visiting our website at: [Project Feedback](#)

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

- 1
- 2
- 3
- 4
- 5
- 6
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- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

ANALYTICAL REPORT

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

Laboratory Job ID: 310-185780-2

Client Project/Site: ML Kapp Groundwater Monitoring 25220077

For:

SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



*Authorized for release by:
8/6/2020 12:51:20 PM*

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

LINKS

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results through
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Have a Question?



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www.eurofinsus.com/Env

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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	8
QC Sample Results	9
QC Association	11
Chronicle	12
Certification Summary	13
Method Summary	14
Chain of Custody	15
Receipt Checklists	18
Tracer Carrier Summary	20

Case Narrative

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Job ID: 310-185780-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-185780-2

Comments

No additional comments.

Receipt

The samples were received on 7/8/2020 5:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.0° C.

RAD

Method 903.0: Radium-226 prep batch 160-476076: 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-307 (310-185780-2), Field Blank (310-185780-3), (LCS 160-476076/1-A), (LCSD 160-476076/2-A) and (MB 160-476076/18-A)

Method 904.0: Radium-228 Prep Batch 160-476079: 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-307 (310-185780-2), Field Blank (310-185780-3), (LCS 160-476079/1-A), (LCSD 160-476079/2-A) and (MB 160-476079/18-A)

Method PrecSep_0: Radium 228 Prep Batch 160-476079: Samples 160-38631-1, 310-185780-2 & 3, 160-38636-1, and 160-38650-1 were prepared at a reduced aliquot to insure sufficient volume remains if needed for analysis. Samples 310-185831-2, 160-38636-2, and 160-38649-2 were reduced due to brown/yellow discoloration and heavy sediment levels, causing an opaque appearance: MW-307 (310-185780-2) and Field Blank (310-185780-3) A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-476076: Samples 160-38631-1, 310-185780-2 & 3, 160-38636-1, and 160-38650-1 were prepared at a reduced aliquot to insure sufficient volume remains if needed for analysis. Samples 310-185831-2, 160-38636-2, and 160-38649-2 were reduced due to brown/yellow discoloration and heavy sediment levels, causing an opaque appearance: MW-307 (310-185780-2) and Field Blank (310-185780-3) A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-185780-2	MW-307	Water	07/07/20 12:15	07/08/20 17:00	
310-185780-3	Field Blank	Water	07/07/20 12:30	07/08/20 17:00	

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Detection Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Client Sample ID: MW-307

Lab Sample ID: 310-185780-2

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 310-185780-3

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Client Sample ID: MW-307

Lab Sample ID: 310-185780-2

Date Collected: 07/07/20 12:15

Matrix: Water

Date Received: 07/08/20 17:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.381		0.253	0.256	1.00	0.322	pCi/L	07/13/20 12:58	08/05/20 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	66.5		40 - 110					07/13/20 12:58	08/05/20 12:12	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	0.461	U	0.470	0.472	1.00	0.763	pCi/L	07/13/20 13:35	08/04/20 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	66.5		40 - 110					07/13/20 13:35	08/04/20 13:10	1
Y Carrier	78.1		40 - 110					07/13/20 13:35	08/04/20 13:10	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	0.841		0.534	0.537	5.00	0.763	pCi/L		08/06/20 09:59	1

Client Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Client Sample ID: Field Blank

Lab Sample ID: 310-185780-3

Date Collected: 07/07/20 12:30

Matrix: Water

Date Received: 07/08/20 17:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0585	U	0.133	0.133	1.00	0.253	pCi/L	07/13/20 12:58	08/05/20 12:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.5		40 - 110					07/13/20 12:58	08/05/20 12:12	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	0.329	U	0.518	0.519	1.00	0.871	pCi/L	07/13/20 13:35	08/04/20 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.5		40 - 110					07/13/20 13:35	08/04/20 13:10	1
Y Carrier	75.5		40 - 110					07/13/20 13:35	08/04/20 13:10	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	0.387	U	0.535	0.536	5.00	0.871	pCi/L		08/06/20 09:59	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

QC Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-476076/18-A
Matrix: Water
Analysis Batch: 478462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 476076

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.04224	U	0.108	0.108	1.00	0.202	pCi/L	07/13/20 12:58	08/05/20 14:40	1
Carrier	MB	MB	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	Qualifier								
	91.4		40 - 110							

Lab Sample ID: LCS 160-476076/1-A
Matrix: Water
Analysis Batch: 478462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 476076

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.10		1.23	1.00	0.214	pCi/L	89	75 - 125
Carrier	LCS	LCS	Limits						
Ba Carrier	%Yield	Qualifier							
	88.7		40 - 110						

Lab Sample ID: LCSD 160-476076/2-A
Matrix: Water
Analysis Batch: 478462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 476076

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	10.37		1.27	1.00	0.244	pCi/L	91	75 - 125	0.11	1
Carrier	LCSD	LCSD	Limits								
Ba Carrier	%Yield	Qualifier									
	85.8		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-476079/18-A
Matrix: Water
Analysis Batch: 478457

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 476079

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2692	U	0.275	0.276	1.00	0.448	pCi/L	07/13/20 13:35	08/04/20 13:11	1
Carrier	MB	MB	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	Qualifier								
Y Carrier	82.6		40 - 110					07/13/20 13:35	08/04/20 13:11	1

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-476079/1-A
Matrix: Water
Analysis Batch: 478456

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 476079

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	10.2	10.03		1.21	1.00	0.494	pCi/L	98	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	88.7		40 - 110
Y Carrier	84.1		40 - 110

Lab Sample ID: LCSD 160-476079/2-A
Matrix: Water
Analysis Batch: 478456

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 476079

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	10.2	11.46		1.37	1.00	0.545	pCi/L	112	75 - 125	0.56	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	85.8		40 - 110
Y Carrier	79.3		40 - 110



QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Rad

Prep Batch: 476076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	PrecSep-21	
310-185780-3	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-476076/18-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-476076/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-476076/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 476079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-185780-2	MW-307	Total/NA	Water	PrecSep_0	
310-185780-3	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-476079/18-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-476079/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-476079/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Client Sample ID: MW-307

Date Collected: 07/07/20 12:15

Date Received: 07/08/20 17:00

Lab Sample ID: 310-185780-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			476076	07/13/20 12:58	MNH	TAL SL
Total/NA	Analysis	903.0		1	478462	08/05/20 12:12	CMM	TAL SL
Total/NA	Prep	PrecSep_0			476079	07/13/20 13:35	MNH	TAL SL
Total/NA	Analysis	904.0		1	478457	08/04/20 13:10	CMM	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	478669	08/06/20 09:59	SMP	TAL SL

Client Sample ID: Field Blank

Date Collected: 07/07/20 12:30

Date Received: 07/08/20 17:00

Lab Sample ID: 310-185780-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			476076	07/13/20 12:58	MNH	TAL SL
Total/NA	Analysis	903.0		1	478462	08/05/20 12:12	CMM	TAL SL
Total/NA	Prep	PrecSep_0			476079	07/13/20 13:35	MNH	TAL SL
Total/NA	Analysis	904.0		1	478457	08/04/20 13:10	CMM	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	478669	08/06/20 09:59	SMP	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Eurofins TestAmerica, Cedar Falls

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

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
Alaska (UST)	State	20-001	05-06-22
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	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	07-01-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Method Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

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



Environment Testing
TestAmerica



310-185780 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>Madison WI</u>	Project: <u>GW Montong</u>	
Receipt Information		
Date/Time Received: <u>7/18/20</u> <u>1700</u>	Received By: <u>JJ</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>TD.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>0.9</u>	Corrected Temp (°C): <u>1.0</u>	
• Sample Container Temperature		
Container(s) used:	CONTAINER 1	CONTAINER 2
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		

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Chain of Custody Record

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277.2425

Regulatory Program: DW NPDES RCRA Other: **CCR**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact Your Company Name here: SCS Engineers Address: 2830 Dairy Drive City/State/Zip: Mason, WI 53718 Phone: 608-224-2860 FAX: _____ Project Name: ML Kapp Groundwater Monitoring Site: Alliant, ML Kapp, Clinton, Iowa PO#: 25220077.00	Project Manager: Meg Blodgett Email: mblodgett@scsengineers.com Tel/Fax: 608-345-9221	Site Contact: _____ Lab Contact: _____ Date: _____ Carrier: _____	COC No.: _____ of _____ COCs TALS Project #: _____ Sampler: Matthew Cahalan For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____ Sample Specific Notes: _____																				
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below: 3 days for all non-radium analytes <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <th>Filtered Sample (Y/N)</th> <th>Perform MS / MSD (Y/N)</th> <th colspan="2">Analytes</th> </tr> <tr> <td style="text-align: center;">N</td> <td style="text-align: center;">X</td> <td style="text-align: center;">Arsenic</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">N</td> <td style="text-align: center;">X</td> <td style="text-align: center;">CCR App. III analytes</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">N</td> <td style="text-align: center;">X</td> <td style="text-align: center;">CCR App. IV analytes</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">N</td> <td style="text-align: center;">X</td> <td style="text-align: center;">CCR App. III + IV analytes</td> <td style="text-align: center;">X</td> </tr> </table>		Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Analytes		N	X	Arsenic	X	N	X	CCR App. III analytes	X	N	X	CCR App. IV analytes	X	N	X	CCR App. III + IV analytes	X
Filtered Sample (Y/N)	Perform MS / MSD (Y/N)			Analytes																			
N	X			Arsenic	X																		
N	X			CCR App. III analytes	X																		
N	X			CCR App. IV analytes	X																		
N	X	CCR App. III + IV analytes	X																				
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Analytes															
MW-304	7/7/20	1425	G	W	1	N	X	Arsenic															
MW-307	7/7/20	1215	G	W	3	N	X	CCR App. III + IV analytes															
Field Blank	7/7/20	1230	G	W	3	N	X	CCR App. III + IV analytes															
<p>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____</p> <p>Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.</p> <p> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown </p>																							
Special Instructions/QC Requirements & Comments: <p style="font-size: 1.2em; color: blue;">See attached parameter list for CCR Appendix III + IV analytes.</p>					<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months </p>																		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Relinquished by: Matthew Cahalan Relinquished by: _____ Relinquished by: _____	Custody Seal No.: _____ Company: SCS Engineers Company: _____ Company: _____	Date/Time: 7/8/20 1315 Date/Time: _____ Date/Time: _____	Received by: _____ Received by: _____ Received in Laboratory by: [Signature]	Cooler Temp. (°C): Obs'd: _____ Company: _____ Company: _____ Company: _____	Corr'd: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____	Therm ID No.: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____																	

07/01/2021 - Classified Page 16 of 20 Internal - ECRM12620958 8/6/2020



1
2
3
4
5
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7
8
9
10
11
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13
14
15

Table 3. Parameters for Groundwater Monitoring to meet Federal Requirements

Appendix III	Boron
	Calcium
	Chloride
	Fluoride
	pH
	Sulfate
	TDS
Appendix IV	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Fluoride
	Lead
	Lithium
	Mercury
	Molybdenum
	Selenium
	Thallium
	Radium

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-185780-2

SDG Number:

Login Number: 185780

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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: 310-185780-2

SDG Number:

Login Number: 185780

List Number: 2

Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis

List Creation: 07/10/20 01:05 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.	N/A	
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	



Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: ML Kapp Groundwater Monitoring 25220077

Job ID: 310-185780-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)
310-185780-2	MW-307	66.5
310-185780-3	Field Blank	79.5
LCS 160-476076/1-A	Lab Control Sample	88.7
LCSD 160-476076/2-A	Lab Control Sample Dup	85.8
MB 160-476076/18-A	Method Blank	91.4

Tracer/Carrier Legend

Ba = 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 (40-110)	Y (40-110)
310-185780-2	MW-307	66.5	78.1
310-185780-3	Field Blank	79.5	75.5
LCS 160-476079/1-A	Lab Control Sample	88.7	84.1
LCSD 160-476079/2-A	Lab Control Sample Dup	85.8	79.3
MB 160-476079/18-A	Method Blank	91.4	82.6

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

C4 August 2020 Assessment Monitoring

ANALYTICAL REPORT

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

Laboratory Job ID: 310-188063-1
Client Project/Site: Alliant - ML Kapp 25220077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
8/17/2020 10:31:31 AM

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

LINKS

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results through
Total Access

Have a Question?



Visit us at:

www.eurofinsus.com/Env

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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	8
QC Sample Results	9
QC Association	13
Chronicle	15
Certification Summary	16
Method Summary	17
Chain of Custody	18
Receipt Checklists	20

Case Narrative

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Job ID: 310-188063-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-188063-1

Comments

No additional comments.

Receipt

The samples were received on 8/7/2020 5:35 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3° C.

HPLC/IC

Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-307 (310-188063-1). 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: The continuing calibration verification (CCV) associated with batch 310-288263 recovered above the upper control limit for Barium, Cadmium, Lead and Thallium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: Field Blank (310-188063-2).

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: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-188063-1	MW-307	Water	08/07/20 10:53	08/07/20 17:35	
310-188063-2	Field Blank	Water	08/07/20 11:15	08/07/20 17:35	

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Detection Summary

Client: SCS Engineers
 Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Client Sample ID: MW-307

Lab Sample ID: 310-188063-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	55		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	17		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	1.1	J	2.0	0.88	ug/L	1		6020A	Total/NA
Barium	330		2.0	0.28	ug/L	1		6020A	Total/NA
Cadmium	0.13		0.10	0.049	ug/L	1		6020A	Total/NA
Calcium	260		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	1.9		0.50	0.091	ug/L	1		6020A	Total/NA
Total Dissolved Solids	980		60	52	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	593.06				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	31.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.13				mg/L	1		Field Sampling	Total/NA
pH, Field	7.45				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1759				uS/cm	1		Field Sampling	Total/NA
Temperature, Field	15.6				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	6.61				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-188063-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
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.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Client Sample ID: MW-307

Lab Sample ID: 310-188063-1

Date Collected: 08/07/20 10:53

Matrix: Water

Date Received: 08/07/20 17:35

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	55		5.0	2.0	mg/L			08/12/20 08:35	5
Fluoride	<0.23		0.50	0.23	mg/L			08/12/20 08:35	5
Sulfate	17		5.0	3.6	mg/L			08/12/20 08:35	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.51		1.0	0.51	ug/L		08/10/20 08:22	08/11/20 17:29	1
Arsenic	1.1	J	2.0	0.88	ug/L		08/10/20 08:22	08/11/20 17:29	1
Barium	330		2.0	0.28	ug/L		08/10/20 08:22	08/12/20 18:28	1
Beryllium	<0.27		1.0	0.27	ug/L		08/10/20 08:22	08/11/20 17:29	1
Boron	<80		100	80	ug/L		08/10/20 08:22	08/11/20 17:29	1
Cadmium	0.13		0.10	0.049	ug/L		08/10/20 08:22	08/12/20 18:28	1
Calcium	260		0.50	0.19	mg/L		08/10/20 08:22	08/11/20 17:29	1
Chromium	<1.1		5.0	1.1	ug/L		08/10/20 08:22	08/11/20 17:29	1
Cobalt	1.9		0.50	0.091	ug/L		08/10/20 08:22	08/11/20 17:29	1
Lead	<0.11		0.50	0.11	ug/L		08/10/20 08:22	08/12/20 18:28	1
Lithium	<2.5		10	2.5	ug/L		08/10/20 08:22	08/11/20 17:29	1
Molybdenum	<1.1		2.0	1.1	ug/L		08/10/20 08:22	08/11/20 17:29	1
Selenium	<1.0		5.0	1.0	ug/L		08/10/20 08:22	08/11/20 17:29	1
Thallium	<0.26		1.0	0.26	ug/L		08/10/20 08:22	08/12/20 18:28	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10	F1	0.20	0.10	ug/L		08/12/20 11:58	08/13/20 13:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	980		60	52	mg/L			08/11/20 14:43	1
pH	6.9	HF	0.1	0.1	SU			08/07/20 21:24	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	593.06				ft			08/07/20 10:53	1
Oxidation Reduction Potential	31.8				millivolts			08/07/20 10:53	1
Oxygen, Dissolved, Client Supplied	0.13				mg/L			08/07/20 10:53	1
pH, Field	7.45				SU			08/07/20 10:53	1
Specific Conductance, Field	1759				uS/cm			08/07/20 10:53	1
Temperature, Field	15.6				Degrees C			08/07/20 10:53	1
Turbidity, Field	6.61				NTU			08/07/20 10:53	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Client Sample ID: Field Blank

Lab Sample ID: 310-188063-2

Date Collected: 08/07/20 11:15

Matrix: Water

Date Received: 08/07/20 17:35

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			08/13/20 08:35	1
Fluoride	<0.046		0.10	0.046	mg/L			08/13/20 08:35	1
Sulfate	<0.71		1.0	0.71	mg/L			08/13/20 08:35	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.51		1.0	0.51	ug/L		08/10/20 08:22	08/11/20 17:40	1
Arsenic	<0.88		2.0	0.88	ug/L		08/10/20 08:22	08/11/20 17:40	1
Barium	<0.28	^	2.0	0.28	ug/L		08/10/20 08:22	08/11/20 17:40	1
Beryllium	<0.27		1.0	0.27	ug/L		08/10/20 08:22	08/11/20 17:40	1
Boron	<80		100	80	ug/L		08/10/20 08:22	08/11/20 17:40	1
Cadmium	<0.049	^	0.10	0.049	ug/L		08/10/20 08:22	08/11/20 17:40	1
Calcium	<0.19		0.50	0.19	mg/L		08/10/20 08:22	08/11/20 17:40	1
Chromium	<1.1		5.0	1.1	ug/L		08/10/20 08:22	08/11/20 17:40	1
Cobalt	<0.091		0.50	0.091	ug/L		08/10/20 08:22	08/11/20 17:40	1
Lead	<0.11	^	0.50	0.11	ug/L		08/10/20 08:22	08/11/20 17:40	1
Lithium	<2.5		10	2.5	ug/L		08/10/20 08:22	08/11/20 17:40	1
Molybdenum	<1.1		2.0	1.1	ug/L		08/10/20 08:22	08/11/20 17:40	1
Selenium	<1.0		5.0	1.0	ug/L		08/10/20 08:22	08/11/20 17:40	1
Thallium	<0.26	^	1.0	0.26	ug/L		08/10/20 08:22	08/11/20 17:40	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		08/12/20 11:58	08/13/20 13:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		30	26	mg/L			08/11/20 14:43	1
pH	6.0	HF	0.1	0.1	SU			08/07/20 21:34	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
F1	MS and/or MSD recovery exceeds control limits.
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

QC Sample Results

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-288545/3
Matrix: Water
Analysis Batch: 288545

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.40		1.0	0.40	mg/L			08/12/20 08:35	1
Fluoride	<0.046		0.10	0.046	mg/L			08/12/20 08:35	1
Sulfate	<0.71		1.0	0.71	mg/L			08/12/20 08:35	1

Lab Sample ID: LCS 310-288545/4
Matrix: Water
Analysis Batch: 288545

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	1.93		mg/L		97	90 - 110
Sulfate	10.0	9.76		mg/L		98	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-288007/1-A
Matrix: Water
Analysis Batch: 288423

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 288007

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.51		1.0	0.51	ug/L		08/10/20 08:22	08/12/20 18:15	1
Arsenic	<0.88		2.0	0.88	ug/L		08/10/20 08:22	08/12/20 18:15	1
Barium	<0.28		2.0	0.28	ug/L		08/10/20 08:22	08/12/20 18:15	1
Beryllium	<0.27		1.0	0.27	ug/L		08/10/20 08:22	08/12/20 18:15	1
Cadmium	<0.049		0.10	0.049	ug/L		08/10/20 08:22	08/12/20 18:15	1
Calcium	<0.19		0.50	0.19	mg/L		08/10/20 08:22	08/12/20 18:15	1
Chromium	<1.1		5.0	1.1	ug/L		08/10/20 08:22	08/12/20 18:15	1
Cobalt	<0.091		0.50	0.091	ug/L		08/10/20 08:22	08/12/20 18:15	1
Lead	<0.11		0.50	0.11	ug/L		08/10/20 08:22	08/12/20 18:15	1
Lithium	<2.5		10	2.5	ug/L		08/10/20 08:22	08/12/20 18:15	1
Molybdenum	<1.1		2.0	1.1	ug/L		08/10/20 08:22	08/12/20 18:15	1
Selenium	<1.0		5.0	1.0	ug/L		08/10/20 08:22	08/12/20 18:15	1
Thallium	<0.26		1.0	0.26	ug/L		08/10/20 08:22	08/12/20 18:15	1

Lab Sample ID: LCS 310-288007/2-A
Matrix: Water
Analysis Batch: 288423

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 288007

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	80.0	82.1		ug/L		103	80 - 120
Beryllium	40.0	38.8		ug/L		97	80 - 120
Cadmium	40.0	41.7		ug/L		104	80 - 120
Calcium	4.00	4.09		mg/L		102	80 - 120
Chromium	80.0	78.7		ug/L		98	80 - 120
Cobalt	40.0	40.1		ug/L		100	80 - 120
Lead	40.0	41.0		ug/L		103	80 - 120
Lithium	200	187		ug/L		93	80 - 120
Molybdenum	80.0	68.8		ug/L		86	80 - 120

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QC Sample Results

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-288007/2-A

Matrix: Water

Analysis Batch: 288423

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 288007

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	80.0	68.8		ug/L		86	80 - 120
Thallium	32.0	31.2		ug/L		97	80 - 120

Lab Sample ID: 310-188063-1 MS

Matrix: Water

Analysis Batch: 288263

Client Sample ID: MW-307

Prep Type: Total/NA

Prep Batch: 288007

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.51		40.0	39.8		ug/L		99	75 - 125
Arsenic	1.1	J	80.0	79.8		ug/L		98	75 - 125
Beryllium	<0.27		40.0	44.9		ug/L		112	75 - 125
Boron	<80		1760	1940		ug/L		110	75 - 125
Calcium	260		4.00	272	4	mg/L		195	75 - 125
Chromium	<1.1		80.0	92.1		ug/L		115	75 - 125
Cobalt	1.9		40.0	47.3		ug/L		113	75 - 125
Lithium	<2.5		200	203		ug/L		102	75 - 125
Molybdenum	<1.1		80.0	87.7		ug/L		110	75 - 125
Selenium	<1.0		80.0	75.7		ug/L		95	75 - 125

Lab Sample ID: 310-188063-1 MS

Matrix: Water

Analysis Batch: 288423

Client Sample ID: MW-307

Prep Type: Total/NA

Prep Batch: 288007

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	330		80.0	398	4	ug/L		89	75 - 125
Cadmium	0.13		40.0	40.8		ug/L		102	75 - 125
Lead	<0.11		40.0	42.3		ug/L		106	75 - 125
Thallium	<0.26		32.0	32.2		ug/L		101	75 - 125

Lab Sample ID: 310-188063-1 MSD

Matrix: Water

Analysis Batch: 288263

Client Sample ID: MW-307

Prep Type: Total/NA

Prep Batch: 288007

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	<0.51		40.0	40.7		ug/L		102	75 - 125	2	20
Arsenic	1.1	J	80.0	81.0		ug/L		100	75 - 125	2	20
Beryllium	<0.27		40.0	45.0		ug/L		112	75 - 125	0	20
Boron	<80		1760	2000		ug/L		114	75 - 125	3	20
Calcium	260		4.00	274	4	mg/L		240	75 - 125	1	20
Chromium	<1.1		80.0	93.6		ug/L		117	75 - 125	2	20
Cobalt	1.9		40.0	47.8		ug/L		115	75 - 125	1	20
Lithium	<2.5		200	209		ug/L		104	75 - 125	3	20
Molybdenum	<1.1		80.0	89.7		ug/L		112	75 - 125	2	20
Selenium	<1.0		80.0	77.0		ug/L		96	75 - 125	2	20

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QC Sample Results

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-188063-1 MSD
Matrix: Water
Analysis Batch: 288423

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 288007

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit
Barium	330		80.0	403	4	ug/L		96	75 - 125	1	20
Cadmium	0.13		40.0	41.2		ug/L		103	75 - 125	1	20
Lead	<0.11		40.0	43.0		ug/L		108	75 - 125	2	20
Thallium	<0.26		32.0	32.7		ug/L		102	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-288309/1-A
Matrix: Water
Analysis Batch: 288480

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 288309

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.10		0.20	0.10	ug/L		08/12/20 11:58	08/13/20 13:05	1

Lab Sample ID: LCS 310-288309/2-A
Matrix: Water
Analysis Batch: 288480

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 288309

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
Mercury	1.67	1.44		ug/L		87	80 - 120

Lab Sample ID: 310-188063-1 MS
Matrix: Water
Analysis Batch: 288480

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 288309

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				Limits
Mercury	<0.10	F1	1.67	0.900	F1	ug/L		54	80 - 120

Lab Sample ID: 310-188063-1 MSD
Matrix: Water
Analysis Batch: 288480

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 288309

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit
Mercury	<0.10	F1	1.67	0.833	F1	ug/L		50	80 - 120	8	20

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

Lab Sample ID: MB 310-288194/1
Matrix: Water
Analysis Batch: 288194

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<26		30	26	mg/L			08/11/20 14:43	1

Lab Sample ID: LCS 310-288194/2
Matrix: Water
Analysis Batch: 288194

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	948		mg/L		95	90 - 110

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QC Sample Results

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-287924/1

Matrix: Water

Analysis Batch: 287924

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

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QC Association Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

HPLC/IC

Analysis Batch: 288545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	9056A	
310-188063-2	Field Blank	Total/NA	Water	9056A	
MB 310-288545/3	Method Blank	Total/NA	Water	9056A	
LCS 310-288545/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 288007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	3010A	
310-188063-2	Field Blank	Total/NA	Water	3010A	
MB 310-288007/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-288007/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-188063-1 MS	MW-307	Total/NA	Water	3010A	
310-188063-1 MSD	MW-307	Total/NA	Water	3010A	

Analysis Batch: 288263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	6020A	288007
310-188063-2	Field Blank	Total/NA	Water	6020A	288007
310-188063-1 MS	MW-307	Total/NA	Water	6020A	288007
310-188063-1 MSD	MW-307	Total/NA	Water	6020A	288007

Prep Batch: 288309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	7470A	
310-188063-2	Field Blank	Total/NA	Water	7470A	
MB 310-288309/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-288309/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-188063-1 MS	MW-307	Total/NA	Water	7470A	
310-188063-1 MSD	MW-307	Total/NA	Water	7470A	

Analysis Batch: 288423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	6020A	288007
MB 310-288007/1-A	Method Blank	Total/NA	Water	6020A	288007
LCS 310-288007/2-A	Lab Control Sample	Total/NA	Water	6020A	288007
310-188063-1 MS	MW-307	Total/NA	Water	6020A	288007
310-188063-1 MSD	MW-307	Total/NA	Water	6020A	288007

Analysis Batch: 288480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	7470A	288309
310-188063-2	Field Blank	Total/NA	Water	7470A	288309
MB 310-288309/1-A	Method Blank	Total/NA	Water	7470A	288309
LCS 310-288309/2-A	Lab Control Sample	Total/NA	Water	7470A	288309
310-188063-1 MS	MW-307	Total/NA	Water	7470A	288309
310-188063-1 MSD	MW-307	Total/NA	Water	7470A	288309

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QC Association Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

General Chemistry

Analysis Batch: 287924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	SM 4500 H+ B	
310-188063-2	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-287924/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 288194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	SM 2540C	
310-188063-2	Field Blank	Total/NA	Water	SM 2540C	
MB 310-288194/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-288194/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 288629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Client Sample ID: MW-307

Lab Sample ID: 310-188063-1

Date Collected: 08/07/20 10:53

Matrix: Water

Date Received: 08/07/20 17:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	288545	08/12/20 08:35	ACJ	TAL CF
Total/NA	Prep	3010A			288007	08/10/20 08:22	HED	TAL CF
Total/NA	Analysis	6020A		1	288263	08/11/20 17:29	SAD	TAL CF
Total/NA	Prep	3010A			288007	08/10/20 08:22	HED	TAL CF
Total/NA	Analysis	6020A		1	288423	08/12/20 18:28	SAD	TAL CF
Total/NA	Prep	7470A			288309	08/12/20 11:58	HIS	TAL CF
Total/NA	Analysis	7470A		1	288480	08/13/20 13:09	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	288194	08/11/20 14:43	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	287924	08/07/20 21:24	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	288629	08/07/20 10:53	ANO	TAL CF

Client Sample ID: Field Blank

Lab Sample ID: 310-188063-2

Date Collected: 08/07/20 11:15

Matrix: Water

Date Received: 08/07/20 17:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	288545	08/13/20 08:35	ACJ	TAL CF
Total/NA	Prep	3010A			288007	08/10/20 08:22	HED	TAL CF
Total/NA	Analysis	6020A		1	288263	08/11/20 17:40	SAD	TAL CF
Total/NA	Prep	7470A			288309	08/12/20 11:58	HIS	TAL CF
Total/NA	Analysis	7470A		1	288480	08/13/20 13:15	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	288194	08/11/20 14:43	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	287924	08/07/20 21:34	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
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-21

- 1
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Method Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-1

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





Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>Oliver IA</u>	Project: <u>Alliant-MC KAPP</u>	
Receipt Information		
Date/Time Received: <u>8/11/20</u> <u>11:35</u>	Received By: <u>JJ</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>to.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>0.2</u>	Corrected Temp (°C): <u>0.3</u>	
• Sample Container Temperature		
Container(s) used:	CONTAINER 1	CONTAINER 2
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> 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

Client Information			Sampler: <u>Tamara Buszka</u>		Lab PM: <u>Fredrick, Sandie</u>		Carrier Tracking No(s):		COC No: 310-52186-15905.1												
Client Contact: <u>Louise Jennings Meg Blodgett</u>			Phone: <u>608-216-7362</u>		E-Mail: <u>sandie.fredrick@testamericainc.com</u>				Page: Page 1 of 1												
Company: SCS Engineers					Analysis Requested					Job #:											
Address: 8450 Hickman Road Suite 20			Due Date Requested:		<table border="1"> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>903.0, 904.0</th> <th>6020A, 7470A</th> <th>2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					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+						Preservation Codes:	
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+																	
City: Clive			TAT Requested (days):							A - HCL		M - Hexane									
State, Zip: IA, 50325			PO #: 25220077							B - NaOH		N - None									
Phone: <u>269-993-0855</u>			WO #:							C - Zn Acetate		O - AsNaO2									
Email: <u>ljennings@scsengineers.com buszka@scsengineers</u>			Project #: 31011020		D - Nitric Acid		P - Na2O4S														
Project Name: Alliant - ML Kapp 25220077			SSOW#:		E - NaHSO4		Q - Na2SO3														
Site:					F - MeOH		R - Na2S2O3														
					G - Amchlor		S - H2SO4														
					H - Ascorbic Acid		T - TSP Dodecahydrate														
					I - Ice		U - Acetone														
					K - EDTA		V - MCAA														
					L - EDA		W - pH 4-5														
							Z - other (specify)														
							Other:														
							Special Instructions/Note:														

Sample Identification			Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oli, BT=Tissue, A=Air)		Total Number of containers	
							Preservation Code:					
MW-302			8/7/20		10:53		G		Water			
Field Blank			8/7/20		11:15		G		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: Tamara Buszka Date/Time: 8/7/20 2:45 Company: SCS Received by: [Signature] Date/Time: 8/11/20 1735 Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____

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

07/01/2021 - Classified Page 19 of 20 Internal - ECRM12620958

8/17/2020



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-188063-1

Login Number: 188063

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Marzen, Brita K

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	

ANALYTICAL REPORT

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

Laboratory Job ID: 310-188063-2
Client Project/Site: Alliant - ML Kapp 25220077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
9/10/2020 7:50:48 AM

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

LINKS

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results through
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www.eurofinsus.com/Env

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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	8
QC Sample Results	9
QC Association	10
Chronicle	11
Certification Summary	12
Method Summary	13
Chain of Custody	14
Receipt Checklists	16
Tracer Carrier Summary	18

Case Narrative

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Job ID: 310-188063-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-188063-2

Comments

No additional comments.

Receipt

The samples were received on 8/7/2020 5:35 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3° C.

RAD

Methods 903.0, 9315: Radium-226 prep batch 160-479478: 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-307 (310-188063-1), Field Blank (310-188063-2), (LCS 160-479478/1-A), (MB 160-479478/23-A), (160-39069-A-1-A), (160-39069-B-1-A DU), (400-191957-A-3-A), (400-191957-A-3-B MS) and (400-191957-A-3-C MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-479482: 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-307 (310-188063-1), Field Blank (310-188063-2), (LCS 160-479482/1-A), (MB 160-479482/23-A), (160-39069-A-1-B), (160-39069-B-1-B DU), (400-191957-A-3-D), (400-191957-A-3-E MS) and (400-191957-A-3-F MSD)

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: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-188063-1	MW-307	Water	08/07/20 10:53	08/07/20 17:35	
310-188063-2	Field Blank	Water	08/07/20 11:15	08/07/20 17:35	

1

2

3

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15

Detection Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Client Sample ID: MW-307

Lab Sample ID: 310-188063-1

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 310-188063-2

No Detections.

1

2

3

4

5

6

7

8

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11

12

13

14

15

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Client Sample ID: MW-307

Lab Sample ID: 310-188063-1

Date Collected: 08/07/20 10:53

Matrix: Water

Date Received: 08/07/20 17:35

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.210		0.114	0.116	1.00	0.134	pCi/L	08/13/20 15:23	09/06/20 12:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.5		40 - 110					08/13/20 15:23	09/06/20 12:28	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	0.455	U	0.393	0.395	1.00	0.629	pCi/L	08/13/20 16:06	09/01/20 11:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.5		40 - 110					08/13/20 16:06	09/01/20 11:56	1
Y Carrier	75.1		40 - 110					08/13/20 16:06	09/01/20 11:56	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	0.666		0.409	0.412	5.00	0.629	pCi/L		09/09/20 19:07	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Client Sample ID: Field Blank

Lab Sample ID: 310-188063-2

Date Collected: 08/07/20 11:15

Matrix: Water

Date Received: 08/07/20 17:35

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0105	U	0.0556	0.0557	1.00	0.123	pCi/L	08/13/20 15:23	09/06/20 12:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.1		40 - 110					08/13/20 15:23	09/06/20 12:29	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	0.182	U	0.237	0.238	1.00	0.394	pCi/L	08/13/20 16:06	09/01/20 11:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.1		40 - 110					08/13/20 16:06	09/01/20 11:56	1
Y Carrier	83.0		40 - 110					08/13/20 16:06	09/01/20 11:56	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	0.182	U	0.243	0.244	5.00	0.394	pCi/L		09/09/20 19:07	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

QC Sample Results

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-479478/23-A
Matrix: Water
Analysis Batch: 481674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 479478

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.005710	U	0.0989	0.0989	1.00	0.199	pCi/L	08/13/20 15:23	09/06/20 17:28	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield 92.1	Qualifier	40 - 110					08/13/20 15:23	09/06/20 17:28	1

Lab Sample ID: LCS 160-479478/1-A
Matrix: Water
Analysis Batch: 481674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 479478

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	15.1	13.92		1.49	1.00	0.202	pCi/L	92	75 - 125
Carrier	LCS		Limits						
Ba Carrier	%Yield 92.1	Qualifier	40 - 110						

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-479482/23-A
Matrix: Water
Analysis Batch: 481274

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 479482

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.5001	U	0.382	0.385	1.00	0.601	pCi/L	08/13/20 16:06	09/01/20 12:00	1
Carrier	MB		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield 92.1	Qualifier	40 - 110					08/13/20 16:06	09/01/20 12:00	1
Y Carrier	75.9		40 - 110					08/13/20 16:06	09/01/20 12:00	1

Lab Sample ID: LCS 160-479482/1-A
Matrix: Water
Analysis Batch: 481318

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 479482

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-228	10.5	9.576		1.24	1.00	0.602	pCi/L	92	75 - 125
Carrier	LCS		Limits						
Ba Carrier	%Yield 92.1	Qualifier	40 - 110						
Y Carrier	76.6		40 - 110						

Eurofins TestAmerica, Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Rad

Prep Batch: 479478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	PrecSep-21	
310-188063-2	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-479478/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-479478/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 479482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-188063-1	MW-307	Total/NA	Water	PrecSep_0	
310-188063-2	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-479482/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-479482/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Client Sample ID: MW-307

Lab Sample ID: 310-188063-1

Date Collected: 08/07/20 10:53

Matrix: Water

Date Received: 08/07/20 17:35

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	PrecSep-21			479478	08/13/20 15:23	MNH	TAL SL
Total/NA	Analysis	903.0		1	481674	09/06/20 12:28	JLW	TAL SL
Total/NA	Prep	PrecSep_0			479482	08/13/20 16:06	MNH	TAL SL
Total/NA	Analysis	904.0		1	481318	09/01/20 11:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	481841	09/09/20 19:07	CAH	TAL SL

Client Sample ID: Field Blank

Lab Sample ID: 310-188063-2

Date Collected: 08/07/20 11:15

Matrix: Water

Date Received: 08/07/20 17:35

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	PrecSep-21			479478	08/13/20 15:23	MNH	TAL SL
Total/NA	Analysis	903.0		1	481674	09/06/20 12:29	JLW	TAL SL
Total/NA	Prep	PrecSep_0			479482	08/13/20 16:06	MNH	TAL SL
Total/NA	Analysis	904.0		1	481318	09/01/20 11:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	481841	09/09/20 19:07	CAH	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
 Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

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
Alaska (UST)	State	20-001	05-06-22
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	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	07-01-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-20

Method Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

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



Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>Oliver IA</u>	Project: <u>Alliant-MC KAPP</u>	
Receipt Information		
Date/Time Received: <u>8/11/20</u> <u>11:35</u>	Received By: <u>JJ</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>to.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>0.2</u>	Corrected Temp (°C): <u>0.3</u>	
• Sample Container Temperature		
Container(s) used:	CONTAINER 1	CONTAINER 2
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> 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 America

Client Information		Sampler: Tamten Buszka		Lab PM: Fredrick, Sandie		Carrier Tracking No(s):		COC No: 310-52186-15905.1			
Client Contact: Louise Jennings Meg Blodgett		Phone: 608-216-7362		E-Mail: sandie.fredrick@testamericainc.com				Page: Page 1 of 1			
Company: SCS Engineers					Analysis Requested						
Address: 8450 Hickman Road Suite 20		Due Date Requested:		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+		Total Number of containers		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)			
City: Clive		TAT Requested (days):									
State, Zip: IA, 50325		PO #: 25220077									
Phone: 269-993-0855		WO #: ljennings@scsengineers.com buszka@scsengineers									
Email: ljennings@scsengineers.com buszka@scsengineers		Project #: 31011020									
Project Name: Alliant - ML Kapp 25220077		SSOW#:									
Site:											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oli, 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+	Special Instructions/Note:
				Preservation Code:		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-302		8/7/20	10:53	G	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Field Blank		8/7/20	11:15	G	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: Tamten Buszka		Date/Time: 8/7/20 2:45		Company: SCS		Received by: <i>[Signature]</i>		Date/Time: 8/11/20 1735		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:								Cooler Temperature(s) °C and Other Remarks:	

07/01/2021 - Classified Page 15 of 18 Internal - ECRMI2620958

9/10/2020



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-188063-2

Login Number: 188063

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Marzen, Brita K

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 310-188063-2

Login Number: 188063

List Number: 2

Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis

List Creation: 08/12/20 01:34 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.	N/A	
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	



Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: Alliant - ML Kapp 25220077

Job ID: 310-188063-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)							
310-188063-1	MW-307	69.5							
310-188063-2	Field Blank	93.1							
LCS 160-479478/1-A	Lab Control Sample	92.1							
MB 160-479478/23-A	Method Blank	92.1							

Tracer/Carrier Legend

Ba = 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 (40-110)	Y (40-110)						
310-188063-1	MW-307	69.5	75.1						
310-188063-2	Field Blank	93.1	83.0						
LCS 160-479482/1-A	Lab Control Sample	92.1	76.6						
MB 160-479482/23-A	Method Blank	92.1	75.9						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

C5 October 2020 Assessment Monitoring

ANALYTICAL REPORT

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

Laboratory Job ID: 310-193882-1
Client Project/Site: ML Kapp 25220077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
11/4/2020 10:10:17 AM

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

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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	8
Definitions	16
QC Sample Results	17
QC Association	20
Chronicle	22
Certification Summary	25
Method Summary	26
Chain of Custody	27
Receipt Checklists	31
Field Data Sheets	32

Case Narrative

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Job ID: 310-193882-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-193882-1

Comments

No additional comments.

Receipt

The samples were received on 10/23/2020 5:30 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.0° C and 2.1° C.

HPLC/IC

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MW-301 (310-193882-1), MW-302 (310-193882-2), MW-304 (310-193882-4), MW-305 (310-193882-5), MW-306 (310-193882-6) and MW-307 (310-193882-7). 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 (310-193882-1), MW-304 (310-193882-4), MW-305 (310-193882-5) and MW-306 (310-193882-6).

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: ML Kapp 25220077

Job ID: 310-193882-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-193882-1	MW-301	Water	10/22/20 16:27	10/23/20 17:30	
310-193882-2	MW-302	Water	10/22/20 08:12	10/23/20 17:30	
310-193882-3	MW-303	Water	10/22/20 10:15	10/23/20 17:30	
310-193882-4	MW-304	Water	10/22/20 11:45	10/23/20 17:30	
310-193882-5	MW-305	Water	10/22/20 13:35	10/23/20 17:30	
310-193882-6	MW-306	Water	10/22/20 14:58	10/23/20 17:30	
310-193882-7	MW-307	Water	10/22/20 18:15	10/23/20 17:30	
310-193882-8	Field Blank	Water	10/22/20 00:00	10/23/20 17:30	

- 1
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- 15

Detection Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-301

Lab Sample ID: 310-193882-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	50		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	310		5.0	3.6	mg/L	5		9056A	Total/NA
Barium	76		8.0	1.1	ug/L	4		6020A	Total/NA
Boron	13000		400	320	ug/L	4		6020A	Total/NA
Cadmium	0.28	J	0.40	0.20	ug/L	4		6020A	Total/NA
Calcium	130		2.0	0.76	mg/L	4		6020A	Total/NA
Cobalt	4.4		2.0	0.36	ug/L	4		6020A	Total/NA
Molybdenum	510		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	820		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	577.42				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-19.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.1				mg/L	1		Field Sampling	Total/NA
pH, Field	6.70				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	979				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.6				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.84				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302

Lab Sample ID: 310-193882-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	260		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	7.3		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	63		2.0	0.28	ug/L	1		6020A	Total/NA
Boron	5700		200	160	ug/L	2		6020A	Total/NA
Cadmium	0.16		0.10	0.049	ug/L	1		6020A	Total/NA
Calcium	65		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	0.29	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	12		10	2.5	ug/L	1		6020A	Total/NA
Molybdenum	320		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	580		30	26	mg/L	1		SM 2540C	Total/NA
pH	8.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	574.64				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-64.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.11				mg/L	1		Field Sampling	Total/NA
pH, Field	8.37				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	743				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.7				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303

Lab Sample ID: 310-193882-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	23		5.0	2.0	mg/L	5		9056A	Total/NA
Fluoride	0.67		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	260		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	20		2.0	0.88	ug/L	1		6020A	Total/NA
Barium	52		2.0	0.28	ug/L	1		6020A	Total/NA
Boron	3800		100	80	ug/L	1		6020A	Total/NA
Cadmium	0.093	J	0.10	0.049	ug/L	1		6020A	Total/NA
Calcium	71		0.50	0.19	mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-303 (Continued)

Lab Sample ID: 310-193882-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.30	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	14		10	2.5	ug/L	1		6020A	Total/NA
Molybdenum	180		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	510		30	26	mg/L	1		SM 2540C	Total/NA
pH	9.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	575.82				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-32.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.19				mg/L	1		Field Sampling	Total/NA
pH, Field	9.97				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	723				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	35.2				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-193882-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	23		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	340		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	4.5	J	8.0	3.5	ug/L	4		6020A	Total/NA
Barium	95		8.0	1.1	ug/L	4		6020A	Total/NA
Boron	9400		400	320	ug/L	4		6020A	Total/NA
Cadmium	0.39	J	0.40	0.20	ug/L	4		6020A	Total/NA
Calcium	86		2.0	0.76	mg/L	4		6020A	Total/NA
Cobalt	1.0	J	2.0	0.36	ug/L	4		6020A	Total/NA
Molybdenum	930		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	660		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	575.32				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-65.2				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.10				mg/L	1		Field Sampling	Total/NA
pH, Field	7.07				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	918				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.2				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.05				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-193882-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	15		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	760		20	14	mg/L	20		9056A	Total/NA
Barium	100		8.0	1.1	ug/L	4		6020A	Total/NA
Boron	16000		400	320	ug/L	4		6020A	Total/NA
Cadmium	0.34	J	0.40	0.20	ug/L	4		6020A	Total/NA
Calcium	190		2.0	0.76	mg/L	4		6020A	Total/NA
Cobalt	0.69	J	2.0	0.36	ug/L	4		6020A	Total/NA
Lithium	22	J	40	10	ug/L	4		6020A	Total/NA
Molybdenum	580		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	1300		60	52	mg/L	1		SM 2540C	Total/NA
pH	7.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	575.25				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-8.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.13				mg/L	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-305 (Continued)

Lab Sample ID: 310-193882-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH, Field	7.30				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1354				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.7				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.2				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-193882-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	110		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	340		5.0	3.6	mg/L	5		9056A	Total/NA
Barium	71		8.0	1.1	ug/L	4		6020A	Total/NA
Boron	14000		400	320	ug/L	4		6020A	Total/NA
Calcium	150		2.0	0.76	mg/L	4		6020A	Total/NA
Lithium	60		40	10	ug/L	4		6020A	Total/NA
Molybdenum	49		8.0	4.4	ug/L	4		6020A	Total/NA
Total Dissolved Solids	1000		30	26	mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	576.82				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-3.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.10				mg/L	1		Field Sampling	Total/NA
pH, Field	7.21				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1427				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.7				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307

Lab Sample ID: 310-193882-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	52		5.0	2.0	mg/L	5		9056A	Total/NA
Sulfate	21		5.0	3.6	mg/L	5		9056A	Total/NA
Arsenic	0.92	J	2.0	0.88	ug/L	1		6020A	Total/NA
Barium	330		2.0	0.28	ug/L	1		6020A	Total/NA
Boron	130		100	80	ug/L	1		6020A	Total/NA
Cadmium	0.13		0.10	0.049	ug/L	1		6020A	Total/NA
Calcium	230		0.50	0.19	mg/L	1		6020A	Total/NA
Cobalt	2.4		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	3.0	J	10	2.5	ug/L	1		6020A	Total/NA
Total Dissolved Solids	940		60	52	mg/L	1		SM 2540C	Total/NA
pH	7.4	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	592.77				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	22.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.09				mg/L	1		Field Sampling	Total/NA
pH, Field	6.63				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1590				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	15.7				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.68				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-193882-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	6.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-301

Lab Sample ID: 310-193882-1

Date Collected: 10/22/20 16:27

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50		5.0	2.0	mg/L			10/24/20 21:03	5
Fluoride	<0.23		0.50	0.23	mg/L			10/24/20 21:03	5
Sulfate	310		5.0	3.6	mg/L			10/24/20 21:03	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<3.5		8.0	3.5	ug/L		10/26/20 07:51	11/02/20 17:12	4
Barium	76		8.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:12	4
Boron	13000		400	320	ug/L		10/26/20 07:51	11/02/20 17:12	4
Cadmium	0.28	J	0.40	0.20	ug/L		10/26/20 07:51	11/02/20 17:12	4
Calcium	130		2.0	0.76	mg/L		10/26/20 07:51	11/02/20 17:12	4
Cobalt	4.4		2.0	0.36	ug/L		10/26/20 07:51	11/02/20 17:12	4
Lead	<0.44		2.0	0.44	ug/L		10/26/20 07:51	11/02/20 17:12	4
Lithium	<10		40	10	ug/L		10/26/20 07:51	11/02/20 17:12	4
Molybdenum	510		8.0	4.4	ug/L		10/26/20 07:51	11/02/20 17:12	4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	820		30	26	mg/L			10/29/20 09:28	1
pH	7.5	HF	0.1	0.1	SU			10/23/20 23:33	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	577.42				ft			10/22/20 16:27	1
Oxidation Reduction Potential	-19.6				millivolts			10/22/20 16:27	1
Oxygen, Dissolved, Client Supplied	0.1				mg/L			10/22/20 16:27	1
pH, Field	6.70				SU			10/22/20 16:27	1
Specific Conductance, Field	979				umhos/cm			10/22/20 16:27	1
Temperature, Field	14.6				Degrees C			10/22/20 16:27	1
Turbidity, Field	3.84				NTU			10/22/20 16:27	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-302

Lab Sample ID: 310-193882-2

Date Collected: 10/22/20 08:12

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14		5.0	2.0	mg/L			10/24/20 21:20	5
Fluoride	<0.23		0.50	0.23	mg/L			10/24/20 21:20	5
Sulfate	260		5.0	3.6	mg/L			10/24/20 21:20	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.3		2.0	0.88	ug/L		10/26/20 07:51	11/02/20 17:14	1
Barium	63		2.0	0.28	ug/L		10/26/20 07:51	11/02/20 17:14	1
Boron	5700		200	160	ug/L		10/26/20 07:51	11/03/20 13:30	2
Cadmium	0.16		0.10	0.049	ug/L		10/26/20 07:51	11/02/20 17:14	1
Calcium	65		0.50	0.19	mg/L		10/26/20 07:51	11/02/20 17:14	1
Cobalt	0.29	J	0.50	0.091	ug/L		10/26/20 07:51	11/02/20 17:14	1
Lead	<0.11		0.50	0.11	ug/L		10/26/20 07:51	11/02/20 17:14	1
Lithium	12		10	2.5	ug/L		10/26/20 07:51	11/02/20 17:14	1
Molybdenum	320		2.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	580		30	26	mg/L			10/29/20 09:28	1
pH	8.3	HF	0.1	0.1	SU			10/23/20 23:34	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	574.64				ft			10/22/20 08:12	1
Oxidation Reduction Potential	-64.1				millivolts			10/22/20 08:12	1
Oxygen, Dissolved, Client Supplied	0.11				mg/L			10/22/20 08:12	1
pH, Field	8.37				SU			10/22/20 08:12	1
Specific Conductance, Field	743				umhos/cm			10/22/20 08:12	1
Temperature, Field	13.7				Degrees C			10/22/20 08:12	1
Turbidity, Field	0.02				NTU			10/22/20 08:12	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-303

Lab Sample ID: 310-193882-3

Date Collected: 10/22/20 10:15

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23		5.0	2.0	mg/L			10/24/20 21:36	5
Fluoride	0.67		0.50	0.23	mg/L			10/24/20 21:36	5
Sulfate	260		5.0	3.6	mg/L			10/24/20 21:36	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	20		2.0	0.88	ug/L		10/26/20 07:51	11/02/20 17:17	1
Barium	52		2.0	0.28	ug/L		10/26/20 07:51	11/02/20 17:17	1
Boron	3800		100	80	ug/L		10/26/20 07:51	11/02/20 17:17	1
Cadmium	0.093	J	0.10	0.049	ug/L		10/26/20 07:51	11/02/20 17:17	1
Calcium	71		0.50	0.19	mg/L		10/26/20 07:51	11/02/20 17:17	1
Cobalt	0.30	J	0.50	0.091	ug/L		10/26/20 07:51	11/02/20 17:17	1
Lead	<0.11		0.50	0.11	ug/L		10/26/20 07:51	11/02/20 17:17	1
Lithium	14		10	2.5	ug/L		10/26/20 07:51	11/02/20 17:17	1
Molybdenum	180		2.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	510		30	26	mg/L			10/28/20 13:56	1
pH	9.6	HF	0.1	0.1	SU			10/23/20 23:35	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	575.82				ft			10/22/20 10:15	1
Oxidation Reduction Potential	-32.1				millivolts			10/22/20 10:15	1
Oxygen, Dissolved, Client Supplied	0.19				mg/L			10/22/20 10:15	1
pH, Field	9.97				SU			10/22/20 10:15	1
Specific Conductance, Field	723				umhos/cm			10/22/20 10:15	1
Temperature, Field	13.1				Degrees C			10/22/20 10:15	1
Turbidity, Field	35.2				NTU			10/22/20 10:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-304

Lab Sample ID: 310-193882-4

Date Collected: 10/22/20 11:45

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23		5.0	2.0	mg/L			10/24/20 21:52	5
Fluoride	<0.23		0.50	0.23	mg/L			10/24/20 21:52	5
Sulfate	340		5.0	3.6	mg/L			10/24/20 21:52	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.5	J	8.0	3.5	ug/L		10/26/20 07:51	11/02/20 17:30	4
Barium	95		8.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:30	4
Boron	9400		400	320	ug/L		10/26/20 07:51	11/02/20 17:30	4
Cadmium	0.39	J	0.40	0.20	ug/L		10/26/20 07:51	11/02/20 17:30	4
Calcium	86		2.0	0.76	mg/L		10/26/20 07:51	11/02/20 17:30	4
Cobalt	1.0	J	2.0	0.36	ug/L		10/26/20 07:51	11/02/20 17:30	4
Lead	<0.44		2.0	0.44	ug/L		10/26/20 07:51	11/02/20 17:30	4
Lithium	<10		40	10	ug/L		10/26/20 07:51	11/02/20 17:30	4
Molybdenum	930		8.0	4.4	ug/L		10/26/20 07:51	11/02/20 17:30	4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	660		30	26	mg/L			10/28/20 13:56	1
pH	7.7	HF	0.1	0.1	SU			10/23/20 23:36	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	575.32				ft			10/22/20 11:45	1
Oxidation Reduction Potential	-65.2				millivolts			10/22/20 11:45	1
Oxygen, Dissolved, Client Supplied	0.10				mg/L			10/22/20 11:45	1
pH, Field	7.07				SU			10/22/20 11:45	1
Specific Conductance, Field	918				umhos/cm			10/22/20 11:45	1
Temperature, Field	13.2				Degrees C			10/22/20 11:45	1
Turbidity, Field	1.05				NTU			10/22/20 11:45	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-305

Lab Sample ID: 310-193882-5

Date Collected: 10/22/20 13:35

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15		5.0	2.0	mg/L			10/24/20 22:41	5
Fluoride	<0.23		0.50	0.23	mg/L			10/24/20 22:41	5
Sulfate	760		20	14	mg/L			10/25/20 10:03	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<3.5		8.0	3.5	ug/L		10/26/20 07:51	11/02/20 17:35	4
Barium	100		8.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:35	4
Boron	16000		400	320	ug/L		10/26/20 07:51	11/02/20 17:35	4
Cadmium	0.34	J	0.40	0.20	ug/L		10/26/20 07:51	11/02/20 17:35	4
Calcium	190		2.0	0.76	mg/L		10/26/20 07:51	11/02/20 17:35	4
Cobalt	0.69	J	2.0	0.36	ug/L		10/26/20 07:51	11/02/20 17:35	4
Lead	<0.44		2.0	0.44	ug/L		10/26/20 07:51	11/02/20 17:35	4
Lithium	22	J	40	10	ug/L		10/26/20 07:51	11/02/20 17:35	4
Molybdenum	580		8.0	4.4	ug/L		10/26/20 07:51	11/02/20 17:35	4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1300		60	52	mg/L			10/28/20 13:56	1
pH	7.9	HF	0.1	0.1	SU			10/23/20 23:37	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	575.25				ft			10/22/20 13:35	1
Oxidation Reduction Potential	-8.4				millivolts			10/22/20 13:35	1
Oxygen, Dissolved, Client Supplied	0.13				mg/L			10/22/20 13:35	1
pH, Field	7.30				SU			10/22/20 13:35	1
Specific Conductance, Field	1354				umhos/cm			10/22/20 13:35	1
Temperature, Field	13.7				Degrees C			10/22/20 13:35	1
Turbidity, Field	3.2				NTU			10/22/20 13:35	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-306

Lab Sample ID: 310-193882-6

Date Collected: 10/22/20 14:58

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110		5.0	2.0	mg/L			10/24/20 22:58	5
Fluoride	<0.23		0.50	0.23	mg/L			10/24/20 22:58	5
Sulfate	340		5.0	3.6	mg/L			10/24/20 22:58	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<3.5		8.0	3.5	ug/L		10/26/20 07:51	11/02/20 17:38	4
Barium	71		8.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:38	4
Boron	14000		400	320	ug/L		10/26/20 07:51	11/02/20 17:38	4
Cadmium	<0.20		0.40	0.20	ug/L		10/26/20 07:51	11/02/20 17:38	4
Calcium	150		2.0	0.76	mg/L		10/26/20 07:51	11/02/20 17:38	4
Cobalt	<0.36		2.0	0.36	ug/L		10/26/20 07:51	11/02/20 17:38	4
Lead	<0.44		2.0	0.44	ug/L		10/26/20 07:51	11/02/20 17:38	4
Lithium	60		40	10	ug/L		10/26/20 07:51	11/02/20 17:38	4
Molybdenum	49		8.0	4.4	ug/L		10/26/20 07:51	11/02/20 17:38	4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	26	mg/L			10/28/20 13:56	1
pH	7.8	HF	0.1	0.1	SU			10/23/20 23:38	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	576.82				ft			10/22/20 14:58	1
Oxidation Reduction Potential	-3.5				millivolts			10/22/20 14:58	1
Oxygen, Dissolved, Client Supplied	0.10				mg/L			10/22/20 14:58	1
pH, Field	7.21				SU			10/22/20 14:58	1
Specific Conductance, Field	1427				umhos/cm			10/22/20 14:58	1
Temperature, Field	13.7				Degrees C			10/22/20 14:58	1
Turbidity, Field	0.02				NTU			10/22/20 14:58	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-307

Lab Sample ID: 310-193882-7

Date Collected: 10/22/20 18:15

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52		5.0	2.0	mg/L			10/24/20 23:14	5
Fluoride	<0.23		0.50	0.23	mg/L			10/24/20 23:14	5
Sulfate	21		5.0	3.6	mg/L			10/24/20 23:14	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.92	J	2.0	0.88	ug/L		10/26/20 07:51	11/02/20 17:41	1
Barium	330		2.0	0.28	ug/L		10/26/20 07:51	11/02/20 17:41	1
Boron	130		100	80	ug/L		10/26/20 07:51	11/02/20 17:41	1
Cadmium	0.13		0.10	0.049	ug/L		10/26/20 07:51	11/02/20 17:41	1
Calcium	230		0.50	0.19	mg/L		10/26/20 07:51	11/02/20 17:41	1
Cobalt	2.4		0.50	0.091	ug/L		10/26/20 07:51	11/02/20 17:41	1
Lead	<0.11		0.50	0.11	ug/L		10/26/20 07:51	11/02/20 17:41	1
Lithium	3.0	J	10	2.5	ug/L		10/26/20 07:51	11/02/20 17:41	1
Molybdenum	<1.1		2.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	940		60	52	mg/L			10/28/20 13:56	1
pH	7.4	HF	0.1	0.1	SU			10/23/20 23:40	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	592.77				ft			10/22/20 18:15	1
Oxidation Reduction Potential	22.4				millivolts			10/22/20 18:15	1
Oxygen, Dissolved, Client Supplied	0.09				mg/L			10/22/20 18:15	1
pH, Field	6.63				SU			10/22/20 18:15	1
Specific Conductance, Field	1590				umhos/cm			10/22/20 18:15	1
Temperature, Field	15.7				Degrees C			10/22/20 18:15	1
Turbidity, Field	2.68				NTU			10/22/20 18:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: Field Blank

Lab Sample ID: 310-193882-8

Date Collected: 10/22/20 00:00

Matrix: Water

Date Received: 10/23/20 17:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			10/25/20 23:30	1
Fluoride	<0.046		0.10	0.046	mg/L			10/25/20 23:30	1
Sulfate	<0.71		1.0	0.71	mg/L			10/25/20 23:30	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		10/26/20 07:51	11/02/20 17:43	1
Barium	<0.28		2.0	0.28	ug/L		10/26/20 07:51	11/02/20 17:43	1
Boron	<80		100	80	ug/L		10/26/20 07:51	11/02/20 17:43	1
Cadmium	<0.049		0.10	0.049	ug/L		10/26/20 07:51	11/02/20 17:43	1
Calcium	<0.19		0.50	0.19	mg/L		10/26/20 07:51	11/02/20 17:43	1
Cobalt	<0.091		0.50	0.091	ug/L		10/26/20 07:51	11/02/20 17:43	1
Lead	<0.11		0.50	0.11	ug/L		10/26/20 07:51	11/02/20 17:43	1
Lithium	<2.5		10	2.5	ug/L		10/26/20 07:51	11/02/20 17:43	1
Molybdenum	<1.1		2.0	1.1	ug/L		10/26/20 07:51	11/02/20 17:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		30	26	mg/L			10/28/20 13:56	1
pH	6.3	HF	0.1	0.1	SU			10/23/20 23:45	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-297008/3
Matrix: Water
Analysis Batch: 297008

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.40		1.0	0.40	mg/L			10/24/20 16:21	1
Fluoride	<0.046		0.10	0.046	mg/L			10/24/20 16:21	1
Sulfate	<0.71		1.0	0.71	mg/L			10/24/20 16:21	1

Lab Sample ID: LCS 310-297008/4
Matrix: Water
Analysis Batch: 297008

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	9.83		mg/L		98	90 - 110
Fluoride	2.00	2.10		mg/L		105	90 - 110
Sulfate	10.0	10.0		mg/L		100	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-296963/1-A
Matrix: Water
Analysis Batch: 297927

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296963

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.88		2.0	0.88	ug/L		10/26/20 07:51	11/02/20 16:27	1
Barium	<0.28		2.0	0.28	ug/L		10/26/20 07:51	11/02/20 16:27	1
Boron	<80		100	80	ug/L		10/26/20 07:51	11/02/20 16:27	1
Cadmium	<0.049		0.10	0.049	ug/L		10/26/20 07:51	11/02/20 16:27	1
Calcium	<0.19		0.50	0.19	mg/L		10/26/20 07:51	11/02/20 16:27	1
Cobalt	<0.091		0.50	0.091	ug/L		10/26/20 07:51	11/02/20 16:27	1
Lead	<0.11		0.50	0.11	ug/L		10/26/20 07:51	11/02/20 16:27	1
Lithium	<2.5		10	2.5	ug/L		10/26/20 07:51	11/02/20 16:27	1
Molybdenum	<1.1		2.0	1.1	ug/L		10/26/20 07:51	11/02/20 16:27	1

Lab Sample ID: LCS 310-296963/2-A
Matrix: Water
Analysis Batch: 297927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296963

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	210		ug/L		105	80 - 120
Barium	100	109		ug/L		109	80 - 120
Boron	200	184		ug/L		92	80 - 120
Cadmium	100	102		ug/L		102	80 - 120
Calcium	2.00	1.78		mg/L		89	80 - 120
Cobalt	100	102		ug/L		102	80 - 120
Lead	200	215		ug/L		108	80 - 120
Lithium	200	199		ug/L		99	80 - 120
Molybdenum	200	199		ug/L		100	80 - 120

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-193882-4 DU
Matrix: Water
Analysis Batch: 297927

Client Sample ID: MW-304
Prep Type: Total/NA
Prep Batch: 296963

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Arsenic	4.5	J	4.48	J	ug/L		1	20
Barium	95		95.3		ug/L		0.2	20
Boron	9400		9490		ug/L		0.4	20
Cadmium	0.39	J	0.404		ug/L		4	20
Calcium	86		86.3		mg/L		0.2	20
Cobalt	1.0	J	0.996	J	ug/L		0.8	20
Lead	<0.44		<0.44		ug/L		NC	20
Lithium	<10		<10		ug/L		NC	20
Molybdenum	930		932		ug/L		0.3	20

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

Lab Sample ID: MB 310-297381/1
Matrix: Water
Analysis Batch: 297381

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<26		30	26	mg/L			10/28/20 13:56	1

Lab Sample ID: LCS 310-297381/2
Matrix: Water
Analysis Batch: 297381

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Lab Sample ID: 310-193882-3 DU
Matrix: Water
Analysis Batch: 297381

Client Sample ID: MW-303
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Total Dissolved Solids	510		514		mg/L		0.4	24

Lab Sample ID: MB 310-297481/1
Matrix: Water
Analysis Batch: 297481

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<26		30	26	mg/L			10/29/20 09:28	1

Lab Sample ID: LCS 310-297481/2
Matrix: Water
Analysis Batch: 297481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

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

Lab Sample ID: MB 310-297701/1
Matrix: Water
Analysis Batch: 297701

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	<26		30	26	mg/L			10/30/20 14:28	1

Lab Sample ID: LCS 310-297701/2
Matrix: Water
Analysis Batch: 297701

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	1010		mg/L		101	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-296856/1
Matrix: Water
Analysis Batch: 296856

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		99	98 - 102

QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

HPLC/IC

Analysis Batch: 297008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	9056A	
310-193882-2	MW-302	Total/NA	Water	9056A	
310-193882-3	MW-303	Total/NA	Water	9056A	
310-193882-4	MW-304	Total/NA	Water	9056A	
310-193882-5	MW-305	Total/NA	Water	9056A	
310-193882-5	MW-305	Total/NA	Water	9056A	
310-193882-6	MW-306	Total/NA	Water	9056A	
310-193882-7	MW-307	Total/NA	Water	9056A	
310-193882-8	Field Blank	Total/NA	Water	9056A	
MB 310-297008/3	Method Blank	Total/NA	Water	9056A	
LCS 310-297008/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 296963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	3010A	
310-193882-2	MW-302	Total/NA	Water	3010A	
310-193882-3	MW-303	Total/NA	Water	3010A	
310-193882-4	MW-304	Total/NA	Water	3010A	
310-193882-5	MW-305	Total/NA	Water	3010A	
310-193882-6	MW-306	Total/NA	Water	3010A	
310-193882-7	MW-307	Total/NA	Water	3010A	
310-193882-8	Field Blank	Total/NA	Water	3010A	
MB 310-296963/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-296963/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-193882-4 DU	MW-304	Total/NA	Water	3010A	

Analysis Batch: 297927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	6020A	296963
310-193882-2	MW-302	Total/NA	Water	6020A	296963
310-193882-3	MW-303	Total/NA	Water	6020A	296963
310-193882-4	MW-304	Total/NA	Water	6020A	296963
310-193882-5	MW-305	Total/NA	Water	6020A	296963
310-193882-6	MW-306	Total/NA	Water	6020A	296963
310-193882-7	MW-307	Total/NA	Water	6020A	296963
310-193882-8	Field Blank	Total/NA	Water	6020A	296963
MB 310-296963/1-A	Method Blank	Total/NA	Water	6020A	296963
LCS 310-296963/2-A	Lab Control Sample	Total/NA	Water	6020A	296963
310-193882-4 DU	MW-304	Total/NA	Water	6020A	296963

Analysis Batch: 298067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-2	MW-302	Total/NA	Water	6020A	296963

General Chemistry

Analysis Batch: 296856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-193882-2	MW-302	Total/NA	Water	SM 4500 H+ B	

Eurofins TestAmerica, Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

General Chemistry (Continued)

Analysis Batch: 296856 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-3	MW-303	Total/NA	Water	SM 4500 H+ B	
310-193882-4	MW-304	Total/NA	Water	SM 4500 H+ B	
310-193882-5	MW-305	Total/NA	Water	SM 4500 H+ B	
310-193882-6	MW-306	Total/NA	Water	SM 4500 H+ B	
310-193882-7	MW-307	Total/NA	Water	SM 4500 H+ B	
310-193882-8	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-296856/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 297381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-3	MW-303	Total/NA	Water	SM 2540C	
310-193882-4	MW-304	Total/NA	Water	SM 2540C	
310-193882-5	MW-305	Total/NA	Water	SM 2540C	
310-193882-6	MW-306	Total/NA	Water	SM 2540C	
310-193882-7	MW-307	Total/NA	Water	SM 2540C	
310-193882-8	Field Blank	Total/NA	Water	SM 2540C	
MB 310-297381/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-297381/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-193882-3 DU	MW-303	Total/NA	Water	SM 2540C	

Analysis Batch: 297481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	SM 2540C	
310-193882-2	MW-302	Total/NA	Water	SM 2540C	
MB 310-297481/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-297481/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 297701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-297701/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-297701/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 297220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	Field Sampling	
310-193882-2	MW-302	Total/NA	Water	Field Sampling	
310-193882-3	MW-303	Total/NA	Water	Field Sampling	
310-193882-4	MW-304	Total/NA	Water	Field Sampling	
310-193882-5	MW-305	Total/NA	Water	Field Sampling	
310-193882-6	MW-306	Total/NA	Water	Field Sampling	
310-193882-7	MW-307	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-301

Lab Sample ID: 310-193882-1

Date Collected: 10/22/20 16:27

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 21:03	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		4	297927	11/02/20 17:12	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297481	10/29/20 09:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:33	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 16:27	SLD	TAL CF

Client Sample ID: MW-302

Lab Sample ID: 310-193882-2

Date Collected: 10/22/20 08:12

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 21:20	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		1	297927	11/02/20 17:14	SAD	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		2	298067	11/03/20 13:30	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297481	10/29/20 09:28	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:34	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 08:12	SLD	TAL CF

Client Sample ID: MW-303

Lab Sample ID: 310-193882-3

Date Collected: 10/22/20 10:15

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 21:36	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		1	297927	11/02/20 17:17	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297381	10/28/20 13:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:35	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 10:15	SLD	TAL CF

Client Sample ID: MW-304

Lab Sample ID: 310-193882-4

Date Collected: 10/22/20 11:45

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 21:52	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		4	297927	11/02/20 17:30	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297381	10/28/20 13:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:36	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 11:45	SLD	TAL CF

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Client Sample ID: MW-305

Lab Sample ID: 310-193882-5

Date Collected: 10/22/20 13:35

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 22:41	CJT	TAL CF
Total/NA	Analysis	9056A		20	297008	10/25/20 10:03	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		4	297927	11/02/20 17:35	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297381	10/28/20 13:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:37	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 13:35	SLD	TAL CF

Client Sample ID: MW-306

Lab Sample ID: 310-193882-6

Date Collected: 10/22/20 14:58

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 22:58	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		4	297927	11/02/20 17:38	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297381	10/28/20 13:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:38	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 14:58	SLD	TAL CF

Client Sample ID: MW-307

Lab Sample ID: 310-193882-7

Date Collected: 10/22/20 18:15

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	297008	10/24/20 23:14	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		1	297927	11/02/20 17:41	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297381	10/28/20 13:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:40	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	297220	10/22/20 18:15	SLD	TAL CF

Client Sample ID: Field Blank

Lab Sample ID: 310-193882-8

Date Collected: 10/22/20 00:00

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	297008	10/25/20 23:30	CJT	TAL CF
Total/NA	Prep	3010A			296963	10/26/20 07:51	HED	TAL CF
Total/NA	Analysis	6020A		1	297927	11/02/20 17:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	297381	10/28/20 13:56	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	296856	10/23/20 23:45	JMH	TAL CF

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Laboratory References:

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

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Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-21

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Method Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-1

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





Environment Testing
TestAmerica



Cooler/Sample Receipt and Temperature Log

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>Chire</u>	STATE: <u>IA</u>	Project: <u>ML Kapp 25270077</u>
Receipt Information		
Date/Time Received: <u>10.23.20</u> <u>1730</u>	Received By: <u>BLM</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>N</u>	Correction Factor (°C): <u>+0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C):	Corrected Temp (°C):	
• Sample Container Temperature		
Container(s) used:	CONTAINER 1 <u>2116 HNO3</u>	CONTAINER 2
Uncorrected Temp (°C):	<u>1.0</u>	
Corrected Temp (°C):	<u>1.0</u>	
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		





Environment Testing
TestAmerica

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <small>CITY</small> <u>Chile</u> <small>STATE</small> <u>IA</u>	Project: <u>ML Kapp 25220077</u>	
Receipt Information		
Date/Time Received: <small>DATE</small> <u>10.23.20</u> <small>TIME</small> <u>1730</u>	Received By: <u>BLM</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>N</u>	Correction Factor (°C): <u>+0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>2.1</u>	Corrected Temp (°C): <u>2.1</u>	
• Sample Container Temperature		
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		



Chain of Custody Record

Client Information		Sampler: <u>Tanten Buszka</u>	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-54740-16397.1					
Client Contact: Tanten Buszka		Phone: <u>269-993-0855</u>	E-Mail: sandra.fredrick@eurofinset.com	Page: Page 1 of 1						
Company: SCS Engineers			Analysis Requested		Job #:					
Address: 8450 Hickman Road Suite <u>2027</u>		Due Date 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)						
City: Clive		TAT Requested (days):								
State, Zip: IA, 50325		PO #: 25220077								
Phone: <u>269-993-0855</u>		WO#:								
Email: tbuszka@scsengineers.com		Project #:		Other: Special Instructions/Note:						
Project Name: ML Kapp 25220077		Project #: 31011020								
Site: ↓		SSOW#:								
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 - Metals (9)	2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+	Total Number of containers
Preservation Code:					X	X	D	D	N	
MW-301	10-22-20	16:27	G	Water	✓	✓	X	X	X	
MW-302	10-22-20	8:12	G	Water	✓	✓	X	X	X	
MW-303	10-22-20	10:15	G	Water	✓	✓	X	X	X	
MW-304	10-22-20	11:45	G	Water	✓	✓	X	X	X	
MW-305	10-22-20	13:35	G	Water	✓	✓	X	X	X	
MW-306	10-22-20	14:58	G	Water	✓	✓	X	X	X	
MW-307	10-22-20	18:15	G	Water	✓	✓	X	X	X	
Field Blank				Water						
				Water						
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: <u>Tanten Buszka</u>		Date/Time: <u>10-23-20 9:30</u>	Company: <u>SCS</u>	Received by: <u>[Signature]</u>		Date/Time: <u>10-23-20 1730</u>	Company:			
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:						

07/01/2021 - Classified Page 29 of 32 Internal - ECRM12620958

11/4/2020



Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - M.L. Kapp Ash Pond/ SCS Engineers Project #25220077.00

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	Field Blank	TOTAL
Appendix III Parameters	Boron	x	x	x	x	x	x	x	x	8
	Calcium	x	x	x	x	x	x	x	x	8
	Chloride	x	x	x	x	x	x	x	x	8
	Fluoride	x	x	x	x	x	x	x	x	8
	pH	x	x	x	x	x	x	x	x	8
	Sulfate	x	x	x	x	x	x	x	x	8
	TDS	x	x	x	x	x	x	x	x	8
Appendix IV Parameters	Antimony									0
	Arsenic	x	x	x	x	x	x	x	x	8
	Barium	x	x	x	x	x	x	x	x	8
	Beryllium									0
	Cadmium	x	x	x	x	x	x	x	x	8
	Chromium									0
	Cobalt	x	x	x	x	x	x	x	x	8
	Fluoride	x	x	x	x	x	x	x	x	8
	Lead	x	x	x	x	x	x	x	x	8
	Lithium	x	x	x	x	x	x	x	x	8
	Mercury									0
	Molybdenum	x	x	x	x	x	x	x	x	8
	Selenium									0
Thallium									0	
Radium	x	x	x	x	x	x	x	x	8	
CCR Rule Field Parameters	Groundwater Elevation	x	x	x	x	x	x	x		7
	pH (field)	x	x	x	x	x	x	x		7
Low-Flow Sampling Field Parameters	Well Depth	x	x	x	x	x	x	x		7
	Specific Conductance	x	x	x	x	x	x	x		7
	Dissolved Oxygen	x	x	x	x	x	x	x		7
	ORP	x	x	x	x	x	x	x		7
	Temperature	x	x	x	x	x	x	x		7
	Turbidity	x	x	x	x	x	x	x		7
	Color	x	x	x	x	x	x	x		7
Odor	x	x	x	x	x	x	x		7	

P:\IA CCR\IPL_M.L. Kapp_CCR_Rule_Sampling Table_2010.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-193882-1

Login Number: 193882

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Ramos, Eric F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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 #25220077.00
October 2020

Sample	Sample Date/Time	GW Elevation (ft amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µs/cm)	ORP (mV)	Turbidity
MW-301	10/22/20 1627	577.42	14.6	6.70	0.1	979	-19.6	3.84
MW-302	10/22/20 0812	574.64	13.7	8.37	0.11	743	-64.1	0.02
MW-303	10/22/20 1015	575.82	13.1	9.97	0.19	723	-32.1	35.2
MW-304	10/22/20 1145	575.32	13.2	7.07	0.10	918	-65.2	1.05
MW-305	10/22/20 1335	575.25	13.7	7.30	0.13	1,354	-8.4	3.2
MW-306	10/22/20 1458	576.82	13.7	7.21	0.10	1,427	-3.5	0.02
MW-307	10/22/20 1815	592.77	15.7	6.63	0.09	1,590	22.4	2.68

Abbreviations:

mg/L = milligrams per liter

mV = millivolts

amsl = above mean sea level

Notes:

None

Created by: KAK
 Last revision by: JSN
 Checked by: NDK

Date: 4/2/2018
 Date: 10/26/2020
 Date: 10/27/2020

C:\Users\FredrickS\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\D3RFD1NW\[2010_M.L. Kapp_CCR_Field.xlsx]GW Field Parameters

ANALYTICAL REPORT

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

Laboratory Job ID: 310-193882-2
Client Project/Site: ML Kapp 25220077

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
12/24/2020 9:09:36 AM

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

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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

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	5
Detection Summary	6
Client Sample Results	7
Definitions	15
QC Sample Results	16
QC Association	20
Chronicle	21
Certification Summary	23
Method Summary	24
Chain of Custody	25
Receipt Checklists	29
Tracer Carrier Summary	31

Case Narrative

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Job ID: 310-193882-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-193882-2

Comments

No additional comments.

Receipt

The samples were received on 10/23/2020 5:30 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.0° C and 2.1° C.

RAD

Methods 903.0, 9315: 903/9315 prep batch: 160-488138 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-303 (310-193882-3), MW-304 (310-193882-4), MW-305 (310-193882-5), MW-306 (310-193882-6), MW-307 (310-193882-7) and Field Blank (310-193882-8)

Methods 903.0, 9315: 903/9315 prep batch 160-487776 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 (310-193882-1) and MW-302 (310-193882-2)

Methods 904.0, 9320: 904 Prep batch: 160-488143 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-303 (310-193882-3), MW-304 (310-193882-4), MW-306 (310-193882-6), MW-307 (310-193882-7) and Field Blank (310-193882-8)

Methods 904.0, 9320: 904/9320 Prep Batch: 160-487777 The LCS recovered at 131% for Ra228. The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of 58-151 per method requirements. Although there is a qualifier, the LCS passes. No further action is required (LCSD 160-487777/2-A)

Methods 904.0, 9320: 904/9320 prep batch:160-487777 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 (310-193882-1) and MW-302 (310-193882-2)

Method PrecSep_0: Radium 228 Prep Batch 160-487777: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-193882-1) and MW-302 (310-193882-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep_0: Radium 228 Prep Batch 160-488143: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-303 (310-193882-3), MW-304 (310-193882-4), MW-305 (310-193882-5), MW-306 (310-193882-6), MW-307 (310-193882-7) and Field Blank (310-193882-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision. Method PrecSep_0:

Method PrecSep_0: Radium 228 Prep Batch 160-490565: The following samples were prepared at a reduced aliquot to insure sufficient volume remains if needed for analysis: MW-305 (310-193882-5).

Method PrecSep-21: Radium 226 Prep Batch 160-487776: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-193882-1) and MW-302 (310-193882-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-488138: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-303 (310-193882-3), MW-304 (310-193882-4), MW-305 (310-193882-5), MW-306 (310-193882-6), MW-307 (310-193882-7) and Field Blank (310-193882-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were

Case Narrative

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Job ID: 310-193882-2 (Continued)

Laboratory: Eurofins TestAmerica, Cedar Falls (Continued)

prepared instead to demonstrate batch precision.

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

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Sample Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-193882-1	MW-301	Water	10/22/20 16:27	10/23/20 17:30	
310-193882-2	MW-302	Water	10/22/20 08:12	10/23/20 17:30	
310-193882-3	MW-303	Water	10/22/20 10:15	10/23/20 17:30	
310-193882-4	MW-304	Water	10/22/20 11:45	10/23/20 17:30	
310-193882-5	MW-305	Water	10/22/20 13:35	10/23/20 17:30	
310-193882-6	MW-306	Water	10/22/20 14:58	10/23/20 17:30	
310-193882-7	MW-307	Water	10/22/20 18:15	10/23/20 17:30	
310-193882-8	Field Blank	Water	10/22/20 00:00	10/23/20 17:30	

- 1
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- 10
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- 14
- 15

Detection Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-301	Lab Sample ID: 310-193882-1
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-302	Lab Sample ID: 310-193882-2
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-303	Lab Sample ID: 310-193882-3
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-304	Lab Sample ID: 310-193882-4
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-305	Lab Sample ID: 310-193882-5
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-306	Lab Sample ID: 310-193882-6
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-307	Lab Sample ID: 310-193882-7
<input type="checkbox"/> No Detections.	
Client Sample ID: Field Blank	Lab Sample ID: 310-193882-8
<input type="checkbox"/> No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-301
Date Collected: 10/22/20 16:27
Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-1
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	0.0134	U	0.150	0.150	1.00	0.298	pCi/L	11/03/20 07:30	12/11/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.0		40 - 110					11/03/20 07:30	12/11/20 06:23	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	0.374	U *	0.273	0.275	1.00	0.428	pCi/L	11/03/20 08:21	12/10/20 08:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.0		40 - 110					11/03/20 08:21	12/10/20 08:45	1
Y Carrier	94.2		40 - 110					11/03/20 08:21	12/10/20 08:45	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	0.388	U	0.311	0.313	5.00	0.428	pCi/L		12/24/20 09:02	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-302
Date Collected: 10/22/20 08:12
Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-2
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	0.232	U	0.167	0.168	1.00	0.234	pCi/L	11/03/20 07:30	12/11/20 06:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.1		40 - 110					11/03/20 07:30	12/11/20 06:23	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	0.894	*	0.298	0.309	1.00	0.401	pCi/L	11/03/20 08:21	12/10/20 08:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.1		40 - 110					11/03/20 08:21	12/10/20 08:45	1
Y Carrier	84.5		40 - 110					11/03/20 08:21	12/10/20 08:45	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	1.13		0.342	0.352	5.00	0.401	pCi/L		12/24/20 09:02	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-303
Date Collected: 10/22/20 10:15
Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-3
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	0.234		0.147	0.149	1.00	0.188	pCi/L	11/04/20 06:49	11/27/20 11:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.4		40 - 110					11/04/20 06:49	11/27/20 11:16	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	0.442	U	0.333	0.336	1.00	0.527	pCi/L	11/04/20 07:22	11/25/20 11:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.4		40 - 110					11/04/20 07:22	11/25/20 11:29	1
Y Carrier	87.1		40 - 110					11/04/20 07:22	11/25/20 11:29	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	0.676		0.364	0.368	5.00	0.527	pCi/L		12/24/20 09:00	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-304
Date Collected: 10/22/20 11:45
Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-4
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	0.363		0.178	0.181	1.00	0.204	pCi/L	11/04/20 06:49	11/27/20 11:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.3		40 - 110					11/04/20 06:49	11/27/20 11:16	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	0.476	U	0.345	0.348	1.00	0.541	pCi/L	11/04/20 07:22	11/25/20 11:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.3		40 - 110					11/04/20 07:22	11/25/20 11:29	1
Y Carrier	80.7		40 - 110					11/04/20 07:22	11/25/20 11:29	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	0.839		0.388	0.392	5.00	0.541	pCi/L		12/24/20 09:00	1

Client Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-305
 Date Collected: 10/22/20 13:35
 Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-5
 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	0.181	U	0.135	0.136	1.00	0.183	pCi/L	11/04/20 06:49	11/27/20 11:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.8		40 - 110					11/04/20 06:49	11/27/20 11:16	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	0.570	U	0.460	0.463	1.00	0.728	pCi/L	11/30/20 13:20	12/23/20 11:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.6		40 - 110					11/30/20 13:20	12/23/20 11:45	1
Y Carrier	85.6		40 - 110					11/30/20 13:20	12/23/20 11:45	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	0.750		0.479	0.483	5.00	0.728	pCi/L		12/23/20 20:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-306
Date Collected: 10/22/20 14:58
Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-6
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	0.138	U	0.130	0.131	1.00	0.198	pCi/L	11/04/20 06:49	11/27/20 11:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.2		40 - 110					11/04/20 06:49	11/27/20 11:16	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	0.0513	U	0.323	0.323	1.00	0.571	pCi/L	11/04/20 07:22	11/25/20 11:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.2		40 - 110					11/04/20 07:22	11/25/20 11:29	1
Y Carrier	70.7		40 - 110					11/04/20 07:22	11/25/20 11:29	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	0.189	U	0.348	0.349	5.00	0.571	pCi/L		12/24/20 09:00	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-307
Date Collected: 10/22/20 18:15
Date Received: 10/23/20 17:30

Lab Sample ID: 310-193882-7
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	0.177	U	0.148	0.149	1.00	0.218	pCi/L	11/04/20 06:49	11/27/20 11:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.2		40 - 110					11/04/20 06:49	11/27/20 11:16	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	0.447	U	0.309	0.312	1.00	0.478	pCi/L	11/04/20 07:22	11/25/20 11:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.2		40 - 110					11/04/20 07:22	11/25/20 11:29	1
Y Carrier	85.2		40 - 110					11/04/20 07:22	11/25/20 11:29	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	0.623		0.343	0.346	5.00	0.478	pCi/L		12/24/20 09:00	1

Client Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: Field Blank

Lab Sample ID: 310-193882-8

Date Collected: 10/22/20 00:00

Matrix: Water

Date Received: 10/23/20 17:30

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00151	U	0.0894	0.0894	1.00	0.193	pCi/L	11/04/20 06:49	11/27/20 11:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.8		40 - 110					11/04/20 06:49	11/27/20 11:17	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	0.239	U	0.287	0.288	1.00	0.474	pCi/L	11/04/20 07:22	11/25/20 11:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.8		40 - 110					11/04/20 07:22	11/25/20 11:30	1
Y Carrier	89.7		40 - 110					11/04/20 07:22	11/25/20 11:30	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	0.239	U	0.301	0.302	5.00	0.474	pCi/L		12/24/20 09:00	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Qualifiers

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-487776/23-A
Matrix: Water
Analysis Batch: 491444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487776

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.2054	U	0.172	0.173	1.00	0.256	pCi/L	11/03/20 07:30	12/11/20 06:23	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	91.5		40 - 110			11/03/20 07:30	12/11/20 06:23	1		

Lab Sample ID: LCS 160-487776/1-A
Matrix: Water
Analysis Batch: 491368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487776

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	9.644		1.29	1.00	0.295	pCi/L	85	75 - 125
Carrier	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba Carrier	75.5		40 - 110						

Lab Sample ID: LCSD 160-487776/2-A
Matrix: Water
Analysis Batch: 491368

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487776

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	9.143		1.26	1.00	0.338	pCi/L	81	75 - 125	0.20	1
Carrier	LCSD	LCSD	Limits			Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier									
Ba Carrier	71.8		40 - 110								

Lab Sample ID: MB 160-488138/23-A
Matrix: Water
Analysis Batch: 490336

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488138

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.09809	U	0.149	0.150	1.00	0.333	pCi/L	11/04/20 06:49	11/27/20 13:09	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	88.5		40 - 110			11/04/20 06:49	11/27/20 13:09	1		

Lab Sample ID: LCSD 160-488138/2-A
Matrix: Water
Analysis Batch: 490353

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 488138

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	10.51		1.23	1.00	0.178	pCi/L	93	75 - 125	0.08	1

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QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-488138/2-A
Matrix: Water
Analysis Batch: 490353

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 488138

Carrier	LCS D %Yield	LCS D Qualifier	Limits
Ba Carrier	77.6		40 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-487777/23-A
Matrix: Water
Analysis Batch: 491422

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487777

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4835		0.256	0.260	1.00	0.381	pCi/L	11/03/20 08:21	12/10/20 08:46	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110					11/03/20 08:21	12/10/20 08:46	1
Y Carrier	88.2		40 - 110					11/03/20 08:21	12/10/20 08:46	1

Lab Sample ID: LCS 160-487777/1-A
Matrix: Water
Analysis Batch: 491432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487777

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	7.59	8.617		1.06	1.00	0.462	pCi/L	114	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	75.5		40 - 110						
Y Carrier	89.7		40 - 110						

Lab Sample ID: LCSD 160-487777/2-A
Matrix: Water
Analysis Batch: 491432

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487777

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	7.59	9.975	*	1.23	1.00	0.503	pCi/L	131	75 - 125	0.59	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	71.8		40 - 110								
Y Carrier	82.6		40 - 110								

Lab Sample ID: MB 160-488143/23-A
Matrix: Water
Analysis Batch: 490279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488143

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2512	U	0.267	0.268	1.00	0.434	pCi/L	11/04/20 07:22	11/25/20 11:42	1

Eurofins TestAmerica, Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-488143/23-A
Matrix: Water
Analysis Batch: 490279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488143

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	88.5		40 - 110	11/04/20 07:22	11/25/20 11:42	1
Y Carrier	88.6		40 - 110	11/04/20 07:22	11/25/20 11:42	1

Lab Sample ID: LCS 160-488143/1-A
Matrix: Water
Analysis Batch: 490279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488143

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
Radium-228	7.63	7.884		0.996	1.00	0.491	pCi/L	103	75 - 125	

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Ba Carrier	87.0		40 - 110
Y Carrier	79.3		40 - 110

Lab Sample ID: LCSD 160-488143/2-A
Matrix: Water
Analysis Batch: 490279

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 488143

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	Limit
Radium-228	7.63	8.034		1.06	1.00	0.577	pCi/L	105	75 - 125	0.07	1	

Carrier	LCSD LCSD		Limits
	%Yield	Qualifier	
Ba Carrier	77.6		40 - 110
Y Carrier	74.0		40 - 110

Lab Sample ID: MB 160-490565/4-A
Matrix: Water
Analysis Batch: 492893

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490565

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	-0.06708	U	0.342	0.342	1.00	0.634	pCi/L	11/30/20 13:20	12/23/20 11:45	1

Carrier	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Ba Carrier	68.5		40 - 110	11/30/20 13:20	12/23/20 11:45	1
Y Carrier	81.5		40 - 110	11/30/20 13:20	12/23/20 11:45	1

Lab Sample ID: LCS 160-490565/1-A
Matrix: Water
Analysis Batch: 492893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490565

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	
Radium-228	10.1	9.515		1.20	1.00	0.512	pCi/L	94	75 - 125	

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QC Sample Results

Client: SCS Engineers
 Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-490565/1-A
Matrix: Water
Analysis Batch: 492893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490565

Carrier	LCS		Limits
	%Yield	Qualifier	
Ba Carrier	84.5		40 - 110
Y Carrier	84.9		40 - 110

Lab Sample ID: LCSD 160-490565/2-A
Matrix: Water
Analysis Batch: 492893

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 490565

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		RER	RER Limit
									75 - 125	0.38	1	
Radium-228	10.1	10.49		1.36	1.00	0.679	pCi/L	104	75 - 125	0.38	1	

Carrier	LCSD		Limits
	%Yield	Qualifier	
Ba Carrier	75.1		40 - 110
Y Carrier	81.1		40 - 110

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QC Association Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Rad

Prep Batch: 487776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	PrecSep-21	
310-193882-2	MW-302	Total/NA	Water	PrecSep-21	
MB 160-487776/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487776/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-487776/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 487777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-1	MW-301	Total/NA	Water	PrecSep_0	
310-193882-2	MW-302	Total/NA	Water	PrecSep_0	
MB 160-487777/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487777/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487777/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 488138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-3	MW-303	Total/NA	Water	PrecSep-21	
310-193882-4	MW-304	Total/NA	Water	PrecSep-21	
310-193882-5	MW-305	Total/NA	Water	PrecSep-21	
310-193882-6	MW-306	Total/NA	Water	PrecSep-21	
310-193882-7	MW-307	Total/NA	Water	PrecSep-21	
310-193882-8	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-488138/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCSD 160-488138/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 488143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-3	MW-303	Total/NA	Water	PrecSep_0	
310-193882-4	MW-304	Total/NA	Water	PrecSep_0	
310-193882-6	MW-306	Total/NA	Water	PrecSep_0	
310-193882-7	MW-307	Total/NA	Water	PrecSep_0	
310-193882-8	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-488143/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-488143/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-488143/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 490565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-193882-5	MW-305	Total/NA	Water	PrecSep_0	
MB 160-490565/4-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-490565/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-490565/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-301

Lab Sample ID: 310-193882-1

Date Collected: 10/22/20 16:27

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			487776	11/03/20 07:30	AVB	TAL SL
Total/NA	Analysis	903.0		1	491444	12/11/20 06:23	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487777	11/03/20 08:21	AVB	TAL SL
Total/NA	Analysis	904.0		1	491422	12/10/20 08:45	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492987	12/24/20 09:02	SCB	TAL SL

Client Sample ID: MW-302

Lab Sample ID: 310-193882-2

Date Collected: 10/22/20 08:12

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			487776	11/03/20 07:30	AVB	TAL SL
Total/NA	Analysis	903.0		1	491444	12/11/20 06:23	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487777	11/03/20 08:21	AVB	TAL SL
Total/NA	Analysis	904.0		1	491422	12/10/20 08:45	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492987	12/24/20 09:02	SCB	TAL SL

Client Sample ID: MW-303

Lab Sample ID: 310-193882-3

Date Collected: 10/22/20 10:15

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			488138	11/04/20 06:49	AVB	TAL SL
Total/NA	Analysis	903.0		1	490353	11/27/20 11:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			488143	11/04/20 07:22	AVB	TAL SL
Total/NA	Analysis	904.0		1	490279	11/25/20 11:29	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492986	12/24/20 09:00	SCB	TAL SL

Client Sample ID: MW-304

Lab Sample ID: 310-193882-4

Date Collected: 10/22/20 11:45

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			488138	11/04/20 06:49	AVB	TAL SL
Total/NA	Analysis	903.0		1	490353	11/27/20 11:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			488143	11/04/20 07:22	AVB	TAL SL
Total/NA	Analysis	904.0		1	490279	11/25/20 11:29	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492986	12/24/20 09:00	SCB	TAL SL

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Client Sample ID: MW-305

Lab Sample ID: 310-193882-5

Date Collected: 10/22/20 13:35

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			488138	11/04/20 06:49	AVB	TAL SL
Total/NA	Analysis	903.0		1	490353	11/27/20 11:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			490565	11/30/20 13:20	KMP	TAL SL
Total/NA	Analysis	904.0		1	492893	12/23/20 11:45	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492970	12/23/20 20:36	GRW	TAL SL

Client Sample ID: MW-306

Lab Sample ID: 310-193882-6

Date Collected: 10/22/20 14:58

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			488138	11/04/20 06:49	AVB	TAL SL
Total/NA	Analysis	903.0		1	490353	11/27/20 11:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			488143	11/04/20 07:22	AVB	TAL SL
Total/NA	Analysis	904.0		1	490279	11/25/20 11:29	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492986	12/24/20 09:00	SCB	TAL SL

Client Sample ID: MW-307

Lab Sample ID: 310-193882-7

Date Collected: 10/22/20 18:15

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			488138	11/04/20 06:49	AVB	TAL SL
Total/NA	Analysis	903.0		1	490353	11/27/20 11:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			488143	11/04/20 07:22	AVB	TAL SL
Total/NA	Analysis	904.0		1	490279	11/25/20 11:29	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492986	12/24/20 09:00	SCB	TAL SL

Client Sample ID: Field Blank

Lab Sample ID: 310-193882-8

Date Collected: 10/22/20 00:00

Matrix: Water

Date Received: 10/23/20 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			488138	11/04/20 06:49	AVB	TAL SL
Total/NA	Analysis	903.0		1	490353	11/27/20 11:17	FLC	TAL SL
Total/NA	Prep	PrecSep_0			488143	11/04/20 07:22	AVB	TAL SL
Total/NA	Analysis	904.0		1	490279	11/25/20 11:30	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	492986	12/24/20 09:00	SCB	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Eurofins TestAmerica, Cedar Falls

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

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
Alaska (UST)	State	20-001	05-06-22
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	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

Method Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

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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Environment Testing
TestAmerica



Cooler/Sample Receipt and Temperature Log

Client Information			
Client: <u>SCS Engineers</u>			
City/State:	CITY <u>Chire</u>	STATE <u>IA</u>	Project: <u>ML Kapp 25270077</u>
Receipt Information			
Date/Time Received:	DATE <u>10.23.20</u>	TIME <u>1730</u>	Received By: <u>BLM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>N</u>		Correction Factor (°C): <u>+0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):		Corrected Temp (°C):	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1 <u>2116 HNO3</u>	CONTAINER 2	
Uncorrected Temp (°C):	<u>1.0</u>		
Corrected Temp (°C):	<u>1.0</u>		
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Environment Testing
TestAmerica

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <small>CITY</small> <u>Chile</u> <small>STATE</small> <u>IA</u>	Project: <u>ML Kapp 25220077</u>	
Receipt Information		
Date/Time Received: <small>DATE</small> <u>10.23.20</u> <small>TIME</small> <u>1730</u>	Received By: <u>BLM</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>N</u>	Correction Factor (°C): <u>+0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>2.1</u>	Corrected Temp (°C): <u>2.1</u>	
• Sample Container Temperature		
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		

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Chain of Custody Record

Client Information		Sampler: <u>Tanten Buszka</u>		Lab PM: Fredrick, Sandie		Carrier Tracking No(s):		COC No: 310-54740-16397.1					
Client Contact: Tanten Buszka		Phone: <u>269-993-0855</u>		E-Mail: sandra.fredrick@eurofinset.com				Page: Page 1 of 1					
Company: SCS Engineers				Analysis Requested				Job #:					
Address: 8450 Hickman Road Suite <u>2027</u>		Due Date 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)			
City: Clive		TAT Requested (days):		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers					
State, Zip: IA, 50325		PO #: 25220077											
Phone: <u>269-993-0855</u>		WO #:		903.0, 904.0		6020A - Metals (9)		2540C_Calcd, 9056A_ORGFPM_28D, SM4500_H+					
Email: tbuszka@scsengineers.com		Project #: 31011020											
Project Name: ML Kapp 25220077		SSOW#:		Special Instructions/Note:									
Site: ↓													
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)		Total Number of containers		Special Instructions/Note:	
						Preservation Code: X X D D N							
MW-301		10-22-20	16:27	G	Water	X	X	X	X	X			
MW-302		10-22-20	8:12	G	Water	X	X	X	X	X			
MW-303		10-22-20	10:15	G	Water	X	X	X	X	X			
MW-304		10-22-20	11:45	G	Water	X	X	X	X	X			
MW-305		10-22-20	13:35	G	Water	X	X	X	X	X			
MW-306		10-22-20	14:58	G	Water	X	X	X	X	X			
MW-307		10-22-20	18:15	G	Water	X	X	X	X	X			
Field Blank					Water								
					Water								
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: <u>Tanten Buszka</u>		Date/Time: <u>10-23-20 9:30</u>		Company: <u>SCS</u>		Received by:		Date/Time: <u>10-23-20 1730</u>		Company:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:							

07/01/2021 - Classified Page 27 of 34 Internal - ECRM12620958

12/24/2020



Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
 Groundwater Monitoring - M.L. Kapp Ash Pond/ SCS Engineers Project #25220077.00

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	Field Blank	TOTAL
Appendix III Parameters	Boron	x	x	x	x	x	x	x	x	8
	Calcium	x	x	x	x	x	x	x	x	8
	Chloride	x	x	x	x	x	x	x	x	8
	Fluoride	x	x	x	x	x	x	x	x	8
	pH	x	x	x	x	x	x	x	x	8
	Sulfate	x	x	x	x	x	x	x	x	8
	TDS	x	x	x	x	x	x	x	x	8
Appendix IV Parameters	Antimony									0
	Arsenic	x	x	x	x	x	x	x	x	8
	Barium	x	x	x	x	x	x	x	x	8
	Beryllium									0
	Cadmium	x	x	x	x	x	x	x	x	8
	Chromium									0
	Cobalt	x	x	x	x	x	x	x	x	8
	Fluoride	x	x	x	x	x	x	x	x	8
	Lead	x	x	x	x	x	x	x	x	8
	Lithium	x	x	x	x	x	x	x	x	8
	Mercury									0
	Molybdenum	x	x	x	x	x	x	x	x	8
	Selenium									0
Thallium									0	
Radium	x	x	x	x	x	x	x	x	8	
CCR Rule Field Parameters	Groundwater Elevation	x	x	x	x	x	x	x		7
	pH (field)	x	x	x	x	x	x	x		7
Low-Flow Sampling Field Parameters	Well Depth	x	x	x	x	x	x	x		7
	Specific Conductance	x	x	x	x	x	x	x		7
	Dissolved Oxygen	x	x	x	x	x	x	x		7
	ORP	x	x	x	x	x	x	x		7
	Temperature	x	x	x	x	x	x	x		7
	Turbidity	x	x	x	x	x	x	x		7
	Color	x	x	x	x	x	x	x		7
Odor	x	x	x	x	x	x	x		7	

P:\IA CCR\IPL_M.L. Kapp_CCR_Rule_Sampling Table_2010.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-193882-2

Login Number: 193882

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Ramos, Eric F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 <math><6\text{mm}</math> (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: 310-193882-2

Login Number: 193882

List Number: 2

Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis

List Creation: 10/27/20 02:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	N/A	
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: ML Kapp 25220077

Job ID: 310-193882-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
310-193882-1	MW-301	80.0	
310-193882-2	MW-302	96.1	
310-193882-3	MW-303	72.4	
310-193882-4	MW-304	70.3	
310-193882-5	MW-305	71.8	
310-193882-6	MW-306	75.2	
310-193882-7	MW-307	71.2	
310-193882-8	Field Blank	74.8	
LCS 160-487776/1-A	Lab Control Sample	75.5	
LCSD 160-487776/2-A	Lab Control Sample Dup	71.8	
LCSD 160-488138/2-A	Lab Control Sample Dup	77.6	
MB 160-487776/23-A	Method Blank	91.5	
MB 160-488138/23-A	Method Blank	88.5	

Tracer/Carrier Legend
Ba = 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 (40-110)	Y (40-110)
310-193882-1	MW-301	80.0	94.2
310-193882-2	MW-302	96.1	84.5
310-193882-3	MW-303	72.4	87.1
310-193882-4	MW-304	70.3	80.7
310-193882-5	MW-305	61.6	85.6
310-193882-6	MW-306	75.2	70.7
310-193882-7	MW-307	71.2	85.2
310-193882-8	Field Blank	74.8	89.7
LCS 160-487777/1-A	Lab Control Sample	75.5	89.7
LCS 160-488143/1-A	Lab Control Sample	87.0	79.3
LCS 160-490565/1-A	Lab Control Sample	84.5	84.9
LCSD 160-487777/2-A	Lab Control Sample Dup	71.8	82.6
LCSD 160-488143/2-A	Lab Control Sample Dup	77.6	74.0
LCSD 160-490565/2-A	Lab Control Sample Dup	75.1	81.1
MB 160-487777/23-A	Method Blank	91.5	88.2
MB 160-488143/23-A	Method Blank	88.5	88.6
MB 160-490565/4-A	Method Blank	68.5	81.5

Tracer/Carrier Legend
Ba = Ba Carrier
Y = Y Carrier



Appendix D

Historical Monitoring Results

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-301															
Number of Sampling Dates: 14															
Parameter Name	Units	3/28/2018	5/22/2018	6/25/2018	7/25/2018	10/5/2018	11/29/2018	1/10/2019	2/13/2019	4/9/2019	10/7/2019	12/10/2019	2/4/2020	4/29/2020	10/22/2020
Boron	ug/L	15700	12500	2280	2040	3620	10900	13000	13800	15000	13000	12000	13000	10000	13000
Calcium	mg/L	131	123	105	118	114	121	140	137	150	140	140	110	130	130
Chloride	mg/L	21.7	24.3	67.1	75.5	63.5	32.1	23	25.6	21	28	37	37	48	50
Field pH	Std. Units	6.83	6.94	7.25	8.39	7.05	6.79	6.95	6.52	6.66	6.28	6.38	6.54	7.08	6.7
Fluoride	mg/L	0.32	0.25	0.23	0.22	0.3	0.25	0.22	0.23	<0.23	0.32	<0.23	--	0.35	<0.23
Sulfate	mg/L	475	456	61	54.3	130	306	418	450	360	350	320	360	250	310
Total Dissolved Solids	mg/L	776	833	567	611	608	762	892	826	820	840	760	790	720	820
Antimony	ug/L	0.092	<0.15	<0.15	0.21	0.1	<0.078	0.17	0.086	--	--	<2.1	--	<0.58	--
Arsenic	ug/L	0.66	0.82	0.67	1	0.99	1.2	0.94	0.76	--	--	<0.75	<0.88	0.95	<3.5
Barium	ug/L	72.9	116	167	193	165	208	149	119	--	--	120	72	140	76
Beryllium	ug/L	<0.012	<0.12	<0.12	0.13	<0.089	<0.089	<0.089	<0.089	--	--	<0.27	--	<0.27	--
Cadmium	ug/L	0.14	0.13	<0.07	0.16	0.05	0.044	0.11	0.15	--	--	0.1	0.11	0.095	0.28
Chromium	ug/L	0.24	0.32	0.25	0.3	0.13	0.58	0.35	0.14	--	--	<0.98	--	<1.1	--
Cobalt	ug/L	3.3	1.7	0.17	0.29	0.22	2	3.6	4.7	--	--	5.2	4.5	3.5	4.4
Lead	ug/L	0.059	0.12	<0.12	0.28	<0.13	<0.13	<0.13	<0.13	--	--	<0.27	<0.27	<0.27	<0.44
Lithium	ug/L	9.7	<4.6	6.5	6.1	5.8	10.1	4.9	8.7	--	--	<11	4.4	7.4	<10
Mercury	ug/L	<0.09	<0.09	<0.09	<0.09	0.15	<0.09	<0.09	<0.037	--	--	<0.1	--	<0.1	--
Molybdenum	ug/L	345	251	33.1	31.1	42.8	237	294	242	--	--	310	300	250	510
Selenium	ug/L	<0.086	<0.16	<0.16	0.23	0.086	<0.085	0.12	<0.085	--	--	<1	<1	<1	--
Thallium	ug/L	<0.036	<0.14	<0.14	0.19	<0.099	<0.099	<0.099	<0.099	--	--	<0.27	--	<0.26	--
Total Radium	pCi/L	1.19	0.872	0.813	1.18	1.31	1.67	1.99	0.966	--	--	0.321	0.413	0.538	0.388
Radium-226	pCi/L	0.676	0.573	0.481	0.589	0.281	0.973	1.01	0.39	--	--	0.0849	0.187	0.156	0.0134
Radium-228	pCi/L	0.514	0.299	0.332	0.587	1.03	0.701	0.978	0.576	--	--	0.236	0.226	0.382	0.374
Field Specific Conductance	umhos/cm	930	1060	902	953	780	690	725	938	1139	1058	1026	1054	1069	979
Field Temperature	deg C	11.1	11.3	13	13.3	13.8	13.57	12.65	11.5	11.2	13.96	11.7	10.92	10.5	14.6
Groundwater Elevation	feet	577.65	579.2	578.57	577.83	580.04	577.55	577.36	577.23	585.25	580.97	577.39	578.07	578.76	577.42
Turbidity	NTU	0.73	3.16	4.13	9.4	3.94	0.91	1.75	6.68	20	2.97	5.02	3.15	9.87	3.84
Field Oxidation Potential	millivolts	-8.8	-106	-153	-180	-110	-89.7	0	-33.2 mV	-19.4	-39.5	-42.3	-4.2	-44.1	-19.6
Oxygen, Dissolved	mg/L	0.2	0.27	0.47	0.09	0.18	0.22	0.2	0.09	0.09	0.37	0.48	0.56	0.13	0.1
pH at 25 Degrees C	Std. Units	7.1	6.8	7	7	7	7	6.6	6.8	6.8	6.8	6.9	7	7.2	7.5

07/01/2021 - Classification: Internal - ECRM12620958

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-302															
Number of Sampling Dates: 14															
Parameter Name	Units	3/28/2018	5/22/2018	6/25/2018	7/25/2018	10/5/2018	11/29/2018	1/10/2019	2/13/2019	4/9/2019	10/7/2019	12/10/2019	2/4/2020	4/29/2020	10/22/2020
Boron	ug/L	5620	4720	4100	4950	5190	6300	5940	6420	4700	4600	6100	5900	4700	5700
Calcium	mg/L	67.9	73	46.7	54.8	58.9	63.7	77.4	94.5	120	75	70	64	61	65
Chloride	mg/L	18.8	17.6	19.4	19	18.2	15	13.9	10.9	8.9	14	14	16	17	14
Field pH	Std. Units	8.32	9.11	10.11	10.64	7.83	8.16	8.51	7.75	7	7.97	7.97	7.79	8.45	8.37
Fluoride	mg/L	0.45	0.39	0.5	0.43	0.45	0.3	0.19	<0.19	<0.23	0.33	<0.23	--	0.37	<0.23
Sulfate	mg/L	221	199	201	208	215	203	214	211	200	180	240	250	230	260
Total Dissolved Solids	mg/L	430	494	426	442	467	505	534	564	620	510	530	550	490	580
Antimony	ug/L	0.27	0.33	0.29	0.32	0.25	0.3	0.37	0.35	--	--	<1.1	--	<0.58	--
Arsenic	ug/L	8.5	8.8	10.3	8.7	8.7	9.3	7.7	7.1	--	--	6.7	6.1	8.6	7.3
Barium	ug/L	41.6	60.4	43.4	50.1	42.3	47.1	55.7	63.1	--	--	80	58	66	63
Beryllium	ug/L	<0.012	<0.12	<0.12	<0.12	<0.089	<0.089	<0.089	<0.089	--	--	<0.27	--	<0.27	--
Cadmium	ug/L	0.046	0.12	0.084	0.087	0.087	0.052	0.087	0.14	--	--	0.13	0.13	0.12	0.16
Chromium	ug/L	0.27	1.4	0.59	<0.19	0.29	0.32	0.64	0.36	--	--	<0.98	--	<1.1	--
Cobalt	ug/L	0.14	0.46	0.24	<0.15	0.12	0.24	0.14	0.29	--	--	0.67	0.16	0.23	0.29
Lead	ug/L	0.068	0.6	0.13	<0.12	<0.13	0.28	<0.13	0.38	--	--	0.6	<0.27	<0.27	<0.11
Lithium	ug/L	17.2	14.2	<4.6	7.2	9.9	19.5	21	31.8	--	--	19	12	4	12
Mercury	ug/L	<0.09	<0.09	<0.09	<0.09	0.14	<0.09	<0.09	<0.037	--	--	<0.1	--	<0.1	--
Molybdenum	ug/L	281	235	274	260	212	185	214	127	--	--	260	280	360	320
Selenium	ug/L	5.1	6.7	0.5	1.1	0.4	1.5	2.9	8.1	--	--	<1	<1	<1	--
Thallium	ug/L	<0.036	<0.14	<0.14	<0.14	<0.099	<0.099	<0.099	0.12	--	--	<0.27	--	<0.26	--
Total Radium	pCi/L	1.02	0.987	0.611	0.367	0.63	0.644	1.69	0.663	--	--	0.659	0.122	0.577	1.13
Radium-226	pCi/L	0.495	0.399	0.37	0.367	0.0932	0.344	0.887	0.499	--	--	0.342	0.115	0.0158	0.232
Radium-228	pCi/L	0.523	0.588	0.241	-0.106	0.537	0.3	0.802	0.164	--	--	0.317	0.00694	0.562	0.894
Field Specific Conductance	umhos/cm	492	687	633	641	11	495	503	713	870	714	727	781	785	743
Field Temperature	deg C	11	10.9	12.4	13.2	14.9	13.76	12.23	10.8	9.9	14.3	12	11.14	9.9	13.7
Groundwater Elevation	feet	576.62	579.37	578.04	577.62	579.88	576.52	577.05	576.51	585.29	580.74	577.41	577.74	579.38	574.64
Turbidity	NTU	1.83	38.63	1.74	4.32	3.65	9.12	1.37	5.54	11.89	1.21	61.54	1.94	1.33	0.02
Field Oxidation Potential	millivolts	-132.7	-27	-183	-45	194	-179.8	-75.9	-62.4 mV	116.5	12.3	21.1	37.7	2.7	-64.1
Oxygen, Dissolved	mg/L	1.02	0.28	0.21	0.19	3.79	0.47	0.33	0.61	1.99	0.38	0.42	1.49	0.14	0.11
pH at 25 Degrees C	Std. Units	8.6	8.2	9.1	8.6	8.4	8.4	7.5	7.8	7.2	8.2	8.1	7.8	8.5	8.3

07/01/2021 - Classification: Internal - ECRM12620958

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-303															
Number of Sampling Dates: 14															
Parameter Name	Units	3/28/2018	5/22/2018	6/25/2018	7/25/2018	10/5/2018	11/29/2018	1/10/2019	2/13/2019	4/9/2019	10/7/2019	12/10/2019	2/4/2020	4/29/2020	10/22/2020
Boron	ug/L	2510	3080	3500	1910	3980	3080	3720	3780	2600	2900	3200	4000	4200	3800
Calcium	mg/L	72	84.5	109	69.3	129	116	213	198	150	200	110	130	220	71
Chloride	mg/L	24.7	23.5	19.7	23.9	14.7	14.6	7.3	8.4	19	5.6	16	11	6	23
Field pH	Std. Units	10.41	9.05	9.86	10.74	8.7	9.28	7.39	8.54	7.43	6.76	9.35	7.26	7.33	9.97
Fluoride	mg/L	0.45	0.39	0.31	0.66	0.35	0.37	<0.19	<0.19	<0.23	0.32	<0.23	--	<0.23	0.67
Sulfate	mg/L	256	308	379	243	459	378	644	659	440	480	350	380	590	260
Total Dissolved Solids	mg/L	438	562	690	452	753	703	1080	968	790	1000	620	760	1000	510
Antimony	ug/L	0.24	0.64	0.26	0.27	0.26	0.22	0.23	0.22	--	--	<0.53	--	<0.58	--
Arsenic	ug/L	6.6	6.2	6.4	8.8	5.6	7.9	4.1	4.4	--	--	9.2	4	5.8	20
Barium	ug/L	28.5	25.7	35.8	21.7	39	44.2	64	53.8	--	--	47	48	96	52
Beryllium	ug/L	<0.012	0.35	<0.12	<0.12	<0.089	<0.089	<0.089	<0.089	--	--	<0.27	--	<0.27	--
Cadmium	ug/L	<0.018	0.46	<0.07	<0.07	0.12	<0.033	0.044	<0.033	--	--	0.045	<0.039	<0.039	0.093
Chromium	ug/L	0.11	0.52	0.45	<0.19	0.2	<0.078	0.38	0.15	--	--	<0.98	--	<1.1	--
Cobalt	ug/L	0.18	0.57	0.44	<0.15	0.33	0.18	0.47	0.41	--	--	0.36	0.46	0.77	0.3
Lead	ug/L	0.039	0.42	0.18	<0.12	<0.13	<0.13	1.4	<0.13	--	--	0.57	<0.27	<0.27	<0.11
Lithium	ug/L	10.1	9.8	13.6	<4.6	15.6	17.2	23.6	24.4	--	--	17	26	44	14
Mercury	ug/L	<0.09	<0.09	<0.09	<0.09	0.15	<0.09	<0.09	<0.037	--	--	<0.1	--	<0.1	--
Molybdenum	ug/L	135	152	122	145	110	127	55.9	67.1	--	--	140	96	74	180
Selenium	ug/L	8.6	1.4	1.7	6.5	0.72	3	0.69	0.86	--	--	2	2.3	<1	--
Thallium	ug/L	<0.036	0.36	<0.14	<0.14	<0.099	<0.099	<0.099	<0.099	--	--	<0.27	--	<0.26	--
Total Radium	pCi/L	0.821	0.614	0.876	0.581	1.09	0.202	0.49	1.04	--	--	0.242	0.409	0.348	0.676
Radium-226	pCi/L	0.519	0.0661	0.0823	0.276	0.424	-0.248	0.095	0.566	--	--	0.112	0.123	0.154	0.234
Radium-228	pCi/L	0.302	0.548	0.794	0.305	0.668	0.202	0.394	0.47	--	--	0.131	0.286	0.194	0.442
Field Specific Conductance	umhos/cm	608.7	797	927	706	872	668	948	1092	1024	1220	861	1057	1484	723
Field Temperature	deg C	12.6	12.3	14	13.8	13.9	13.58	12.82	12.1	12.2	14.11	12	11.93	10.9	13.1
Groundwater Elevation	feet	577.37	580	577.24	577.83	579.74	578.74	579.06	578.9	584.61	581.39	578.9	579.58	580.82	575.82
Turbidity	NTU	0.77	1.32	2.97	2.17	4.61	0.58	6.53	6.13	12.01	1.91	30.09	1.64	41.9	35.2
Field Oxidation Potential	millivolts	-42.7	-180	-257	-98	-211.8	-286.5	13.8	-160.8 mV	-47	39.5	42.3	34	-97.7	-32.1
Oxygen, Dissolved	mg/L	0.77	0.19	0.23	0.11	0.09	0.2	0.47	0.1	0.08	1.32	0.47	1.73	0.22	0.19
pH at 25 Degrees C	Std. Units	9.7	9	8.9	10.6	8.7	9	7	8.5	7.6	7.2	9.2	7.6	7.8	9.6

07/01/2021 - Classification: Internal - ECRM12620958

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-304																
Number of Sampling Dates: 15																
Parameter Name	Units	3/28/2018	5/22/2018	6/25/2018	7/25/2018	10/5/2018	11/29/2018	1/10/2019	2/13/2019	4/9/2019	10/7/2019	12/10/2019	2/4/2020	4/29/2020	7/7/2020	10/22/2020
Boron	ug/L	10900	6880	8530	8330	8820	9140	8920	9920	10000	10000	10000	10000	8900	--	9400
Calcium	mg/L	63.2	49.4	52	48.5	56	70.9	85	79.3	54	92	89	85	81	--	86
Chloride	mg/L	28.4	31.4	28.4	28.7	35.3	28	25.6	26.5	28	24	23	25	26	--	23
Field pH	Std. Units	7.87	7.65	7.81	7.64	7.47	7.51	7.34	7.24	7.97	7.08	7.31	7.31	6.48	6.81	7.07
Fluoride	mg/L	0.2	0.26	0.25	0.28	0.36	0.24	0.31	0.2	<0.23	0.34	<0.23	--	0.32	--	<0.23
Sulfate	mg/L	213	188	186	177	206	286	349	319	200	330	330	310	290	--	340
Total Dissolved Solids	mg/L	441	419	443	443	459	601	645	602	440	660	660	620	590	--	660
Antimony	ug/L	0.035	<0.15	<0.15	0.23	<0.078	<0.078	0.082	<0.078	--	--	<2.1	--	<0.58	--	--
Arsenic	ug/L	3.1	3	3.7	4.5	3.3	4.5	3.8	3.1	--	--	4.5	3.7	18	4.4	4.5
Barium	ug/L	59.4	39.1	55.7	60.2	47.7	73.3	78.1	64.6	--	--	86	78	420	--	95
Beryllium	ug/L	<0.012	<0.12	0.13	0.15	<0.089	<0.089	<0.089	<0.089	--	--	<0.27	--	<0.27	--	--
Cadmium	ug/L	0.11	0.48	0.24	0.38	0.25	0.17	0.19	0.29	--	--	0.28	0.31	0.43	--	0.39
Chromium	ug/L	0.49	0.68	3.9	1.8	0.33	0.1	0.23	0.18	--	--	<0.98	--	<1.1	--	--
Cobalt	ug/L	0.44	0.56	1.9	1.4	0.56	0.73	0.75	0.83	--	--	1.1	0.92	1.2	--	1
Lead	ug/L	0.19	0.6	2.3	2.6	0.26	<0.13	<0.13	<0.13	--	--	0.4	<0.27	0.51	--	<0.44
Lithium	ug/L	4.7	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	5.8	--	--	<11	<2.3	2.9	--	<10
Mercury	ug/L	<0.09	<0.09	<0.09	<0.09	0.14	<0.09	<0.09	<0.037	--	--	<0.1	--	<0.1	--	--
Molybdenum	ug/L	1530	1260	807	828	788	790	778	640	--	--	820	950	1200	--	930
Selenium	ug/L	<0.086	<0.16	1	0.79	0.11	<0.085	0.14	<0.085	--	--	<1	<1	<1	--	--
Thallium	ug/L	<0.036	<0.14	<0.14	<0.14	<0.099	<0.099	<0.099	<0.099	--	--	<0.27	--	<0.26	--	--
Total Radium	pCi/L	1.1	1.64	0.641	0.645	0.466	1.2	0.978	0.869	--	--	0.277	0.622	4.39	--	0.839
Radium-226	pCi/L	0.659	0.867	0.266	0.249	0.0953	0.501	0	0.588	--	--	0.277	0.189	2.31	--	0.363
Radium-228	pCi/L	0.437	0.769	0.375	0.396	0.371	0.702	0.978	0.281	--	--	0.155	0.434	2.08	--	0.476
Field Specific Conductance	umhos/cm	579.5	611	629	607	560.5	587	630	757	707	909	932	934	924	1004	918
Field Temperature	deg C	12	11.8	13.7	13.6	13.6	13.55	12.68	12.2	11.7	14.62	12.1	12.02	10.8	13.4	13.2
Groundwater Elevation	feet	577.05	579.47	570.77	577.56	579.32	578.43	578.56	578.26	585.25	581.62	578.85	578.73	580.95	577.15	575.32
Turbidity	NTU	2.9	11.84	78.2	51.08	13.86	18.9	3.65	4.16	2.12	3.5	13.5	2.94	49.9	12.8	1.05
Field Oxidation Potential	millivolts	-130.3	-121	-113	-117	-96.7	-69	34.9	-36.8 mV	18.7	-37.4	-42	36.3	74.5	-23.6	-65.2
Oxygen, Dissolved	mg/L	0.1	0.57	0.41	0.12	0.1	0.36	0.2	0.06	0.07	0.25	0.28	0.82	0.13	0.28	0.1
pH at 25 Degrees C	Std. Units	7.5	7.7	7.4	7.7	7.4	7.6	6.8	7.3	7.5	7.3	7.3	7.3	7.5	--	7.7

07/01/2021 - Classification: Internal - ECRM12620958

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-305																
Number of Sampling Dates: 15																
Parameter Name	Units	3/28/2018	5/22/2018	6/25/2018	7/25/2018	10/5/2018	11/29/2018	1/10/2019	2/13/2019	4/9/2019	9/6/2019	10/7/2019	12/10/2019	2/4/2020	4/29/2020	10/22/2020
Boron	ug/L	16800	14000	16400	11900	16500	18500	18800	18700	1600	17000	20000	15000	15000	16000	16000
Calcium	mg/L	131	122	148	88.4	137	150	172	167	170	--	210	160	160	190	190
Chloride	mg/L	20.2	21.7	17.7	25.5	19.6	16.3	15.7	16.9	20	--	14	17	19	18	15
Field pH	Std. Units	6.28	7.27	9.01	7.6	7.31	7.27	7.38	7.12	7.53	8.02	7.04	7.19	7.2	6.41	7.3
Fluoride	mg/L	0.17	0.21	0.39	0.32	0.31	0.22	0.36	0.29	2.3	3.2	0.41	<0.23	--	0.33	<0.23
Sulfate	mg/L	623	468	673	341	472	<0.24	689	619	480	--	690	620	590	690	760
Total Dissolved Solids	mg/L	885	872	1080	690	941	1040	1140	1110	1100	--	1300	1100	1100	1200	1300
Antimony	ug/L	0.23	<0.15	0.27	0.2	0.088	<0.078	<0.078	<0.078	--	--	--	<2.1	--	<0.58	--
Arsenic	ug/L	0.62	0.86	2.1	1.2	1.1	1.4	1.4	1.3	--	--	--	1.4	1.4	3.1	<3.5
Barium	ug/L	83.9	81.7	89.5	61	78.6	95.9	97.8	92.6	--	--	--	92	90	120	100
Beryllium	ug/L	<0.012	<0.12	<0.12	<0.12	<0.089	<0.089	<0.089	<0.089	--	--	--	<0.27	--	<0.27	--
Cadmium	ug/L	0.16	0.3	0.15	0.18	0.23	0.17	0.21	0.26	--	--	--	0.25	0.24	0.26	0.34
Chromium	ug/L	0.44	0.2	0.93	<0.19	<0.079	<0.078	0.24	0.45	--	--	--	<0.98	--	<1.1	--
Cobalt	ug/L	0.62	0.49	0.8	0.29	0.38	0.4	0.54	0.61	--	--	--	0.57	0.55	0.68	0.69
Lead	ug/L	0.099	0.24	0.58	0.15	<0.13	<0.13	<0.13	0.14	--	--	--	<0.27	<0.27	<0.27	<0.44
Lithium	ug/L	21.4	13.6	17.9	10.9	16.6	21.8	18.1	23.4	--	--	--	19	16	20	22
Mercury	ug/L	<0.09	<0.09	<0.09	<0.09	0.15	<0.09	<0.09	<0.037	--	--	--	<0.1	--	<0.1	--
Molybdenum	ug/L	613	671	724	886	666	670	663	468	--	--	--	650	680	720	580
Selenium	ug/L	0.19	0.5	0.23	0.23	0.088	<0.085	0.094	0.13	--	--	--	<1	<1	<1	--
Thallium	ug/L	<0.036	<0.14	0.21	<0.14	<0.099	<0.099	<0.099	<0.099	--	--	--	<0.27	--	<0.26	--
Total Radium	pCi/L	0.962	0.189	1.67	0.702	2.01	0.616	0.987	0.817	--	--	--	0.634	0.28	0.0301	0.75
Radium-226	pCi/L	0.425	0.189	0.649	0.134	0.398	0.157	0.417	0.178	--	--	--	0.0928	0.151	0.0301	0.181
Radium-228	pCi/L	0.537	-0.038	1.02	0.568	1.61	0.459	0.57	0.639	--	--	--	0.541	0.129	-0.0563	0.57
Field Specific Conductance	umhos/cm	934	1155	1405	954	1069	950	958	1272	1425	1590	1604	1391	1415	1545	1354
Field Temperature	deg C	10.9	11.4	14.3	13.7	14.3	13.73	12.3	11.3	10.5	15.3	15.33	11.8	10.63	10.1	13.7
Groundwater Elevation	feet	576.58	579.34	571.28	577.52	579.15	578.69	578.84	578.45	585.23	577.42	581.88	578.89	578.85	580.4	575.25
Turbidity	NTU	11.92	4.18	41.01	3.29	4.18	0.69	2.91	5.26	4.23	19.31	5.04	11.4	1.72	11.9	3.2
Field Oxidation Potential	millivolts	63.9 mV	17	-83	-36	-50.2	-72	30.3	-47.7 mV	115.9	157 mV	-41.8	-67.4	14	-50.8	-8.4
Oxygen, Dissolved	mg/L	1.9	0.64	0.54	0.15	0.14	0.2	0.27	0.09	0.08	0.39	0.33	0.83	1.12	0.16	0.13
pH at 25 Degrees C	Std. Units	7.2	7.2	7.6	7.4	7.3	7.6	7.4	7.3	6.9	--	7.2	7.5	7.4	7.6	7.9

07/01/2021 - Classification: Internal - ECRM12620958

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-306															
Number of Sampling Dates: 14															
Parameter Name	Units	3/28/2018	5/22/2018	6/25/2018	7/25/2018	10/5/2018	11/29/2018	1/10/2019	2/13/2019	4/9/2019	10/7/2019	12/10/2019	2/4/2020	4/29/2020	10/22/2020
Boron	ug/L	17600	18600	15600	17900	17000	17600	17300	18900	14000	12000	15000	20000	22000	14000
Calcium	mg/L	168	164	165	155	154	141	152	154	150	160	130	120	130	150
Chloride	mg/L	52.1	59.9	78.5	63.7	83.8	79.4	97.4	93.5	100	83	74	75	76	110
Field pH	Std. Units	7.42	7.33	8.13	8.31	7.33	7.3	7.46	7.25	7.64	7.01	7.31	7.5	6.59	7.21
Fluoride	mg/L	0.27	0.18	0.27	0.29	0.26	<0.19	<0.19	<0.19	<0.23	0.3	<0.23	--	<0.46	<0.23
Sulfate	mg/L	488	600	396	454	419	416	452	457	340	270	390	500	560	340
Total Dissolved Solids	mg/L	1100	1130	1080	1090	1020	1030	1110	1070	1000	910	960	1100	1200	1000
Antimony	ug/L	0.13	0.16	<0.15	0.17	0.14	0.092	0.24	0.12	--	--	<2.1	--	<0.58	--
Arsenic	ug/L	0.054	0.42	0.33	0.49	0.37	0.53	0.65	0.37	--	--	<0.75	<0.88	<0.88	<3.5
Barium	ug/L	53.6	56.8	55.5	53.8	51.1	54.7	57.9	55.9	--	--	49	53	59	71
Beryllium	ug/L	<0.012	<0.12	<0.12	<0.12	<0.089	<0.089	<0.089	<0.089	--	--	<0.27	--	<0.27	--
Cadmium	ug/L	0.025	0.08	<0.07	0.07	0.041	<0.033	0.094	0.05	--	--	<0.039	0.072	<0.039	<0.2
Chromium	ug/L	0.22	<0.19	<0.19	<0.19	0.13	0.16	0.3	0.16	--	--	<0.98	--	<1.1	--
Cobalt	ug/L	0.1	0.16	<0.15	0.17	0.13	0.09	0.24	0.19	--	--	0.18	0.26	0.2	<0.36
Lead	ug/L	0.033	<0.12	<0.12	<0.12	<0.13	<0.13	<0.13	0.19	--	--	<0.27	<0.27	<0.27	<0.44
Lithium	ug/L	58	63.5	56.4	60.2	65.4	72.6	76.9	81.4	--	--	68	69	80	60
Mercury	ug/L	<0.09	<0.09	<0.09	<0.09	0.14	<0.09	<0.09	<0.037	--	--	<0.1	--	<0.1	--
Molybdenum	ug/L	46.4	75.3	53.3	92	87.6	96.1	97.6	89.5	--	--	88	100	120	49
Selenium	ug/L	2.9	0.51	1.2	1	2.8	2.3	0.73	0.68	--	--	1.6	<1	<1	--
Thallium	ug/L	<0.036	<0.14	<0.14	<0.14	<0.099	<0.099	0.13	<0.099	--	--	<0.27	--	<0.26	--
Total Radium	pCi/L	0.666	0	0.267	0.175	0.577	0.638	1	0.221	--	--	0.61	0.068	0.137	0.189
Radium-226	pCi/L	0.0948	0	0.267	0.168	0.37	0.275	0.417	0.221	--	--	0.0472	0.068	0.03	0.138
Radium-228	pCi/L	0.571	-0.204	-0.0597	0.00726	0.207	0.363	0.585	-0.115	--	--	0.563	-0.0785	0.107	0.0513
Field Specific Conductance	umhos/cm	1355	1511	1498	1431	15.4	936	980	1344	1499	1290	1304	1557	1683	1427
Field Temperature	deg C	10	10.6	11.9	13.2	13.8	13.22	11.78	10.4	9.8	14.56	11.3	11.08	9.9	13.7
Groundwater Elevation	feet	577.93	579.47	576.93	577.97	579.46	579.28	579.47	579.4	585.29	582.28	579.49	579.31	580.7	576.82
Turbidity	NTU	3.95	1.12	0.88	3.58	8.14	0.64	0.44	4.61	3.01	0.57	3.34	0.71	1.47	0.02
Field Oxidation Potential	millivolts	59.9	87	83	99	228.1	-7.7	34.7	-12.2 mV	104.6	19.7	22.4	26	105.4	-3.5
Oxygen, Dissolved	mg/L	2.33	0.44	0.4	0.14	5.3	0.26	0.29	0.07	0.08	0.3	0.58	1.87	0.11	0.1
pH at 25 Degrees C	Std. Units	7.2	7.4	7.1	7.4	7.3	7.6	7.4	7.4	7.5	7.3	7.6	7.7	7.8	7.8


07/01/2021 - Classification: Internal - ECRM12620958

Single Location

Name: IPL - M.L. Kapp Generating Station

Location ID: MW-307				
Number of Sampling Dates: 3				
Parameter Name	Units	7/7/2020	8/7/2020	10/22/2020
Boron	ug/L	280	<80	130
Calcium	mg/L	260	260	230
Chloride	mg/L	53	55	52
Field pH	Std. Units	6.57	7.45	6.63
Fluoride	mg/L	<0.23	<0.23	<0.23
Sulfate	mg/L	15	17	21
Total Dissolved Solids	mg/L	1100	980	940
Antimony	ug/L	<0.51	<0.51	--
Arsenic	ug/L	1.7	1.1	0.92
Barium	ug/L	320	330	330
Beryllium	ug/L	<0.27	<0.27	--
Cadmium	ug/L	0.098	0.13	0.13
Chromium	ug/L	<1.1	<1.1	--
Cobalt	ug/L	6.3	1.9	2.4
Lead	ug/L	0.12	<0.11	<0.11
Lithium	ug/L	<2.5	<2.5	3
Mercury	ug/L	<0.1	<0.1	--
Molybdenum	ug/L	2.5	<1.1	<1.1
Selenium	ug/L	<1	<1	--
Thallium	ug/L	<0.26	<0.26	--
Total Radium	pCi/L	0.841	0.666	0.623
Radium-226	pCi/L	0.381	0.21	0.177
Radium-228	pCi/L	0.461	0.455	0.447
Field Specific Conductance	umhos/cm	1911	1759	1590
Field Temperature	deg C	14.2	15.6	15.7
Groundwater Elevation	feet	593.85	593.06	592.77
Turbidity	NTU	3.5	6.61	2.68
Field Oxidation Potential	millivolts	-0.4	31.8	22.4
Oxygen, Dissolved	mg/L	0.39	0.13	0.09
pH at 25 Degrees C	Std. Units	6.7	6.9	7.4

07/01/2021 - Classification: Internal - ECRM12620958



Appendix E
Statistical Evaluation

Confidence Interval

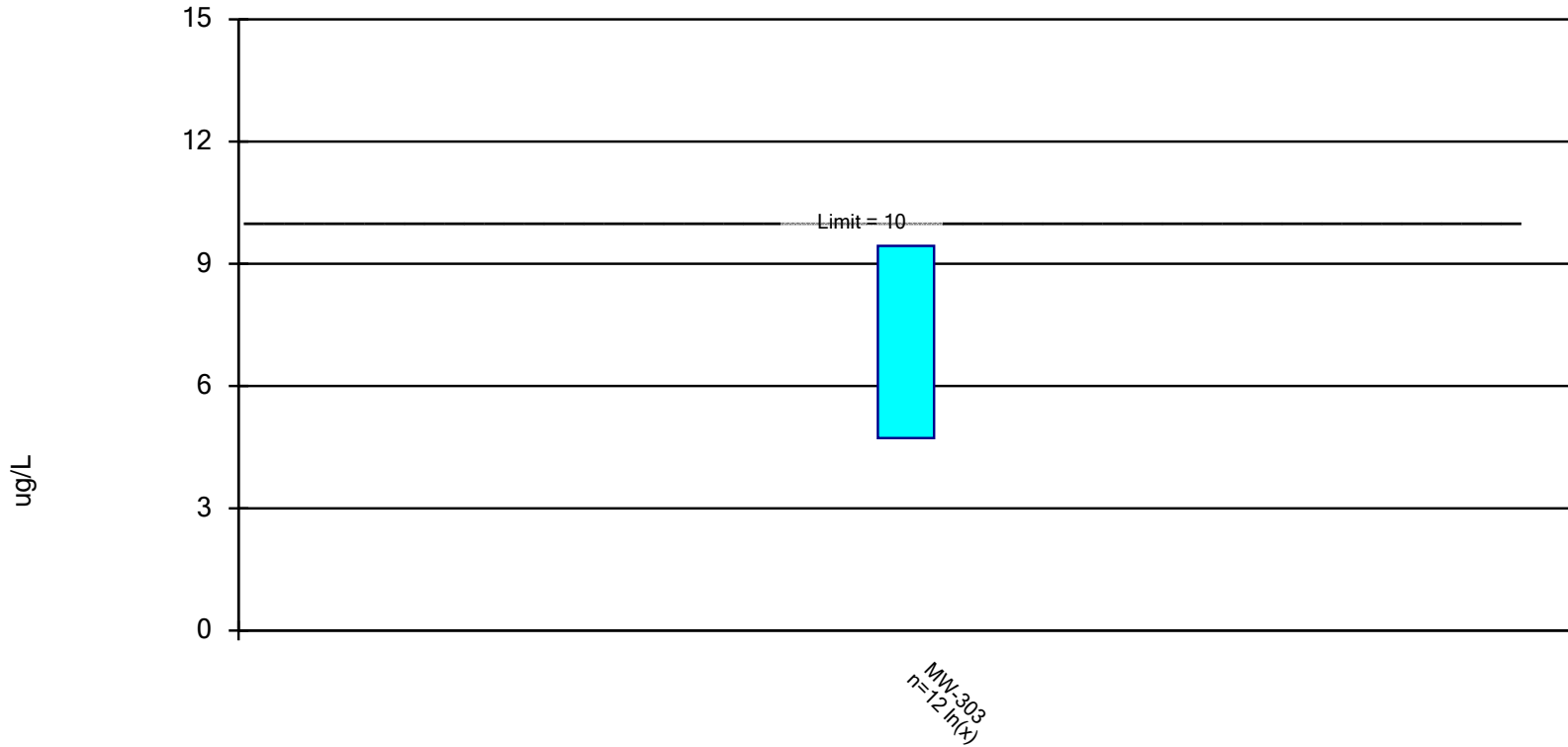
M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020 Printed 1/12/2021, 12:27 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (ug/L)	MW-303	9.441	4.722	10	No	12	0	ln(x)	0.01	Param.

07/01/2021 - Classification: Internal - ECRM12620958

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 1/12/2021 12:26 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Confidence Interval

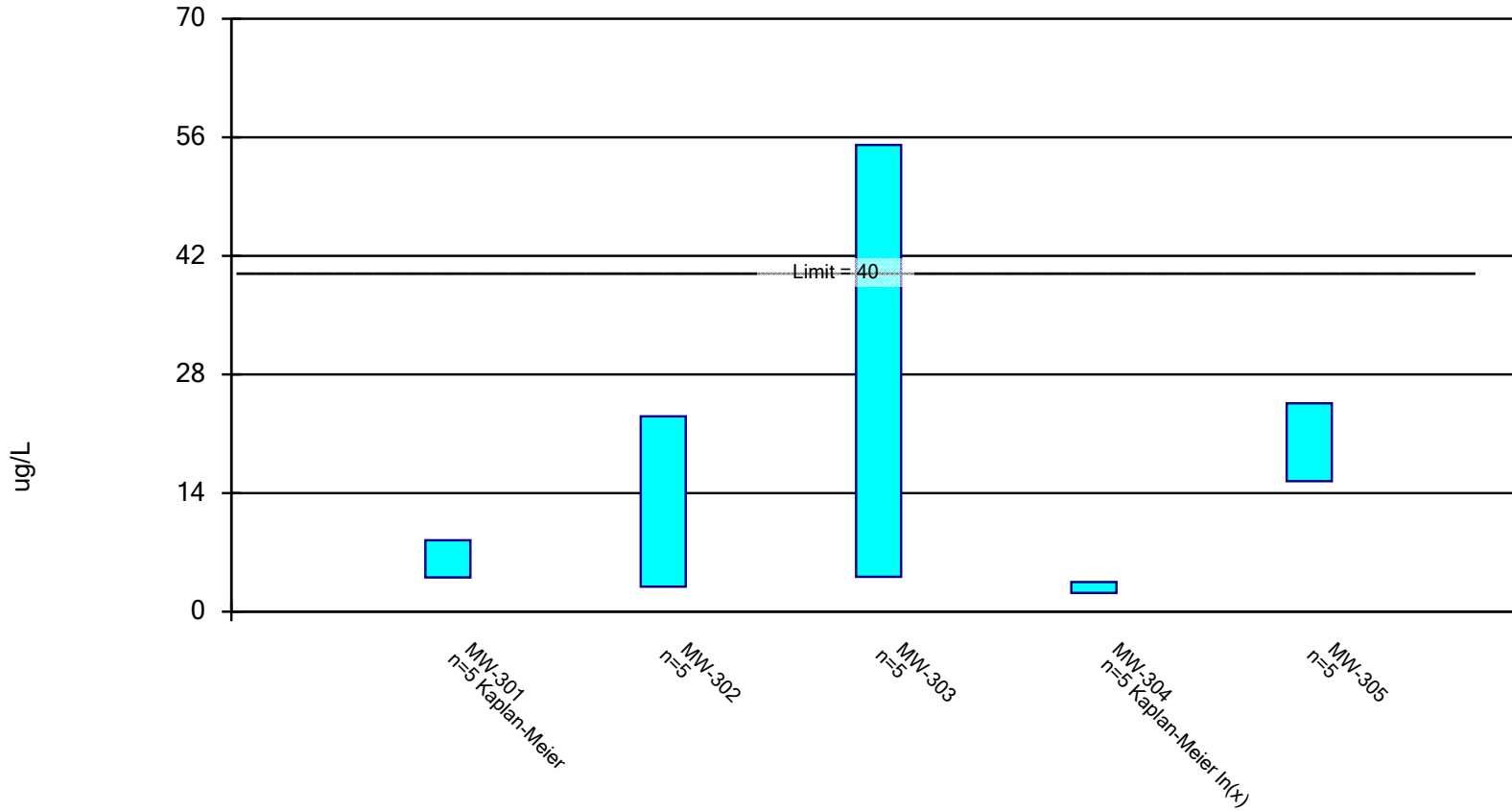
Constituent: Arsenic (ug/L) Analysis Run 1/12/2021 12:27 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-303
3/28/2018	6.6
5/22/2018	6.2
6/25/2018	6.4
7/25/2018	8.8
10/5/2018	5.6
11/29/2018	7.9
1/10/2019	4.1
2/13/2019	4.4
12/10/2019	9.2
2/4/2020	4
4/29/2020	5.8
10/22/2020	20
Mean	7.417
Std. Dev.	4.312
Upper Lim.	9.441
Lower Lim.	4.722

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 5/3/2021 3:25 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Confidence Interval

Constituent: Lithium (ug/L) Analysis Run 5/3/2021 3:26 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-301	MW-302	MW-303	MW-304	MW-305
12/10/2019	<11 (U)	19 (J)	17	<11 (U)	19 (J)
2/4/2020	4.4 (J)	12	26	<2.3 (U)	16
4/29/2020	7.4 (J)	4 (J)	44	2.9 (J)	20
10/22/2020	<10 (U)	12	14	<10 (U)	22 (J)
4/5/2021	6.9 (J)	18	47	3.2 (J)	23
Mean	7.94	13	29.6	5.88	20
Std. Dev.	2.623	6	15.21	4.245	2.739
Upper Lim.	8.432	23.05	55.08	3.498	24.59
Lower Lim.	4.034	2.946	4.115	2.2	15.41

Confidence Interval

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020 Printed 5/3/2021, 3:26 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Lithium (ug/L)	MW-301	8.432	4.034	40	No	5	40	Kapla...	No	0.01	Param.
Lithium (ug/L)	MW-302	23.05	2.946	40	No	5	0	None	No	0.01	Param.
Lithium (ug/L)	MW-303	55.08	4.115	40	No	5	0	None	No	0.01	Param.
Lithium (ug/L)	MW-304	3.498	2.2	40	No	5	60	Kapla...	ln(x)	0.01	Param.
Lithium (ug/L)	MW-305	24.59	15.41	40	No	5	0	None	No	0.01	Param.

07/01/2021 - Classification: Internal - ECRM12620958

Confidence Interval

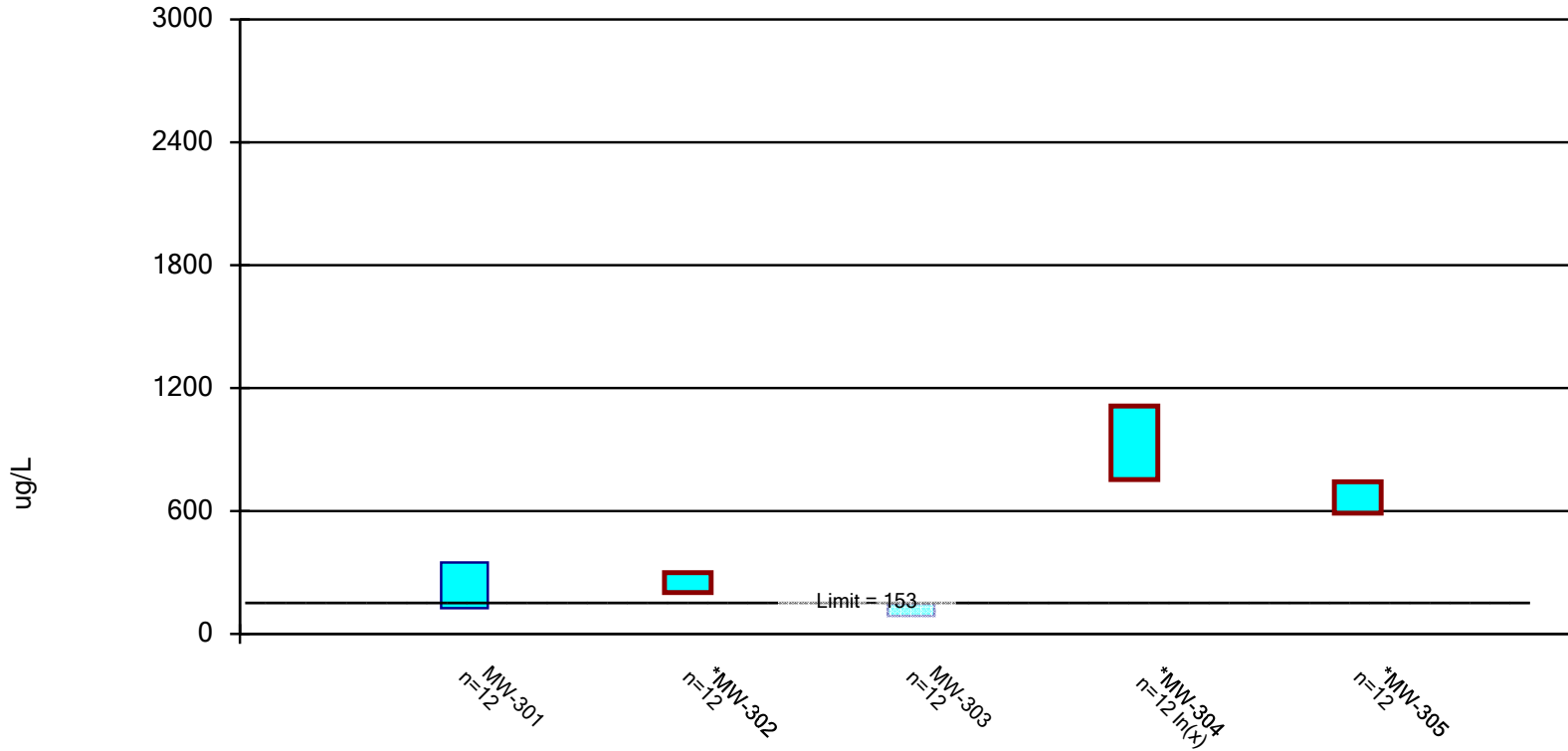
M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020 Printed 1/12/2021, 12:29 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Molybdenum (ug/L)	MW-301	348.3	126	153	No	12	0	No	0.01	Param.
Molybdenum (ug/L)	MW-302	299.1	202.2	153	Yes	12	0	No	0.01	Param.
Molybdenum (ug/L)	MW-303	146.5	87.53	153	No	12	0	No	0.01	Param.
Molybdenum (ug/L)	MW-304	1112	753.6	153	Yes	12	0	ln(x)	0.01	Param.
Molybdenum (ug/L)	MW-305	742.4	589.4	153	Yes	12	0	No	0.01	Param.

07/01/2021 - Classification: Internal - ECRM12620958

Parametric Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum Analysis Run 1/12/2021 12:29 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Confidence Interval

Constituent: Molybdenum (ug/L) Analysis Run 1/12/2021 12:29 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-301	MW-302	MW-303	MW-304	MW-305
3/28/2018	345	281	135	1530	613
5/22/2018	251	235	152	1260	671
6/25/2018	33.1	274	122	807	724
7/25/2018	31.1	260	145	828	886
10/5/2018	42.8	212	110	788	666
11/29/2018	237	185	127	790	670
1/10/2019	294	214	55.9	778	663
2/13/2019	242	127	67.1	640	468
12/10/2019	310	260	140	820	650
2/4/2020	300	280	96	950	680
4/29/2020	250	360	74	1200	720
10/22/2020	510	320	180	930	580
Mean	237.2	250.7	117	943.4	665.9
Std. Dev.	141.7	61.76	37.56	256.7	97.51
Upper Lim.	348.3	299.1	146.5	1112	742.4
Lower Lim.	126	202.2	87.53	753.6	589.4

Trend Test

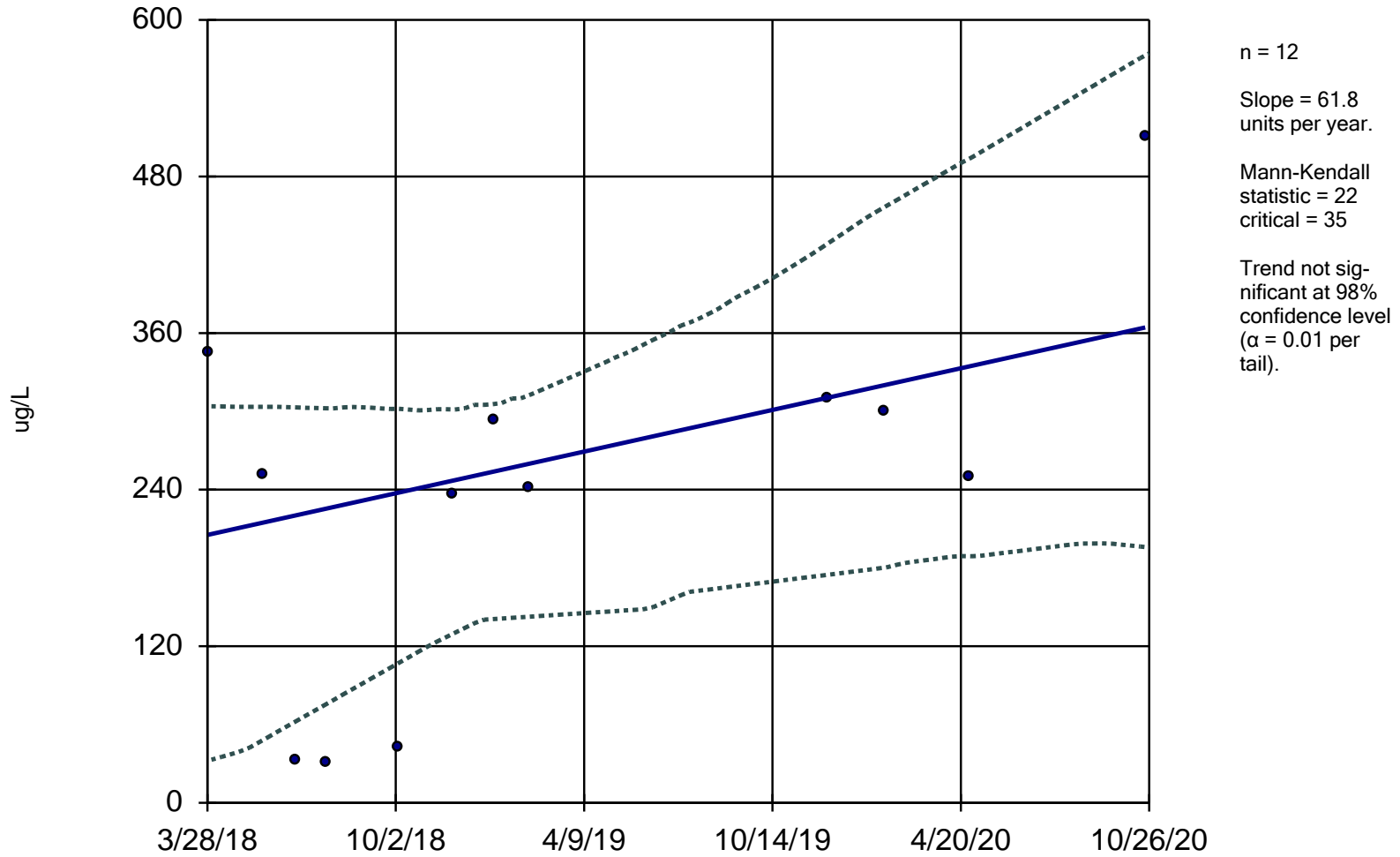
M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020 Printed 1/12/2021, 12:31 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Molybdenum (ug/L)	MW-301	61.8	22	35	No	12	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-302	15.63	9	35	No	12	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-303	-21.98	-12	-35	No	12	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-304	-38.58	-8	-35	No	12	0	n/a	n/a	0.02	NP
Molybdenum (ug/L)	MW-305	-13.12	-10	-35	No	12	0	n/a	n/a	0.02	NP

07/01/2021 - Classification: Internal - ECRM12620958

Molybdenum

MW-301



Sen's Slope and 95% Confidence Band Analysis Run 1/12/2021 12:30 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Sen's Slope Estimator

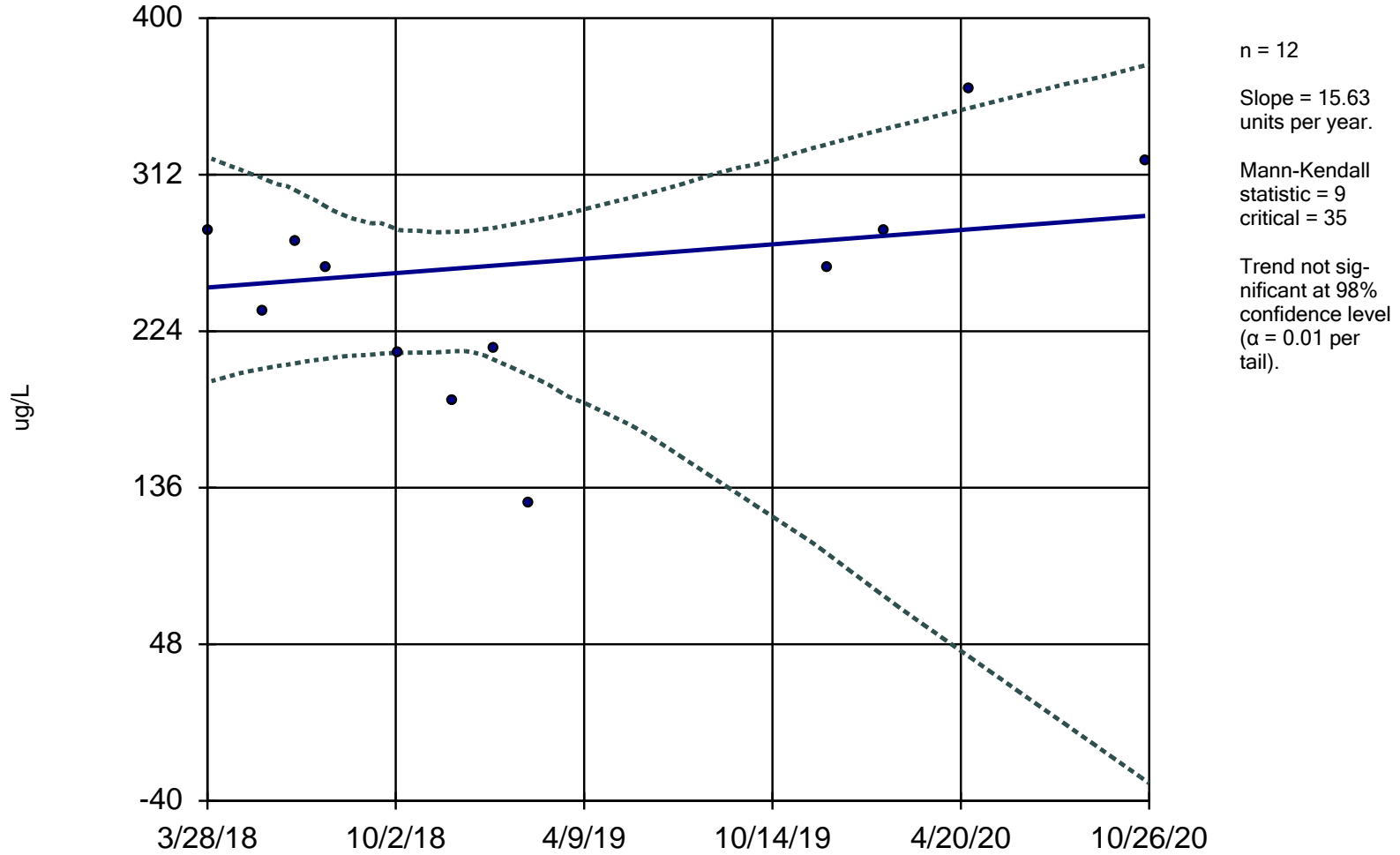
Constituent: Molybdenum (ug/L) Analysis Run 1/12/2021 12:31 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-301
3/28/2018	345
5/22/2018	251
6/25/2018	33.1
7/25/2018	31.1
10/5/2018	42.8
11/29/2018	237
1/10/2019	294
2/13/2019	242
12/10/2019	310
2/4/2020	300
4/29/2020	250
10/22/2020	510

Molybdenum

MW-302



Sen's Slope and 95% Confidence Band Analysis Run 1/12/2021 12:30 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Sen's Slope Estimator

Constituent: Molybdenum (ug/L) Analysis Run 1/12/2021 12:31 PM

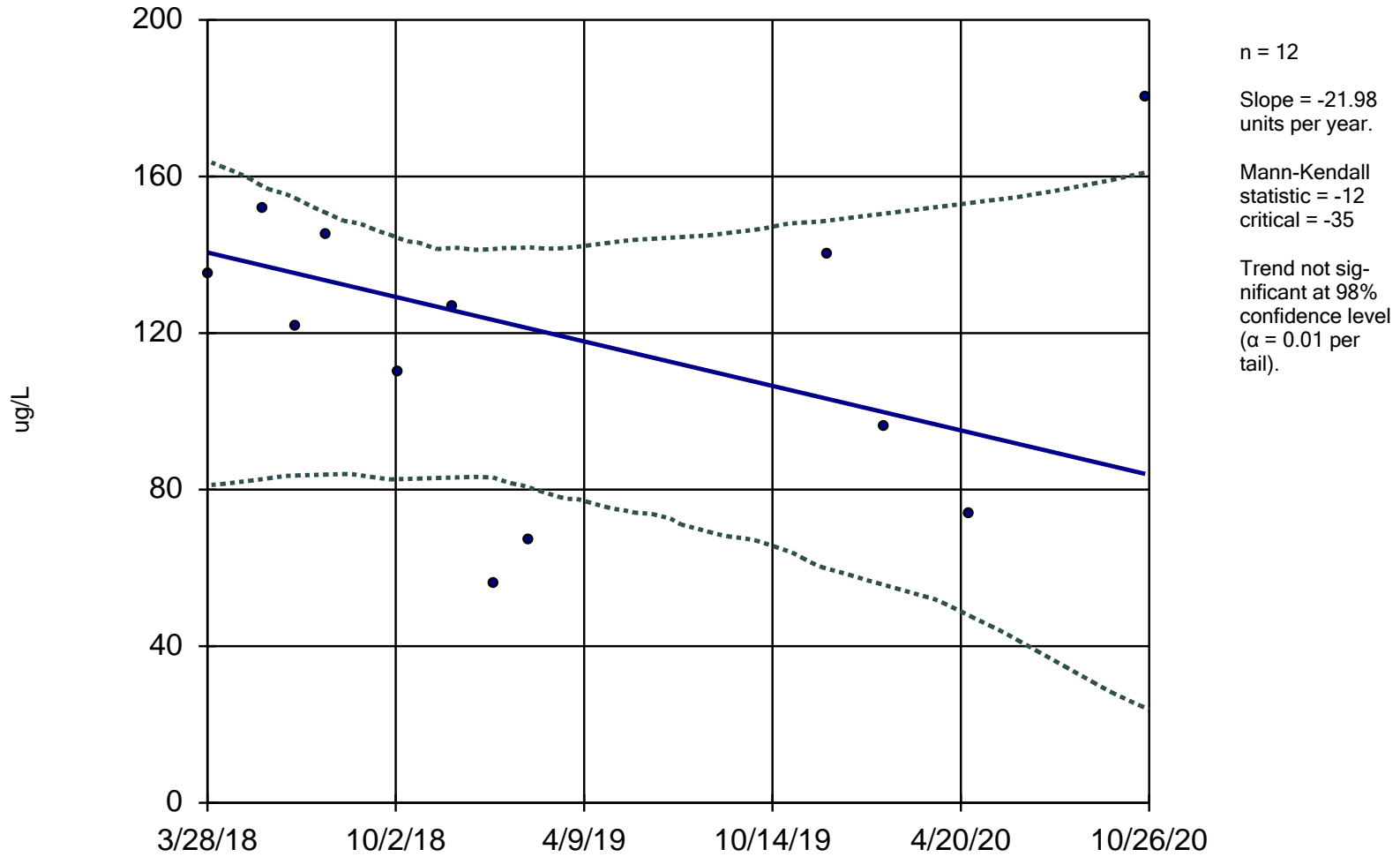
M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

MW-302

3/28/2018	281
5/22/2018	235
6/25/2018	274
7/25/2018	260
10/5/2018	212
11/29/2018	185
1/10/2019	214
2/13/2019	127
12/10/2019	260
2/4/2020	280
4/29/2020	360
10/22/2020	320

Molybdenum

MW-303



Sen's Slope and 95% Confidence Band Analysis Run 1/12/2021 12:30 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Sen's Slope Estimator

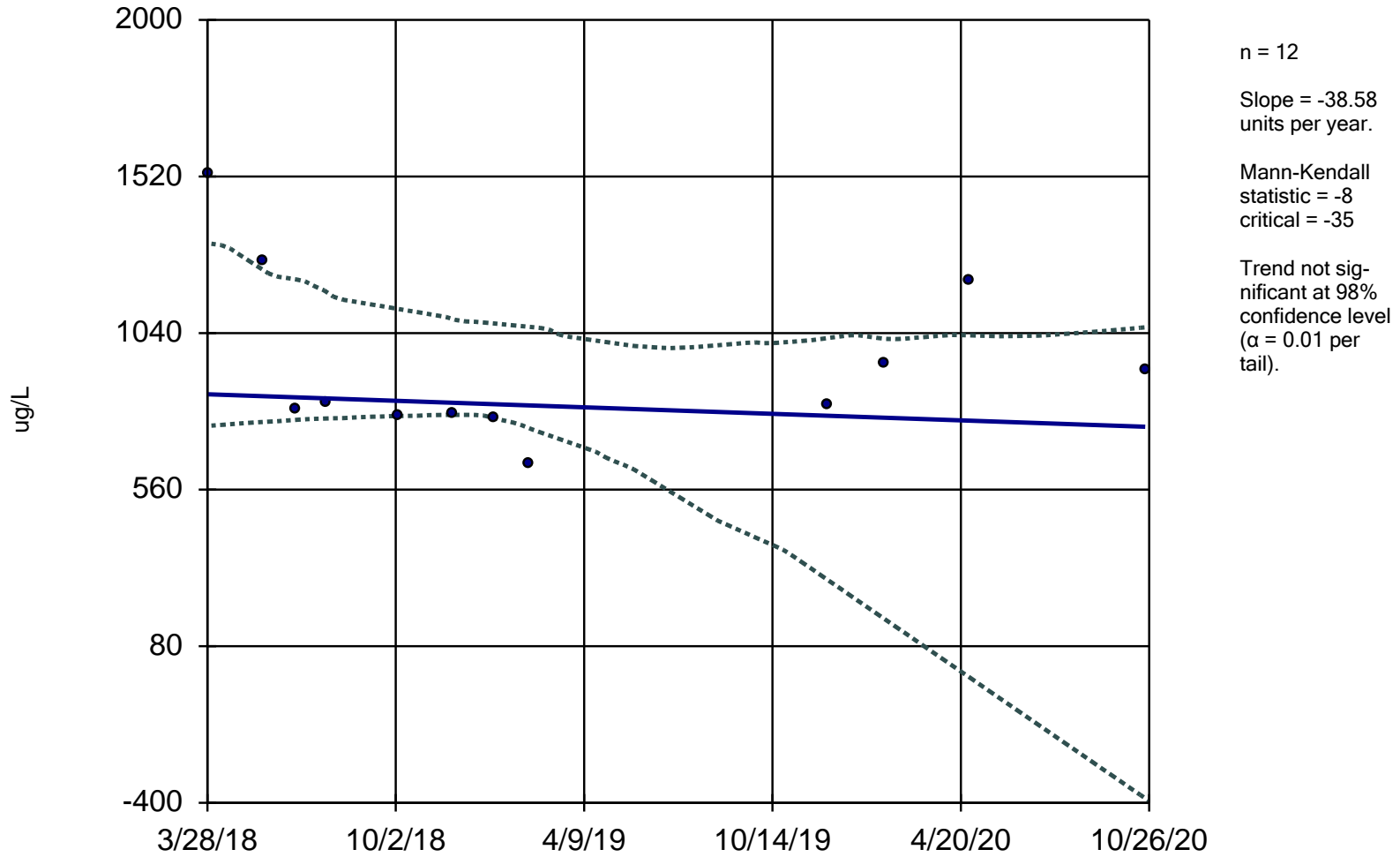
Constituent: Molybdenum (ug/L) Analysis Run 1/12/2021 12:31 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-303
3/28/2018	135
5/22/2018	152
6/25/2018	122
7/25/2018	145
10/5/2018	110
11/29/2018	127
1/10/2019	55.9
2/13/2019	67.1
12/10/2019	140
2/4/2020	96
4/29/2020	74
10/22/2020	180

Molybdenum

MW-304



07/01/2021 - Classification: Internal - ECRM12620958

Sen's Slope and 95% Confidence Band Analysis Run 1/12/2021 12:30 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Sen's Slope Estimator

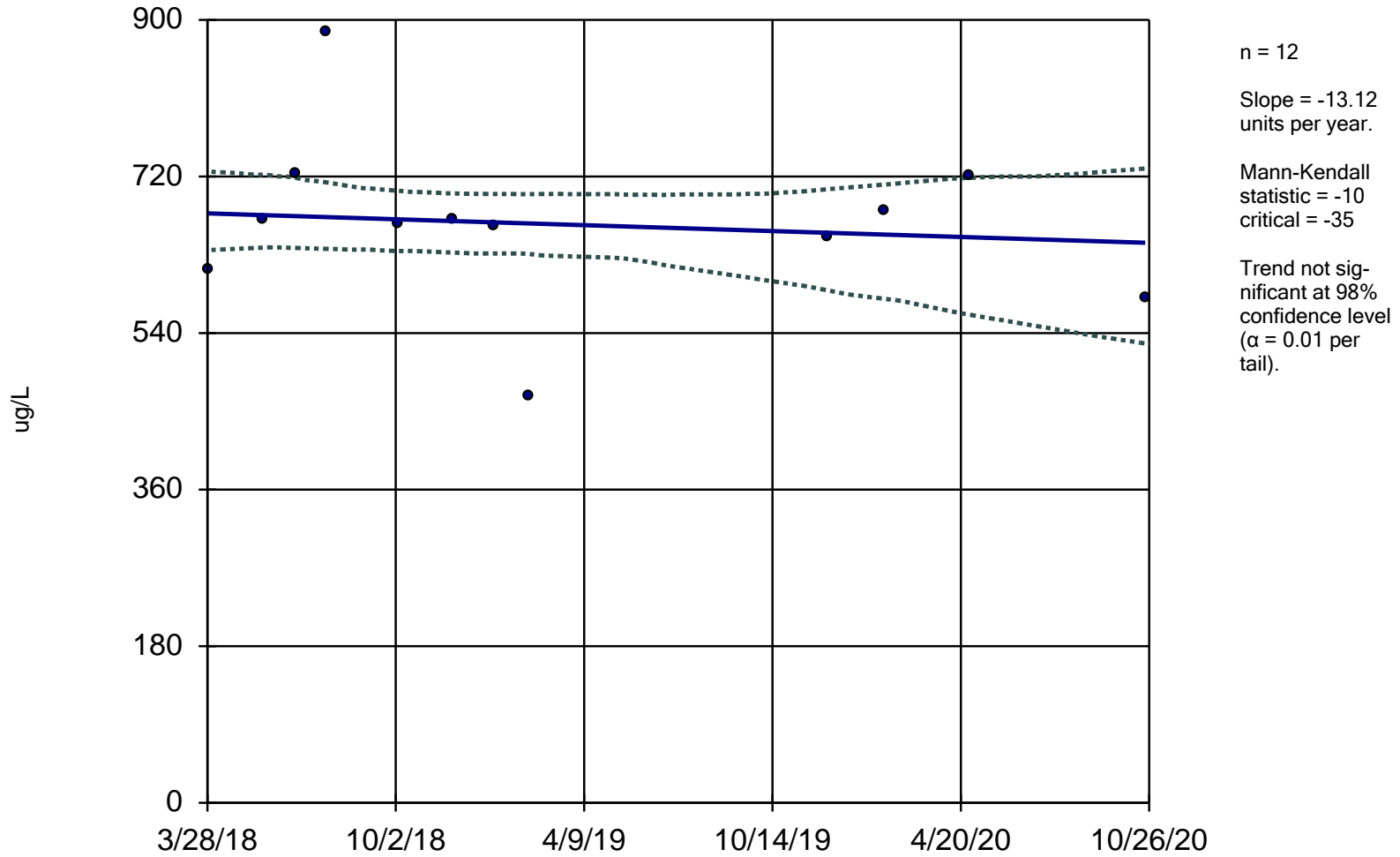
Constituent: Molybdenum (ug/L) Analysis Run 1/12/2021 12:31 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-304
3/28/2018	1530
5/22/2018	1260
6/25/2018	807
7/25/2018	828
10/5/2018	788
11/29/2018	790
1/10/2019	778
2/13/2019	640
12/10/2019	820
2/4/2020	950
4/29/2020	1200
10/22/2020	930

Molybdenum

MW-305



Sen's Slope and 95% Confidence Band Analysis Run 1/12/2021 12:30 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

Sen's Slope Estimator

Constituent: Molybdenum (ug/L) Analysis Run 1/12/2021 12:31 PM

M. L. Kapp Generating Station Client: SCS Engineers Data: KAP - Chempoint- export-Dec2020

	MW-305
3/28/2018	613
5/22/2018	671
6/25/2018	724
7/25/2018	886
10/5/2018	666
11/29/2018	670
1/10/2019	663
2/13/2019	468
12/10/2019	650
2/4/2020	680
4/29/2020	720
10/22/2020	580