2019 Annual Groundwater Monitoring and Corrective Action Report

Prairie Creek Generating Station
Cedar Rapids, Iowa

Prepared for:

Alliant Energy

SCS ENGINEERS

25219074.00 | January 31, 2020

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

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1.0 INTRODUCTION

This 2019 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the Coal Combustion Residuals (CCR) Rule [40 CFR 257.50-107]. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2019 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units.

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

The groundwater monitoring system at the Prairie Creek Generating Station (PCS) monitors the closure area for 10 former CCR units.

The monitoring system is designed to detect monitored constituents at the waste boundary of the facility as required by 40 CFR 257.91(d). The groundwater monitoring system currently consists of 2 upgradient wells, and 6 downgradient monitoring wells at the waste boundary, and 2 additional downgradient wells.

All CCR units at PCS were closed in 2018. CCR was consolidated, capped in accordance with §257.102(d), and closure certification was completed in December 2018.

2.0 § 257.90(E) ANNUAL REPORT REQUIREMENTS

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

2.1 §257.90(E)(1) SITE MAP

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

A map showing the site location is provided on **Figure 1**. A map with an aerial image showing the closure area, former CCR units, and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 2**.

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

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

Two new monitoring wells, MW-309 and MW-310, were installed on August 5 through 6, 2019, to characterize site conditions in accordance with § 257.95(g)(1). The monitoring well boring logs and well construction forms were completed for the operating record on November 12, 2019.

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

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

Two groundwater sampling events were completed in 2019. The first round of semiannual groundwater monitoring was completed in April 2019. The second round was completed in October 2019. The two new wells were added to the monitoring program beginning with the October 2019 event.

Groundwater samples collected in both events were analyzed for both Appendix III and Appendix IV constituents. 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 is included in Table 1. The results of the analytical laboratory analyses are provided in the laboratory reports in Appendix A.

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

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

An Assessment of Corrective Measures (ACM) was initiated for the PCS CCR units in April 2019 and completed in September 2019. The selection of remedy is in progress. The ACM was initiated in response to the detection of arsenic and molybdenum at statistically significant levels exceeding the Groundwater Protection Standards (GPS). Assessment monitoring continued during the ACM and will continue during the selection of remedy.

2.5 § 257.90(E)(5) OTHER REQUIREMENTS

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

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

2.5.1 § 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.

- Statistical evaluation for the initial Assessment Monitoring samples collected in May, August, and October 2018, completed January 14, 2019.
- Statistical evaluation for the April 2019 monitoring event, completed July 15, 2019.
- Initiation of the ACM on April 15, 2019.
- Preparation of an Alternative Source Demonstration Report, completed April 15, 2019.
- Two semiannual assessment monitoring events (April and October 2019).
- Installation of two additional compliance groundwater monitoring wells (August 2019) to characterize site conditions in accordance with § 257.95(g)(1).
- Preparation of the ACM report, completed September 12, 2019.

Description of Any Problems Encountered.

- No problems were encountered during the groundwater sampling events in 2019.

Discussion of Actions to Resolve the Problems.

- Not applicable.

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

- Statistical evaluation and determination of any statistically significant levels exceeding the GPS for the October 2019 monitoring event (January 2020).
- Statistical evaluation and determination of any statistically significant levels exceeding the GPS for the April 2020 monitoring event (July 2020).
- Continued work on the selection of remedy in accordance with § 257.97.
- Semiannual progress reports for the Selection of Remedy process (March and September 2020).

- Installation of up to three additional monitoring wells to characterize site conditions for the selection of remedy (winter 2020).

- Two semiannual assessment monitoring events (April and October 2020).

2.5.2 § 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. The PCS closure area is no longer in the detection monitoring program.

2.5.3 § 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. The PCS closure area is no longer in the detection monitoring program.

2.5.4 § 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.

2.5.5 § 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 recorded concentrations for the assessment monitoring events are in the laboratory reports in **Appendix A**. The background concentrations established under §257.94(b) were provided in Appendix A of the 2017 Annual Groundwater Monitoring and Corrective Action Report. The groundwater protection standards established for PCS closure area are provided in **Table 2**.

2.5.6 § 257.95(d)(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.

An ASD was completed in April 2019 and is included in **Appendix B.**

2.5.7 § 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 April 15, 2019. The July 10, 2019, certification demonstrating the need for a 90-day deadline extension is included in **Appendix C**. The ACM was completed on September 12, 2019.

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Tables

Table 1. CCR Rule Groundwater Samples Summary
Prairie Creek Generating Station / SCS Engineers Project #25219074

Sample Dates	Downgradient Wells								Background Wells	
	MW-303	MW-304	MW-305	MW-306	MW-307	MW-308	MW-309	MW-310	MW-301	MW-302
04/22-23/2019	A	A	A	A	A	A	NI	NI	A	A
10/28-29-2019	A	A	A	A	A	A	A	A	A	A
Total Samples	2	2	2	2	2	2	1	1	2	2

Abbreviations:
A = Required by Assessment Monitoring Program
NI = Not Installed

Created by: NDK Date: 1/4/2019
Last revision by: LWJ Date: 11/26/2019
Checked by: NDK Date: 1/13/2020

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Table 2. Groundwater Protection Standards - CCR Program - Assessment Monitoring
Prairie Creek Generating Station / SCS Engineers Project #25219074

Parameter Name	GPS	Source
Antimony, ug/L	6	MCL
Arsenic, ug/L	10	MCL
Barium, ug/L	2000	MCL
Beryllium, ug/L	4	MCL
Cadmium, ug/L	5	MCL
Chromium, ug/L	100	MCL
Cobalt, ug/L	6	40 CFR 257.95(h)(2)
Fluoride, mg/L	4	MCL
Lead, ug/L	15	40 CFR 257.95(h)(2)
Lithium, ug/L	40	40 CFR 257.95(h)(2)
Mercury, ug/L	2	MCL
Molybdenum, ug/L	100	40 CFR 257.95(h)(2)
Selenium, ug/L	50	MCL
Thallium, ug/L	2	MCL
Radium 226/228 Combined, pCi/L	5	MCL

Abbreviations:
GPS = Groundwater Protection Standard
MCL = Maximum Contaminant Level established under 40 CFR 141.62 and 141.66

Created by: NDK, 1/8/2019
Checked by: MDB, 1/9/2019

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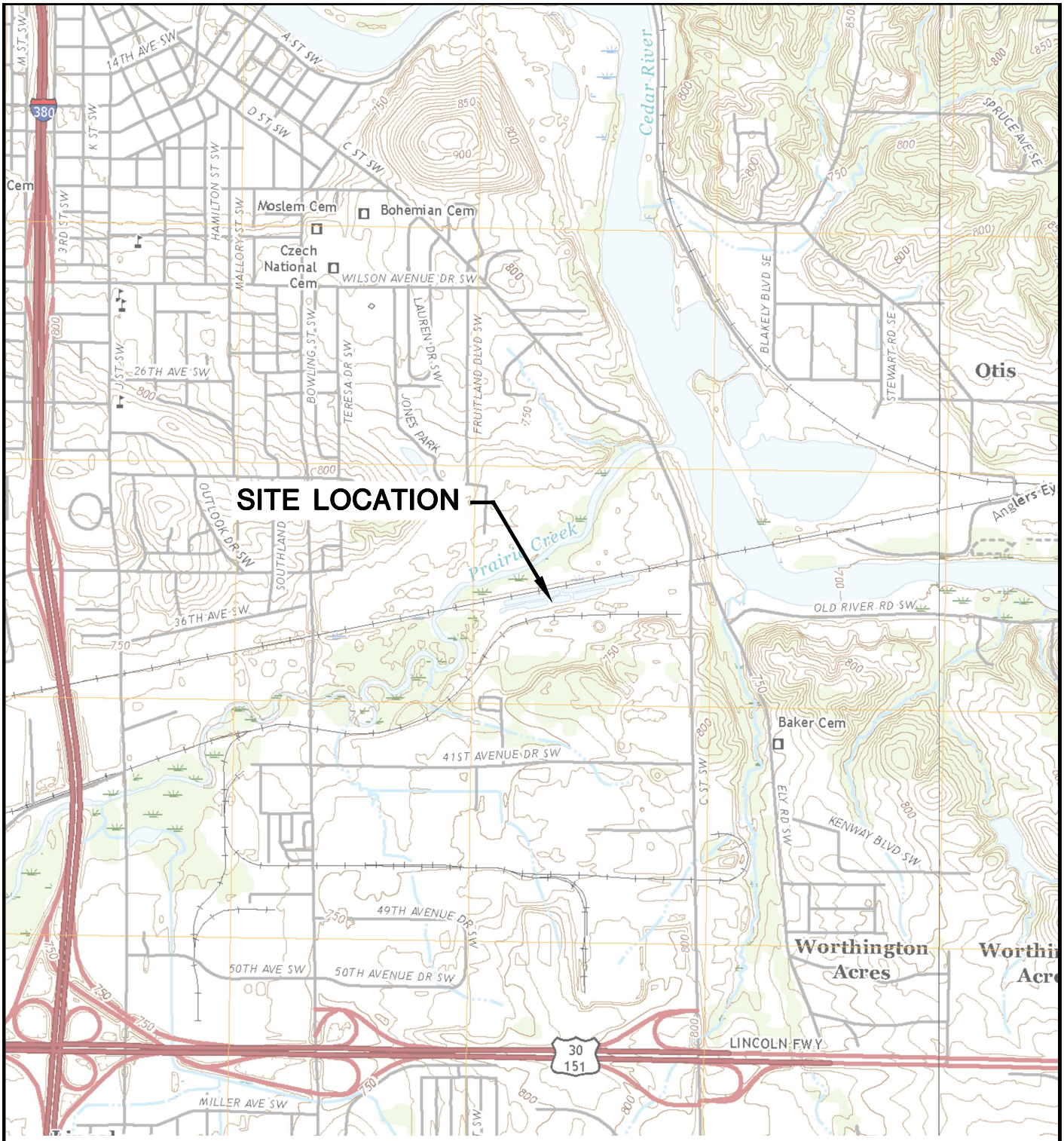
Figures



N

CEDAR RAPIDS SOUTH QUADRANGLE
IOWA–LINN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'

CLIENT	ALLIANT ENERGY 4902 N. BILTMORE LANE, #1000 MADISON, WI 53718	SITE	ALLIANT ENERGY PRAIRIE CREEK GENERATING STATION CEDAR RAPIDS, IA

SITE LOCATION MAP

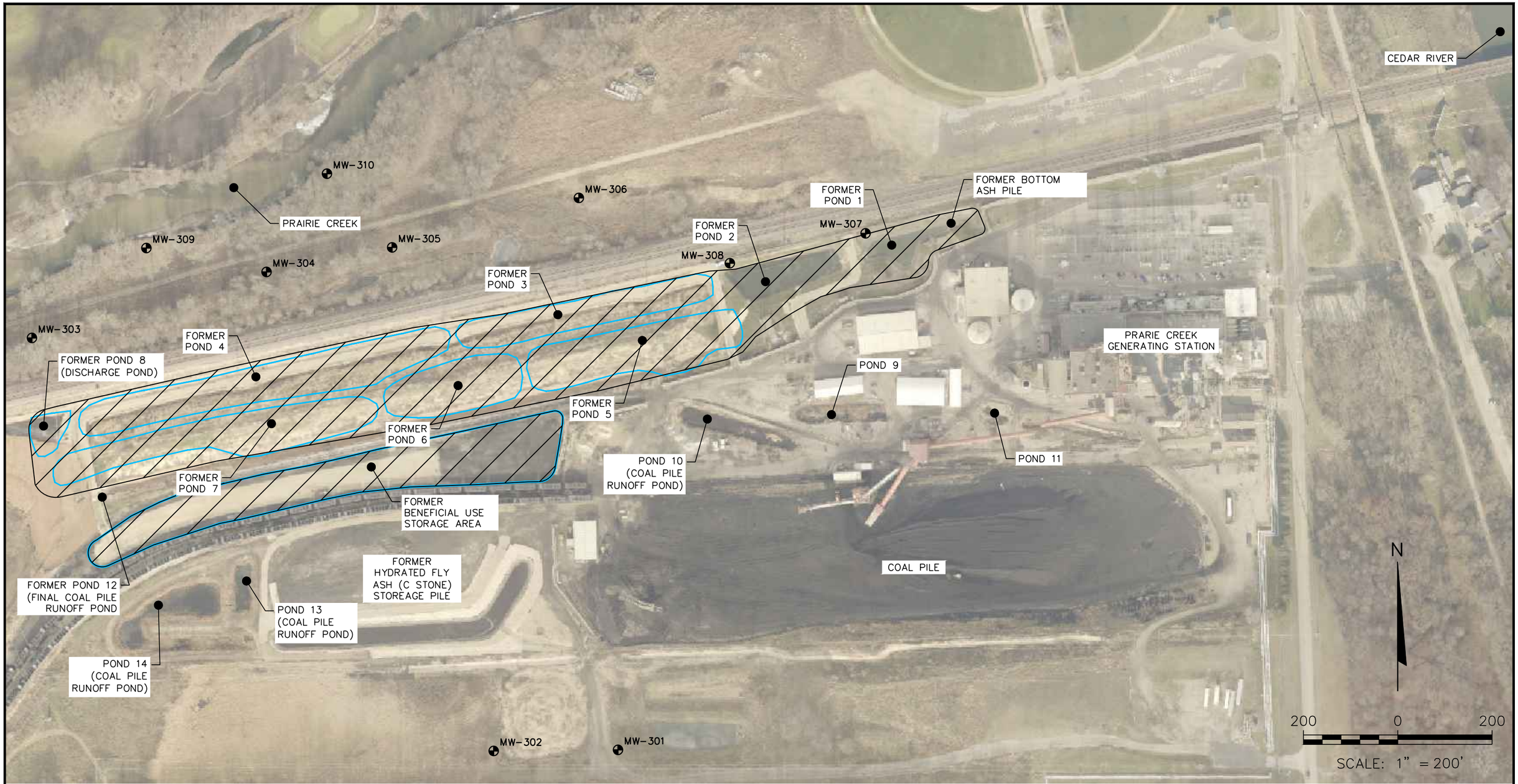
PROJECT NO.	25219074.00	DRAWN BY:	BSS
DRAWN:	11/18/2019	CHECKED BY:	MDB
REVISED:	01/14/2020	APPROVED BY:	TK 01/30/2020

ENGINEER

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

FIGURE
1

I:\25219074.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:28:29 PM



LEGEND

- MONITORING WELL
- CCR UNITS
- APPROXIMATE CLOSURE AREA (SEE NOTE 1)

NOTES:

1. PCS PONDS 1–8, THE BOTTOM ASH PILE, AND THE BENEFICIAL USE STORAGE AREA WERE CLOSED IN DECEMBER 2018. LIMITS ARE APPROXIMATE.
2. AERIAL PHOTO IMPORTED FROM THE ARCMAP BASEMAP (CEDAR RAPIDS, IOWA GIS – DECEMBER 22, 2018).
3. MONITORING WELLS MW–301 THROUGH MW–306 INSTALLED BY CASCADE DRILLING BETWEEN OCTOBER 31 AND DECEMBER 6, 2016.
4. MONITORING WELLS MW–307 AND MW–308 INSTALLED BY CASCADE DRILLING ON NOVEMBER 27, 2018.
5. MONITORING WELLS MW–309 AND MW–310 INSTALLED BY ROBERTS ENVIRONMENTAL DRILLING ON AUGUST 5–6, 2019.

PROJECT NO.	25219074.00	DRAWN BY:	BSS
DRAWN:	11/18/2019	CHECKED BY:	MDB
REVISED:	01/14/2020	APPROVED BY:	TK 01/30/2020

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

CLIENT: ALLIANT ENERGY
4902 N. BILTMORE LANE, #1000
MADISON, WI 53718

SITE: ALLIANT ENERGY
PRAIRIE CREEK GENERATING STATION
CEDAR RAPIDS, IA

SITE PLAN AND
MONITORING WELL LOCATIONS

FIGURE
2

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Appendix A

Analytical Laboratory Reports

A1 Semiannual Sampling Laboratory Reports, April 2019

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 310-154226-1
Laboratory Sample Delivery Group: 25216074
Client Project/Site: IPL - Prairie Creek - 25219074

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
6/24/2019 1:47:36 PM

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

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Case Narrative

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Job ID: 310-154226-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-154226-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8º C and 3.2º C.

HPLC/IC
Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW 301 (310-154226-1), MW 302 (310-154226-2), MW 303 (310-154226-3), MW 304 (310-154226-4), MW 305 (310-154226-5) and MW 306 (310-154226-6). Elevated reporting limits (RLs) are provided.

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

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

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

Sample Summary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-154226-1	MW-301	Ground Water	04/22/19 11:09	04/25/19 17:45	
310-154226-2	MW-302	Ground Water	04/22/19 12:03	04/25/19 17:45	
310-154226-3	MW-303	Ground Water	04/22/19 13:05	04/25/19 17:45	
310-154226-4	MW-304	Ground Water	04/22/19 13:48	04/25/19 17:45	
310-154226-5	MW-305	Ground Water	04/22/19 14:32	04/25/19 17:45	
310-154226-6	MW-306	Ground Water	04/22/19 15:15	04/25/19 17:45	
310-154226-7	MW-307	Ground Water	04/23/19 07:49	04/25/19 17:45	
310-154226-8	MW-308	Ground Water	04/23/19 08:45	04/25/19 17:45	
310-154226-9	Field Blank	Ground Water	04/23/19 07:20	04/25/19 17:45	

Detection Summary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-301 — Lab Sample ID: 310-154226-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	43		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	100		5.0	1.8	mg/L	5		9056A	Total/NA
Barium	230		2.0	0.84	ug/L	1		6020A	Total/NA
Calcium	130		0.50	0.10	mg/L	1		6020A	Total/NA
Chromium	3.6	J	5.0	0.98	ug/L	1		6020A	Total/NA
Cobalt	0.12	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	8.5	J	10	2.7	ug/L	1		6020A	Total/NA
Selenium	1.1	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	610		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	716.44				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	38.2				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	6.68				mg/L	1		Field Sampling	Total/NA
pH, Field	6.99				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	987				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	10.53				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	6.92				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302 — Lab Sample ID: 310-154226-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	56		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	2.1		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	130		2.0	0.84	ug/L	1		6020A	Total/NA
Calcium	67		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	2.1		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	4.7	J	10	2.7	ug/L	1		6020A	Total/NA
Total Dissolved Solids	320		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	715.69				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-0.2				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	3.34				mg/L	1		Field Sampling	Total/NA
pH, Field	6.64				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	533				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	7.86				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	90.3				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303 — Lab Sample ID: 310-154226-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	33		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.35	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	88		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	26		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	150		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	800		200	110	ug/L	1		6020A	Total/NA
Calcium	130		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	1.3		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.30	J	0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	17		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	12		2.0	1.1	ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-303 (Continued) — Lab Sample ID: 310-154226-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	650		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.4	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	703.83				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-110.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.14				mg/L	1		Field Sampling	Total/NA
pH, Field	7.31				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1084				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	9.59				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	18.40				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304 — Lab Sample ID: 310-154226-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	27		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.41	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	140		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	1.2		1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	11		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	140		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	770		200	110	ug/L	1		6020A	Total/NA
Calcium	130		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	1.4		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	17		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	23		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	680		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	703.93				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-62.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.93				mg/L	1		Field Sampling	Total/NA
pH, Field	7.08				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1125				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	9.64				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	4.99				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305 — Lab Sample ID: 310-154226-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	17		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.45	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	150		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	0.92	J	1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	5.9		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	110		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	790		200	110	ug/L	1		6020A	Total/NA
Cadmium	0.081	J	0.50	0.077	ug/L	1		6020A	Total/NA
Calcium	94		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.63		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	15		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	26		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	520		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	703.93				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-305 (Continued) — Lab Sample ID: 310-154226-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxidation Reduction Potential	4.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.10				mg/L	1		Field Sampling	Total/NA
pH, Field	7.12				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	810				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	9.48				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	4.58				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306 — Lab Sample ID: 310-154226-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	160		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	1.9	J	2.0	0.75	ug/L	1		6020A	Total/NA
Barium	110		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	3000		200	110	ug/L	1		6020A	Total/NA
Calcium	59		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.49	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.40	J	0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	3.0	J	10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	200		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	440		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	704.23				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-97.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.99				mg/L	1		Field Sampling	Total/NA
pH, Field	7.58				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	703				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.87				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	21.3				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307 — Lab Sample ID: 310-154226-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	15		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.54		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	52		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	0.92	J	1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	3.8		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	30		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	840		200	110	ug/L	1		6020A	Total/NA
Calcium	22		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.091	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	10		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	5.8		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	150		30	24	mg/L	1		SM 2540C	Total/NA
pH	9.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	709.86				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-53.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.54				mg/L	1		Field Sampling	Total/NA
pH, Field	10.05				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	225				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.72				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-307 (Continued) — Lab Sample ID: 310-154226-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Turbidity, Field	15.6				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-308 — Lab Sample ID: 310-154226-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	15		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.77		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	190		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	1.4		1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	45		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	39		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	5700		400	220	ug/L	2		6020A	Total/NA
Calcium	59		0.50	0.10	mg/L	1		6020A	Total/NA
Lithium	29		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	58		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	450		30	24	mg/L	1		SM 2540C	Total/NA
pH	8.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation (ft MSL)	706.19				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-62.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.16				mg/L	1		Field Sampling	Total/NA
pH, Field	9.24				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	659				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.11				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.13				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank — Lab Sample ID: 310-154226-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	29		1.0	0.29	mg/L	1		9056A	Total/NA
Fluoride	0.74		0.10	0.045	mg/L	1		9056A	Total/NA
Sulfate	50		1.0	0.35	mg/L	1		9056A	Total/NA
Boron	110	J	200	110	ug/L	1		6020A	Total/NA
Calcium	0.31	J	0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	400		30	24	mg/L	1		SM 2540C	Total/NA
pH	8.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-301
Date Collected: 04/22/19 11:09
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**43**		5.0	1.5	mg/L			05/07/19 12:32	5
Fluoride	<0.23		0.50	0.23	mg/L			05/07/19 12:32	5
Sulfate	**100**		5.0	1.8	mg/L			05/07/19 12:32	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:07	1
Arsenic	<0.75		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:07	1
Barium	**230**		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:07	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/10/19 20:24	1
Boron	<110	F1	200	110	ug/L		04/30/19 08:58	05/14/19 19:59	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:07	1
Calcium	**130**		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:07	1
Chromium	**3.6**	**J**	5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:07	1
Cobalt	**0.12**	**J**	0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:07	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:07	1
Lithium	**8.5**	**J**	10	2.7	ug/L		04/30/19 08:58	05/10/19 20:24	1
Molybdenum	<1.1		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:07	1
Selenium	**1.1**	**J**	5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:07	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:07	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		04/29/19 09:56	04/30/19 12:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**610**		30	24	mg/L			04/29/19 10:46	1
pH	**6.9**	**HF**	0.1	0.1	SU			04/25/19 23:04	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	**716.44**				ft			04/22/19 11:09	1
Oxidation Reduction Potential	**38.2**				millivolts			04/22/19 11:09	1
Oxygen, Dissolved, Client Supplied	**6.68**				mg/L			04/22/19 11:09	1
pH, Field	**6.99**				SU			04/22/19 11:09	1
Specific Conductance, Field	**987**				umhos/cm			04/22/19 11:09	1
Temperature, Field	**10.53**				Degrees C			04/22/19 11:09	1
Turbidity, Field	**6.92**				NTU			04/22/19 11:09	1

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-302
Date Collected: 04/22/19 12:03
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19**		5.0	1.5	mg/L			05/03/19 18:27	5
Fluoride	<0.23		0.50	0.23	mg/L			05/03/19 18:27	5
Sulfate	**56**		5.0	1.8	mg/L			05/03/19 18:27	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:17	1
Arsenic	**2.1**		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:17	1
Barium	**130**		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:17	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:19	1
Boron	<110		200	110	ug/L		04/30/19 08:58	05/14/19 20:19	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:17	1
Calcium	**67**		0.50	0.10	mg/L		04/30/19 08:58	05/14/19 20:19	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:17	1
Cobalt	**2.1**		0.50	0.091	ug/L		04/30/19 08:58	05/14/19 20:19	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:17	1
Lithium	**4.7**	**J**	10	2.7	ug/L		04/30/19 08:58	05/14/19 20:19	1
Molybdenum	<1.1		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:17	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:17	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:17	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		04/29/19 09:56	04/30/19 12:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**320**		30	24	mg/L			04/29/19 10:46	1
pH	**6.8**	**HF**	0.1	0.1	SU			04/25/19 23:07	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	**715.69**				ft			04/22/19 12:03	1
Oxidation Reduction Potential	**-0.2**				millivolts			04/22/19 12:03	1
Oxygen, Dissolved, Client Supplied	**3.34**				mg/L			04/22/19 12:03	1
pH, Field	**6.64**				SU			04/22/19 12:03	1
Specific Conductance, Field	**533**				umhos/cm			04/22/19 12:03	1
Temperature, Field	**7.86**				Degrees C			04/22/19 12:03	1
Turbidity, Field	**90.3**				NTU			04/22/19 12:03	1

Client Sample ID: MW-303

Date Collected: 04/22/19 13:05
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-3

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33		5.0	1.5	mg/L			05/03/19 18:52	5
Fluoride	0.35	J	0.50	0.23	mg/L			05/03/19 18:52	5
Sulfate	88		5.0	1.8	mg/L			05/03/19 18:52	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:21	1
Arsenic	26		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:21	1
Barium	150		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:21	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:22	1
Boron	800		200	110	ug/L		04/30/19 08:58	05/14/19 20:22	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:21	1
Calcium	130		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:21	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:21	1
Cobalt	1.3		0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:21	1
Lead	0.30	J	0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:21	1
Lithium	17		10	2.7	ug/L		04/30/19 08:58	05/14/19 20:22	1
Molybdenum	12		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:21	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:21	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		04/29/19 09:56	04/30/19 12:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	650		30	24	mg/L			04/29/19 10:46	1
pH	7.4	HF	0.1	0.1	SU			04/25/19 23:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	703.83				ft			04/22/19 13:05	1
Oxidation Reduction Potential	-110.3				millivolts			04/22/19 13:05	1
Oxygen, Dissolved, Client Supplied	1.14				mg/L			04/22/19 13:05	1
pH, Field	7.31				SU			04/22/19 13:05	1
Specific Conductance, Field	1084				umhos/cm			04/22/19 13:05	1
Temperature, Field	9.59				Degrees C			04/22/19 13:05	1
Turbidity, Field	18.40				NTU			04/22/19 13:05	1

Client Sample Results

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-304

Date Collected: 04/22/19 13:48
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27		5.0	1.5	mg/L			05/03/19 19:42	5
Fluoride	0.41	J	0.50	0.23	mg/L			05/03/19 19:42	5
Sulfate	140		5.0	1.8	mg/L			05/03/19 19:42	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.2		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:24	1
Arsenic	11		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:24	1
Barium	140		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:24	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:25	1
Boron	770		200	110	ug/L		04/30/19 08:58	05/14/19 20:25	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:24	1
Calcium	130		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:24	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:24	1
Cobalt	1.4		0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:24	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:24	1
Lithium	17		10	2.7	ug/L		04/30/19 08:58	05/14/19 20:25	1
Molybdenum	23		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:24	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:24	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:24	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		04/29/19 09:56	04/30/19 12:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	680		30	24	mg/L			04/29/19 10:46	1
pH	7.2	HF	0.1	0.1	SU			04/25/19 23:12	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	703.93				ft			04/22/19 13:48	1
Oxidation Reduction Potential	-62.0				millivolts			04/22/19 13:48	1
Oxygen, Dissolved, Client Supplied	0.93				mg/L			04/22/19 13:48	1
pH, Field	7.08				SU			04/22/19 13:48	1
Specific Conductance, Field	1125				umhos/cm			04/22/19 13:48	1
Temperature, Field	9.64				Degrees C			04/22/19 13:48	1
Turbidity, Field	4.99				NTU			04/22/19 13:48	1

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-305

Date Collected: 04/22/19 14:32
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17		5.0	1.5	mg/L			05/03/19 19:55	5
Fluoride	0.45	J	0.50	0.23	mg/L			05/03/19 19:55	5
Sulfate	150		5.0	1.8	mg/L			05/03/19 19:55	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.92	J	1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:27	1
Arsenic	5.9		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:27	1
Barium	110		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:27	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:28	1
Boron	790		200	110	ug/L		04/30/19 08:58	05/14/19 20:28	1
Cadmium	0.081	J	0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:27	1
Calcium	94		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:27	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:27	1
Cobalt	0.63		0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:27	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:27	1
Lithium	15		10	2.7	ug/L		04/30/19 08:58	05/14/19 20:28	1
Molybdenum	26		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:27	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:27	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:27	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		04/29/19 09:56	04/30/19 12:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	520		30	24	mg/L			04/29/19 10:46	1
pH	7.3	HF	0.1	0.1	SU			04/25/19 23:13	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	703.93				ft			04/22/19 14:32	1
Oxidation Reduction Potential	4.7				millivolts			04/22/19 14:32	1
Oxygen, Dissolved, Client Supplied	1.10				mg/L			04/22/19 14:32	1
pH, Field	7.12				SU			04/22/19 14:32	1
Specific Conductance, Field	810				umhos/cm			04/22/19 14:32	1
Temperature, Field	9.48				Degrees C			04/22/19 14:32	1
Turbidity, Field	4.58				NTU			04/22/19 14:32	1

Client Sample ID: MW-306

Date Collected: 04/22/19 15:15
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**25**		5.0	1.5	mg/L			05/03/19 20:20	5
Fluoride	<0.23		0.50	0.23	mg/L			05/03/19 20:20	5
Sulfate	**160**		5.0	1.8	mg/L			05/03/19 20:20	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:31	1
Arsenic	**1.9**	**J**	2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:31	1
Barium	**110**		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:31	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:32	1
Boron	**3000**		200	110	ug/L		04/30/19 08:58	05/14/19 20:32	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:31	1
Calcium	**59**		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:31	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:31	1
Cobalt	**0.49**	**J**	0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:31	1
Lead	**0.40**	**J**	0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:31	1
Lithium	**3.0**	**J**	10	2.7	ug/L		04/30/19 08:58	05/14/19 20:32	1
Molybdenum	**200**		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:31	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:31	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		04/29/19 09:56	04/30/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**440**		30	24	mg/L			04/29/19 10:46	1
pH	**7.6**	**HF**	0.1	0.1	SU			04/25/19 23:16	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	**704.23**				ft			04/22/19 15:15	1
Oxidation Reduction Potential	**-97.6**				millivolts			04/22/19 15:15	1
Oxygen, Dissolved, Client Supplied	**0.99**				mg/L			04/22/19 15:15	1
pH, Field	**7.58**				SU			04/22/19 15:15	1
Specific Conductance, Field	**703**				umhos/cm			04/22/19 15:15	1
Temperature, Field	**12.87**				Degrees C			04/22/19 15:15	1
Turbidity, Field	**21.3**				NTU			04/22/19 15:15	1

Client Sample ID: MW-307

Date Collected: 04/23/19 07:49
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-7

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15		5.0	1.5	mg/L			05/03/19 20:45	5
Fluoride	0.54		0.50	0.23	mg/L			05/03/19 20:45	5
Sulfate	52		5.0	1.8	mg/L			05/03/19 20:45	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.92	J	1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:34	1
Arsenic	3.8		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:34	1
Barium	30		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:34	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:35	1
Boron	840		200	110	ug/L		04/30/19 08:58	05/14/19 20:35	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:34	1
Calcium	22		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:34	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:34	1
Cobalt	0.091	J	0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:34	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:34	1
Lithium	10		10	2.7	ug/L		04/30/19 08:58	05/14/19 20:35	1
Molybdenum	5.8		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:34	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:34	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:34	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		04/29/19 09:56	04/30/19 12:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	150		30	24	mg/L			04/29/19 13:09	1
pH	9.8	HF	0.1	0.1	SU			04/25/19 23:17	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	709.86				ft			04/23/19 07:49	1
Oxidation Reduction Potential	-53.1				millivolts			04/23/19 07:49	1
Oxygen, Dissolved, Client Supplied	1.54				mg/L			04/23/19 07:49	1
pH, Field	10.05				SU			04/23/19 07:49	1
Specific Conductance, Field	225				umhos/cm			04/23/19 07:49	1
Temperature, Field	11.72				Degrees C			04/23/19 07:49	1
Turbidity, Field	15.6				NTU			04/23/19 07:49	1

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-308

Date Collected: 04/23/19 08:45
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15		5.0	1.5	mg/L			05/03/19 20:58	5
Fluoride	0.77		0.50	0.23	mg/L			05/03/19 20:58	5
Sulfate	190		5.0	1.8	mg/L			05/03/19 20:58	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.4		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:48	1
Arsenic	45		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:48	1
Barium	39		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:48	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:38	1
Boron	5700		400	220	ug/L		04/30/19 08:58	05/14/19 20:42	2
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:48	1
Calcium	59		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:48	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:48	1
Cobalt	<0.091		0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:48	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:48	1
Lithium	29		10	2.7	ug/L		04/30/19 08:58	05/09/19 21:48	1
Molybdenum	58		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:48	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:48	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:48	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		04/29/19 09:56	04/30/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	450		30	24	mg/L			04/29/19 13:09	1
pH	8.9	HF	0.1	0.1	SU			04/25/19 23:19	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation (ft MSL)	706.19				ft			04/23/19 08:45	1
Oxidation Reduction Potential	-62.5				millivolts			04/23/19 08:45	1
Oxygen, Dissolved, Client Supplied	1.16				mg/L			04/23/19 08:45	1
pH, Field	9.24				SU			04/23/19 08:45	1
Specific Conductance, Field	659				umhos/cm			04/23/19 08:45	1
Temperature, Field	12.11				Degrees C			04/23/19 08:45	1
Turbidity, Field	2.13				NTU			04/23/19 08:45	1

Client Sample ID: Field Blank

Date Collected: 04/23/19 07:20
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-9

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**29**		1.0	0.29	mg/L			05/03/19 21:23	1
Fluoride	**0.74**		0.10	0.045	mg/L			05/03/19 21:23	1
Sulfate	**50**		1.0	0.35	mg/L			05/03/19 21:23	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 21:51	1
Arsenic	<0.75		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 21:51	1
Barium	<0.84		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 21:51	1
Beryllium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 20:45	1
Boron	**110**	**J**	200	110	ug/L		04/30/19 08:58	05/14/19 20:45	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 21:51	1
Calcium	**0.31**	**J**	0.50	0.10	mg/L		04/30/19 08:58	05/09/19 21:51	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 21:51	1
Cobalt	<0.091		0.50	0.091	ug/L		04/30/19 08:58	05/09/19 21:51	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 21:51	1
Lithium	<2.7		10	2.7	ug/L		04/30/19 08:58	05/09/19 21:51	1
Molybdenum	<1.1		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 21:51	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 21:51	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 21:51	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		04/29/19 09:56	04/30/19 13:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**400**		30	24	mg/L			04/29/19 13:09	1
pH	**8.0**	**HF**	0.1	0.1	SU			04/25/19 23:21	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery is outside acceptance 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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-238565/3
Matrix: Water
Analysis Batch: 238565

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			05/03/19 13:47	1
Fluoride	<0.045		0.10	0.045	mg/L			05/03/19 13:47	1
Sulfate	<0.35		1.0	0.35	mg/L			05/03/19 13:47	1

Lab Sample ID: LCS 310-238565/4
Matrix: Water
Analysis Batch: 238565

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	10.4		mg/L		104	90 - 110
Fluoride	2.00	2.15		mg/L		107	90 - 110
Sulfate	10.0	10.4		mg/L		104	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-237692/1-A
Matrix: Water
Analysis Batch: 238989

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		04/30/19 08:58	05/09/19 20:50	1
Arsenic	<0.75		2.0	0.75	ug/L		04/30/19 08:58	05/09/19 20:50	1
Barium	<0.84		2.0	0.84	ug/L		04/30/19 08:58	05/09/19 20:50	1
Cadmium	<0.077		0.50	0.077	ug/L		04/30/19 08:58	05/09/19 20:50	1
Calcium	<0.10		0.50	0.10	mg/L		04/30/19 08:58	05/09/19 20:50	1
Chromium	<0.98		5.0	0.98	ug/L		04/30/19 08:58	05/09/19 20:50	1
Cobalt	<0.091		0.50	0.091	ug/L		04/30/19 08:58	05/09/19 20:50	1
Lead	<0.27		0.50	0.27	ug/L		04/30/19 08:58	05/09/19 20:50	1
Molybdenum	<1.1		2.0	1.1	ug/L		04/30/19 08:58	05/09/19 20:50	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/09/19 20:50	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/09/19 20:50	1

Lab Sample ID: MB 310-237692/1-A
Matrix: Water
Analysis Batch: 239187

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.84		2.0	0.84	ug/L		04/30/19 08:58	05/10/19 20:18	1
Lithium	<2.7		10	2.7	ug/L		04/30/19 08:58	05/10/19 20:18	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/10/19 20:18	1

Lab Sample ID: MB 310-237692/1-A
Matrix: Water
Analysis Batch: 239489

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/14/19 19:53	1

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

Lab Sample ID: MB 310-237692/1-A
Matrix: Water
Analysis Batch: 239579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		04/30/19 08:58	05/15/19 12:58	1
Selenium	<1.0		5.0	1.0	ug/L		04/30/19 08:58	05/15/19 12:58	1
Thallium	<0.27		1.0	0.27	ug/L		04/30/19 08:58	05/15/19 12:58	1

Lab Sample ID: LCS 310-237692/2-A
Matrix: Water
Analysis Batch: 238989

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	20.4		ug/L		102	80 - 120
Arsenic	40.0	38.8		ug/L		97	80 - 120
Barium	40.0	41.5		ug/L		104	80 - 120
Cadmium	20.0	20.3		ug/L		102	80 - 120
Calcium	2.00	2.10		mg/L		105	80 - 120
Chromium	40.0	38.3		ug/L		96	80 - 120
Cobalt	20.0	20.9		ug/L		105	80 - 120
Lead	20.0	21.7		ug/L		108	80 - 120
Molybdenum	40.0	38.8		ug/L		97	80 - 120
Selenium	40.0	40.5		ug/L		101	80 - 120
Strontium	40.0	41.3		ug/L		103	80 - 120
Thallium	16.0	17.8		ug/L		112	80 - 120
Zinc	40.0	41.3		ug/L		103	80 - 120

Lab Sample ID: LCS 310-237692/2-A
Matrix: Water
Analysis Batch: 239187

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	20.0	17.5		ug/L		87	80 - 120
Lithium	100	85.7		ug/L		86	80 - 120
Selenium	40.0	35.0		ug/L		87	80 - 120

Lab Sample ID: LCS 310-237692/2-A
Matrix: Water
Analysis Batch: 239489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	880	1030		ug/L		118	80 - 120
Selenium	40.0	44.8		ug/L		112	80 - 120

Lab Sample ID: 310-154226-1 MS
Matrix: Ground Water
Analysis Batch: 238989

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.53		20.0	20.7		ug/L		104	75 - 125
Arsenic	<0.75		40.0	38.4		ug/L		96	75 - 125
Barium	230		40.0	267	4	ug/L		99	75 - 125
Cadmium	<0.077		20.0	18.7		ug/L		94	75 - 125

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

Lab Sample ID: 310-154226-1 MS
Matrix: Ground Water
Analysis Batch: 238989

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	130		2.00	132	4	mg/L		-31	75 - 125
Chromium	3.6	J	40.0	40.5		ug/L		92	75 - 125
Cobalt	0.12	J	20.0	19.3		ug/L		96	75 - 125
Lead	<0.27		20.0	20.4		ug/L		102	75 - 125
Molybdenum	<1.1		40.0	37.2		ug/L		93	75 - 125
Strontium	230		40.0	274	4	ug/L		110	75 - 125
Zinc	<10		40.0	38.9		ug/L		97	75 - 125

Lab Sample ID: 310-154226-1 MS
Matrix: Ground Water
Analysis Batch: 239187

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	<0.27		20.0	18.6		ug/L		93	75 - 125
Lithium	8.5	J	100	103		ug/L		94	75 - 125

Lab Sample ID: 310-154226-1 MS
Matrix: Ground Water
Analysis Batch: 239489

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	<110	F1	880	1090		ug/L		124	75 - 125

Lab Sample ID: 310-154226-1 MSD
Matrix: Ground Water
Analysis Batch: 238989

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.53		20.0	20.0		ug/L		100	75 - 125	3	20
Arsenic	<0.75		40.0	37.2		ug/L		93	75 - 125	3	20
Barium	230		40.0	258	4	ug/L		76	75 - 125	3	20
Cadmium	<0.077		20.0	18.2		ug/L		91	75 - 125	3	20
Calcium	130		2.00	129	4	mg/L		-189	75 - 125	2	20
Chromium	3.6	J	40.0	38.8		ug/L		88	75 - 125	4	20
Cobalt	0.12	J	20.0	18.5		ug/L		92	75 - 125	4	20
Lead	<0.27		20.0	19.4		ug/L		97	75 - 125	5	20
Molybdenum	<1.1		40.0	36.0		ug/L		90	75 - 125	3	20
Strontium	230		40.0	262	4	ug/L		79	75 - 125	5	20
Zinc	<10		40.0	42.0		ug/L		105	75 - 125	8	20

Lab Sample ID: 310-154226-1 MSD
Matrix: Ground Water
Analysis Batch: 239187

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	<0.27		20.0	18.2		ug/L		91	75 - 125	2	20
Lithium	8.5	J	100	97.5		ug/L		89	75 - 125	5	20

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

Lab Sample ID: 310-154226-1 MSD
Matrix: Ground Water
Analysis Batch: 239489

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 237692

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	<110	F1	880	1160	F1	ug/L		132	75 - 125	6	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-237550/1-A
Matrix: Water
Analysis Batch: 237814

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237550

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		04/29/19 09:56	04/30/19 12:06	1

Lab Sample ID: LCS 310-237550/2-A
Matrix: Water
Analysis Batch: 237814

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.67	1.59		ug/L		96	80 - 120

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

Lab Sample ID: MB 310-237559/1
Matrix: Water
Analysis Batch: 237559

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			04/29/19 10:46	1

Lab Sample ID: LCS 310-237559/2
Matrix: Water
Analysis Batch: 237559

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

Lab Sample ID: 310-154226-4 DU
Matrix: Ground Water
Analysis Batch: 237559

Client Sample ID: MW-304
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	680		702		mg/L		3	24

Lab Sample ID: MB 310-237575/1
Matrix: Water
Analysis Batch: 237575

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			04/29/19 13:09	1

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

Lab Sample ID: LCS 310-237575/2
Matrix: Water
Analysis Batch: 237575

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 310-237280/1
Matrix: Water
Analysis Batch: 237280

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: 310-154226-1 DU
Matrix: Ground Water
Analysis Batch: 237280

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.9	HF		6.8		SU				0.6	20

HPLC/IC

Analysis Batch: 238565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	9056A	
310-154226-2	MW-302	Total/NA	Ground Water	9056A	
310-154226-3	MW-303	Total/NA	Ground Water	9056A	
310-154226-4	MW-304	Total/NA	Ground Water	9056A	
310-154226-5	MW-305	Total/NA	Ground Water	9056A	
310-154226-6	MW-306	Total/NA	Ground Water	9056A	
310-154226-7	MW-307	Total/NA	Ground Water	9056A	
310-154226-8	MW-308	Total/NA	Ground Water	9056A	
310-154226-9	Field Blank	Total/NA	Ground Water	9056A	
MB 310-238565/3	Method Blank	Total/NA	Water	9056A	
LCS 310-238565/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 237550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	7470A	
310-154226-2	MW-302	Total/NA	Ground Water	7470A	
310-154226-3	MW-303	Total/NA	Ground Water	7470A	
310-154226-4	MW-304	Total/NA	Ground Water	7470A	
310-154226-5	MW-305	Total/NA	Ground Water	7470A	
310-154226-6	MW-306	Total/NA	Ground Water	7470A	
310-154226-7	MW-307	Total/NA	Ground Water	7470A	
310-154226-8	MW-308	Total/NA	Ground Water	7470A	
310-154226-9	Field Blank	Total/NA	Ground Water	7470A	
MB 310-237550/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-237550/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 237692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	3010A	
310-154226-2	MW-302	Total/NA	Ground Water	3010A	
310-154226-3	MW-303	Total/NA	Ground Water	3010A	
310-154226-4	MW-304	Total/NA	Ground Water	3010A	
310-154226-5	MW-305	Total/NA	Ground Water	3010A	
310-154226-6	MW-306	Total/NA	Ground Water	3010A	
310-154226-7	MW-307	Total/NA	Ground Water	3010A	
310-154226-8	MW-308	Total/NA	Ground Water	3010A	
310-154226-9	Field Blank	Total/NA	Ground Water	3010A	
MB 310-237692/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-237692/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-154226-1 MS	MW-301	Total/NA	Ground Water	3010A	
310-154226-1 MSD	MW-301	Total/NA	Ground Water	3010A	

Analysis Batch: 237814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	7470A	237550
310-154226-2	MW-302	Total/NA	Ground Water	7470A	237550
310-154226-3	MW-303	Total/NA	Ground Water	7470A	237550
310-154226-4	MW-304	Total/NA	Ground Water	7470A	237550
310-154226-5	MW-305	Total/NA	Ground Water	7470A	237550

Metals (Continued)

Analysis Batch: 237814 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-6	MW-306	Total/NA	Ground Water	7470A	237550
310-154226-7	MW-307	Total/NA	Ground Water	7470A	237550
310-154226-8	MW-308	Total/NA	Ground Water	7470A	237550
310-154226-9	Field Blank	Total/NA	Ground Water	7470A	237550
MB 310-237550/1-A	Method Blank	Total/NA	Water	7470A	237550
LCS 310-237550/2-A	Lab Control Sample	Total/NA	Water	7470A	237550

Analysis Batch: 238989

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	6020A	237692
310-154226-2	MW-302	Total/NA	Ground Water	6020A	237692
310-154226-3	MW-303	Total/NA	Ground Water	6020A	237692
310-154226-4	MW-304	Total/NA	Ground Water	6020A	237692
310-154226-5	MW-305	Total/NA	Ground Water	6020A	237692
310-154226-6	MW-306	Total/NA	Ground Water	6020A	237692
310-154226-7	MW-307	Total/NA	Ground Water	6020A	237692
310-154226-8	MW-308	Total/NA	Ground Water	6020A	237692
310-154226-9	Field Blank	Total/NA	Ground Water	6020A	237692
MB 310-237692/1-A	Method Blank	Total/NA	Water	6020A	237692
LCS 310-237692/2-A	Lab Control Sample	Total/NA	Water	6020A	237692
310-154226-1 MS	MW-301	Total/NA	Ground Water	6020A	237692
310-154226-1 MSD	MW-301	Total/NA	Ground Water	6020A	237692

Analysis Batch: 239187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	6020A	237692
MB 310-237692/1-A	Method Blank	Total/NA	Water	6020A	237692
LCS 310-237692/2-A	Lab Control Sample	Total/NA	Water	6020A	237692
310-154226-1 MS	MW-301	Total/NA	Ground Water	6020A	237692
310-154226-1 MSD	MW-301	Total/NA	Ground Water	6020A	237692

Analysis Batch: 239489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	6020A	237692
310-154226-2	MW-302	Total/NA	Ground Water	6020A	237692
310-154226-3	MW-303	Total/NA	Ground Water	6020A	237692
310-154226-4	MW-304	Total/NA	Ground Water	6020A	237692
310-154226-5	MW-305	Total/NA	Ground Water	6020A	237692
310-154226-6	MW-306	Total/NA	Ground Water	6020A	237692
310-154226-7	MW-307	Total/NA	Ground Water	6020A	237692
310-154226-8	MW-308	Total/NA	Ground Water	6020A	237692
310-154226-8	MW-308	Total/NA	Ground Water	6020A	237692
310-154226-9	Field Blank	Total/NA	Ground Water	6020A	237692
MB 310-237692/1-A	Method Blank	Total/NA	Water	6020A	237692
LCS 310-237692/2-A	Lab Control Sample	Total/NA	Water	6020A	237692
310-154226-1 MS	MW-301	Total/NA	Ground Water	6020A	237692
310-154226-1 MSD	MW-301	Total/NA	Ground Water	6020A	237692

Analysis Batch: 239579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-237692/1-A	Method Blank	Total/NA	Water	6020A	237692

QC Association Summary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

General Chemistry

Analysis Batch: 237280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-2	MW-302	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-3	MW-303	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-4	MW-304	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-5	MW-305	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-6	MW-306	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-7	MW-307	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-8	MW-308	Total/NA	Ground Water	SM 4500 H+ B	
310-154226-9	Field Blank	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-237280/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-154226-1 DU	MW-301	Total/NA	Ground Water	SM 4500 H+ B	

Analysis Batch: 237559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	SM 2540C	
310-154226-2	MW-302	Total/NA	Ground Water	SM 2540C	
310-154226-3	MW-303	Total/NA	Ground Water	SM 2540C	
310-154226-4	MW-304	Total/NA	Ground Water	SM 2540C	
310-154226-5	MW-305	Total/NA	Ground Water	SM 2540C	
310-154226-6	MW-306	Total/NA	Ground Water	SM 2540C	
MB 310-237559/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-237559/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-154226-4 DU	MW-304	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 237575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-7	MW-307	Total/NA	Ground Water	SM 2540C	
310-154226-8	MW-308	Total/NA	Ground Water	SM 2540C	
310-154226-9	Field Blank	Total/NA	Ground Water	SM 2540C	
MB 310-237575/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-237575/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 237886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	Field Sampling	
310-154226-2	MW-302	Total/NA	Ground Water	Field Sampling	
310-154226-3	MW-303	Total/NA	Ground Water	Field Sampling	
310-154226-4	MW-304	Total/NA	Ground Water	Field Sampling	
310-154226-5	MW-305	Total/NA	Ground Water	Field Sampling	
310-154226-6	MW-306	Total/NA	Ground Water	Field Sampling	
310-154226-7	MW-307	Total/NA	Ground Water	Field Sampling	
310-154226-8	MW-308	Total/NA	Ground Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-301
Date Collected: 04/22/19 11:09
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/07/19 12:32	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:07	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239187	05/10/19 20:24	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 19:59	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:44	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237559	04/29/19 10:46	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:04	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/22/19 11:09	ANO	TAL CF

Client Sample ID: MW-302
Date Collected: 04/22/19 12:03
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 18:27	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:17	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:19	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:46	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237559	04/29/19 10:46	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:07	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/22/19 12:03	ANO	TAL CF

Client Sample ID: MW-303
Date Collected: 04/22/19 13:05
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 18:52	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:21	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:22	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:48	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237559	04/29/19 10:46	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:10	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/22/19 13:05	ANO	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-304
Date Collected: 04/22/19 13:48
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 19:42	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:24	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:25	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:51	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237559	04/29/19 10:46	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:12	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/22/19 13:48	ANO	TAL CF

Client Sample ID: MW-305
Date Collected: 04/22/19 14:32
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 19:55	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:27	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:28	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:53	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237559	04/29/19 10:46	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:13	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/22/19 14:32	ANO	TAL CF

Client Sample ID: MW-306
Date Collected: 04/22/19 15:15
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 20:20	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:31	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:32	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:55	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237559	04/29/19 10:46	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:16	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/22/19 15:15	ANO	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Client Sample ID: MW-307
Date Collected: 04/23/19 07:49
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 20:45	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:34	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:35	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:57	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237575	04/29/19 13:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:17	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/23/19 07:49	ANO	TAL CF

Client Sample ID: MW-308
Date Collected: 04/23/19 08:45
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	238565	05/03/19 20:58	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:48	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:38	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		2	239489	05/14/19 20:42	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 12:59	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237575	04/29/19 13:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:19	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	237886	04/23/19 08:45	ANO	TAL CF

Client Sample ID: Field Blank
Date Collected: 04/23/19 07:20
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	238565	05/03/19 21:23	MLU	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	238989	05/09/19 21:51	SAD	TAL CF
Total/NA	Prep	3010A			237692	04/30/19 08:58	HED	TAL CF
Total/NA	Analysis	6020A		1	239489	05/14/19 20:45	SAD	TAL CF
Total/NA	Prep	7470A			237550	04/29/19 09:56	JNR	TAL CF
Total/NA	Analysis	7470A		1	237814	04/30/19 13:01	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	237575	04/29/19 13:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	237280	04/25/19 23:21	JMH	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

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: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

Method Summary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-1
SDG: 25216074

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-154226 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Engineers

City/State: CITY Clive STATE IA Project: IPL - Prairie Creek

Receipt Information

Date/Time Received: DATE 4-25-19 TIME 1745 Received By: LAB

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 1 of 2
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: 1 Correction Factor (°C): -0.1

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

Uncorrected Temp (°C): 0.9 Corrected Temp (°C): 0.8

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here
214

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Engineers

City/State: CITY Clive STATE IA Project: IPL Prairie Creek

Receipt Information

Date/Time Received: DATE 4-25-19 TIME 1745 Received By: LAB

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 2
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: 1 Correction Factor (°C): -0.1

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

Uncorrected Temp (°C): 3.3 Corrected Temp (°C): 3.2

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

#F2017 F

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring ____

TestAmerica Des Moines SC
214

Client Name: SCS Engineers Client #:
Address: 8450 Hickman Rd Suite 20 Project Name: IPL - Prairie Creek
City/State/Zip Code: Clive IA Project #: 25219074
Project Manager: Site/Location ID: Cedar Rapids State: IA
Email Address: Report To:
Telephone Number: Fax: Invoice To:
Sampler Name: (Print Name) Nick Schemmel Quote #: PO#:
Sampler Signature:

TAT
___ Standard
___ Rush (surcharges may apply)
Date Needed: ____
Fax Results: Y N
Email Results: Y N

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify, Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: Metals	TDS	pH	Chloride/Fluoride/SO_4	Radium 226 / 228	QC Deliverables	REMARKS
MW 301	42219	1109	G		GW	3					1		X	X	X	X	X		
MW 302	42219	1203				3					1		X	X	X	X	X		
MW 303	42219	1305				3					1		X	X	X	X	X		
MW 304	42219	1348				3					1		X	X	X	X	X		
MW 305	42219	1432				3					1		X	X	X	X	X		
MW 306	42219	1515				3					1		X	X	X	X	X		
MW 307	42319	0749				3					1		X	X	X	X	X		
MW 308	42319	0845				3					1		X	X	X	X	X		
Field Blank	42319	0720	↓		↓	3					1		X	X	X	X	X		

QC Deliverables
___ None
___ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: ____

Special Instructions:

LABORATORY COMMENTS:

Relinquished By: Nick Schemmel	Date: 42419	Time: 1705	Received By: Lindsay Binckley	Date: 4-25-19	Time: 1745
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAL-0033 (0708)

Page ____ of ____

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Prairie Creek Generating Station / SCS Engineers Project #25216074.17

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	MW-308	MW-309	MW-310	Field Blank
Appendix III Parameters (Detection Monitoring)	Boron	X	X	X	X	X	X	X	X	X	X	X
	Calcium	X	X	X	X	X	X	X	X	X	X	X
	Chloride	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	pH	X	X	X	X	X	X	X	X	X	X	X
	Sulfate	X	X	X	X	X	X	X	X	X	X	X
	TDS	X	X	X	X	X	X	X	X	X	X	X
Appendix IV Parameters (Assessment Monitoring)	Antimony	X	X	X	X	X	X	X	X	X	X	X
	Arsenic	X	X	X	X	X	X	X	X	X	X	X
	Barium	X	X	X	X	X	X	X	X	X	X	X
	Beryllium	X	X	X	X	X	X	X	X	X	X	X
	Cadmium	X	X	X	X	X	X	X	X	X	X	X
	Chromium	X	X	X	X	X	X	X	X	X	X	X
	Cobalt	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	Lead	X	X	X	X	X	X	X	X	X	X	X
	Lithium	X	X	X	X	X	X	X	X	X	X	X
	Mercury	X	X	X	X	X	X	X	X	X	X	X
	Molybdenum	X	X	X	X	X	X	X	X	X	X	X
	Selenium	X	X	X	X	X	X	X	X	X	X	X
	Thallium	X	X	X	X	X	X	X	X	X	X	X
	Radium	X	X	X	X	X	X	X	X	X	X	X
CCR Rule Field Parameters	Groundwater Elevation	X	X	X	X	X	X	X	X	X	X	
	pH	X	X	X	X	X	X	X	X	X	X	
Low-Flow Sampling Field Parameters	Well Depth	X	X	X	X	X	X	X	X	X	X	
	Specific Conductance	X	X	X	X	X	X	X	X	X	X	
	Dissolved Oxygen	X	X	X	X	X	X	X	X	X	X	
	ORP	X	X	X	X	X	X	X	X	X	X	
	Temperature	X	X	X	X	X	X	X	X	X	X	
	Turbidity	X	X	X	X	X	X	X	X	X	X	
	Color	X	X	X	X	X	X	X	X	X	X	
	Odor	X	X	X	X	X	X	X	X	X	X	

Notes: All samples are unfiltered (total).

C:\Users\fredricks\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\8ZAPY1LX\[PCS_CCR_Rule_Sampling_Revised 1903.xls]Sheet1

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW 301	310-154226-A-1	Plastic 250ml - with Nitric Acid	<2		
MW 301	310-154226-C-1	Plastic 1 liter - Nitric Acid	<2		
MW 301	310-154226-D-1	Plastic 1 liter - Nitric Acid	<2		
MW 302	310-154226-A-2	Plastic 250ml - with Nitric Acid	<2		
MW 302	310-154226-C-2	Plastic 1 liter - Nitric Acid	<2		
MW 302	310-154226-D-2	Plastic 1 liter - Nitric Acid	<2		
MW 303	310-154226-A-3	Plastic 250ml - with Nitric Acid	<2		
MW 303	310-154226-C-3	Plastic 1 liter - Nitric Acid	<2		
MW 303	310-154226-D-3	Plastic 1 liter - Nitric Acid	<2		
MW 304	310-154226-A-4	Plastic 250ml - with Nitric Acid	<2		
MW 304	310-154226-C-4	Plastic 1 liter - Nitric Acid	<2		
MW 304	310-154226-D-4	Plastic 1 liter - Nitric Acid	<2		
MW 305	310-154226-A-5	Plastic 250ml - with Nitric Acid	<2		
MW 305	310-154226-C-5	Plastic 1 liter - Nitric Acid	<2		
MW 305	310-154226-D-5	Plastic 1 liter - Nitric Acid	<2		
MW 306	310-154226-A-6	Plastic 250ml - with Nitric Acid	<2		
MW 306	310-154226-C-6	Plastic 1 liter - Nitric Acid	<2		
MW 306	310-154226-D-6	Plastic 1 liter - Nitric Acid	<2		
MW 307	310-154226-A-7	Plastic 250ml - with Nitric Acid	<2		
MW 307	310-154226-C-7	Plastic 1 liter - Nitric Acid	<2		
MW 307	310-154226-D-7	Plastic 1 liter - Nitric Acid	<2		
MW 308	310-154226-A-8	Plastic 250ml - with Nitric Acid	<2		
MW 308	310-154226-C-8	Plastic 1 liter - Nitric Acid	<2		
MW 308	310-154226-D-8	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-154226-A-9	Plastic 250ml - with Nitric Acid	<2		
Field Blank	310-154226-C-9	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-154226-D-9	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-154226-1
SDG Number: 25216074

Login Number: 154226
List Number: 1
Creator: Bindert, Lindsay A

List Source: Eurofins TestAmerica, Cedar Falls

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

Groundwater Monitoring Results - Field Parameters
Prairie Creek Generating Station / SCS Engineers Project #25219074
April 2019

Sample	Sample Date/Time	GW Elevation (ft amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity
MW-301	4/22/19 1109	716.44	10.53	6.99	6.68	987	38.2	6.92
MW-302	4/22/19 1203	715.69	7.86	6.64	3.34	533	-0.2	90.3
MW-303	4/22/19 1305	703.83	9.59	7.31	1.14	1,084	-110.3	18.40
MW-304	4/22/19 1348	703.93	9.64	7.08	0.93	1,125	-62.0	4.99
MW-305	4/22/19 1432	703.93	9.48	7.12	1.10	810	4.7	4.58
MW-306	4/22/19 1515	704.23	12.87	7.58	0.99	703	-97.6	21.3
MW-307	4/23/19 0749	709.86	11.72	10.05	1.54	225	-53.1	15.6
MW-308	4/23/19 0845	706.19	12.11	9.24	1.16	659	-62.5	2.13

Abbreviations:
mg/L = milligrams per liter
mV = millivolts amsl = above mean sea level
NA = Not Analyzed

Notes:

Created by: JSN Date: 4/30/2019
Last revision by: JSN Date: 4/30/2019
Checked by: NDK Date: 4/30/2019

I:\25219074.00\Data and Calculations\Tables\Field Data\[PCS_CCR_Field_April 2019.xlsx]GW Field Parameters

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 310-154226-2
Laboratory Sample Delivery Group: 25216074
Client Project/Site: IPL - Prairie Creek - 25219074

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
7/19/2019 8:42:47 AM

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

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

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

Table of Contents

Case Narrative

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Job ID: 310-154226-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-154226-2

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8º C and 3.2º C.

RAD
Method(s) 903.0: Ra-226 Prep Batch 160-429878 & Method(s) 904.0: Ra-228 Prep Batch 160-429948

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 (310-154226-1), MW-302 (310-154226-2), MW-303 (310-154226-3), MW-304 (310-154226-4), MW-305 (310-154226-5), MW-306 (310-154226-6), MW-307 (310-154226-7), MW-308 (310-154226-8), Field Blank (310-154226-9), (LCS 160-429878/1-A), (LCSD 160-429878/2-A) and (MB 160-429878/23-A)

Method(s) PrecSep_0: Radium 228 Prep Batch 160-429948: The following samples had yellow discoloration:MW-303 (310-154226-3), MW-306 (310-154226-6) and MW-308 (310-154226-8).A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method(s) PrecSep_0: Radium 228 Prep Batch 160-429948: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: MW-301 (310-154226-1), MW-302 (310-154226-2), MW-303 (310-154226-3), MW-304 (310-154226-4), MW-305 (310-154226-5), MW-306 (310-154226-6), MW-307 (310-154226-7), MW-308 (310-154226-8) and Field Blank (310-154226-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-429878: The following samples had yellow discoloration:MW-303 (310-154226-3), MW-307 (310-154226-7) and MW-308 (310-154226-8).A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-429878: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: MW-301 (310-154226-1), MW-302 (310-154226-2), MW-303 (310-154226-3), MW-304 (310-154226-4), MW-305 (310-154226-5), MW-306 (310-154226-6), MW-307 (310-154226-7), MW-308 (310-154226-8) and Field Blank (310-154226-9). 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: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-154226-1	MW-301	Ground Water	04/22/19 11:09	04/25/19 17:45	
310-154226-2	MW-302	Ground Water	04/22/19 12:03	04/25/19 17:45	
310-154226-3	MW-303	Ground Water	04/22/19 13:05	04/25/19 17:45	
310-154226-4	MW-304	Ground Water	04/22/19 13:48	04/25/19 17:45	
310-154226-5	MW-305	Ground Water	04/22/19 14:32	04/25/19 17:45	
310-154226-6	MW-306	Ground Water	04/22/19 15:15	04/25/19 17:45	
310-154226-7	MW-307	Ground Water	04/23/19 07:49	04/25/19 17:45	
310-154226-8	MW-308	Ground Water	04/23/19 08:45	04/25/19 17:45	
310-154226-9	Field Blank	Ground Water	04/23/19 07:20	04/25/19 17:45	

Client Sample Results

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Client Sample ID: MW-301
Date Collected: 04/22/19 11:09
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-1
Matrix: Ground 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	**0.268**		0.108	0.111	1.00	0.116	pCi/L	05/28/19 11:47	07/18/19 20:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.1*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.328	U	0.282	0.284	1.00	0.450	pCi/L	05/28/19 14:25	07/09/19 11:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.1*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:50*	*1*
Y Carrier	*76.3*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:50*	*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	**0.596**		0.302	0.305	5.00	0.450	pCi/L		07/19/19 08:11	1

Client Sample ID: MW-302

Date Collected: 04/22/19 12:03
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-2

Matrix: Ground 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	0.0742	U	0.0954	0.0957	1.00	0.159	pCi/L	05/28/19 11:47	07/18/19 20:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.8*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0532	U	0.284	0.284	1.00	0.524	pCi/L	05/28/19 14:25	07/09/19 11:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.8*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:50*	*1*
Y Carrier	*62.8*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:50*	*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	0.0742	U	0.300	0.300	5.00	0.524	pCi/L		07/19/19 08:11	1

Client Sample ID: MW-303

Date Collected: 04/22/19 13:05
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-3

Matrix: Ground 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	**0.221**		0.110	0.112	1.00	0.139	pCi/L	05/28/19 11:47	07/18/19 20:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.7*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.411	U	0.281	0.284	1.00	0.435	pCi/L	05/28/19 14:25	07/09/19 11:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.7*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:50*	*1*
Y Carrier	*77.4*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:50*	*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	**0.632**		0.302	0.305	5.00	0.435	pCi/L		07/19/19 08:11	1

Client Sample Results

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Client Sample ID: MW-304
Date Collected: 04/22/19 13:48
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-4
Matrix: Ground 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		0.0842	0.0857	1.00	0.0907	pCi/L	05/28/19 11:47	07/18/19 20:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.451		0.265	0.268	1.00	0.398	pCi/L	05/28/19 14:25	07/09/19 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*1*
Y Carrier	*82.2*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*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	0.628		0.278	0.281	5.00	0.398	pCi/L		07/19/19 08:11	1

Client Sample ID: MW-305

Date Collected: 04/22/19 14:32
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-5

Matrix: Ground 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	0.109	U	0.0925	0.0931	1.00	0.141	pCi/L	05/28/19 11:47	07/18/19 20:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.136	U	0.274	0.274	1.00	0.514	pCi/L	05/28/19 14:25	07/09/19 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*1*
Y Carrier	*76.6*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*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	0.109	U	0.289	0.289	5.00	0.514	pCi/L		07/19/19 08:11	1

Client Sample ID: MW-306

Date Collected: 04/22/19 15:15
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-6

Matrix: Ground 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	0.205		0.108	0.109	1.00	0.136	pCi/L	05/28/19 11:47	07/18/19 20:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.2*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:39*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.836		0.411	0.419	1.00	0.612	pCi/L	05/28/19 14:25	07/09/19 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.2*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*1*
Y Carrier	*70.3*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*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	1.04		0.425	0.433	5.00	0.612	pCi/L		07/19/19 08:11	1

Client Sample ID: MW-307

Date Collected: 04/23/19 07:49
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-7

Matrix: Ground 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	0.0223	U	0.0642	0.0643	1.00	0.121	pCi/L	05/28/19 11:47	07/18/19 22:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*05/28/19 11:47*	*07/18/19 22:36*	*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	0.144	U	0.297	0.297	1.00	0.508	pCi/L	05/28/19 14:25	07/09/19 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*1*
Y Carrier	*73.3*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*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	0.166	U	0.304	0.304	5.00	0.508	pCi/L		07/19/19 08:11	1

Client Sample Results

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Client Sample ID: MW-308

Date Collected: 04/23/19 08:45
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-8

Matrix: Ground 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	0.0347	U	0.0917	0.0918	1.00	0.165	pCi/L	05/28/19 11:47	07/18/19 22:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.7*		*40 - 110*	*05/28/19 11:47*	*07/18/19 22:36*	*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	0.266	U	0.328	0.329	1.00	0.543	pCi/L	05/28/19 14:25	07/09/19 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.7*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*1*
Y Carrier	*77.8*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:51*	*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	0.301	U	0.341	0.342	5.00	0.543	pCi/L		07/19/19 08:11	1

Client Sample ID: Field Blank

Date Collected: 04/23/19 07:20
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-9

Matrix: Ground 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	-0.0529	U	0.0485	0.0488	1.00	0.125	pCi/L	05/28/19 11:47	07/18/19 22:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/28/19 11:47*	*07/18/19 22:37*	*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	0.130	U	0.286	0.287	1.00	0.487	pCi/L	05/28/19 14:25	07/09/19 11:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:54*	*1*
Y Carrier	*81.5*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:54*	*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	0.130	U	0.290	0.291	5.00	0.487	pCi/L		07/19/19 08:11	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

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

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-429878/23-A
Matrix: Water
Analysis Batch: 435485

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429878

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02259	U	0.0486	0.0487	1.00	0.116	pCi/L	05/28/19 11:47	07/18/19 22:10	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*05/28/19 11:47*	*07/18/19 22:10*	*1*

Lab Sample ID: LCS 160-429878/1-A
Matrix: Water
Analysis Batch: 435291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429878

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.06		1.05	1.00	0.110	pCi/L	89	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.3*		*40 - 110*

Lab Sample ID: LCSD 160-429878/2-A
Matrix: Water
Analysis Batch: 435291

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 429878

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	10.56		1.09	1.00	0.0935	pCi/L	93	75 - 125	0.23	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*96.0*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-429948/23-A
Matrix: Water
Analysis Batch: 434306

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429948

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1751	U	0.263	0.263	1.00	0.441	pCi/L	05/28/19 14:25	07/09/19 11:57	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:57*	*1*
Y Carrier	*81.1*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:57*	*1*

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

Lab Sample ID: LCS 160-429948/1-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429948

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.04	9.919		1.19	1.00	0.446	pCi/L	110	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.3*		*40 - 110*
Y Carrier	*72.9*		*40 - 110*

Lab Sample ID: LCSD 160-429948/2-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 429948

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.04	8.936		1.13	1.00	0.599	pCi/L	99	75 - 125	0.42	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*96.0*		*40 - 110*
Y Carrier	*70.7*		*40 - 110*

Rad

Prep Batch: 429878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	PrecSep-21	
310-154226-2	MW-302	Total/NA	Ground Water	PrecSep-21	
310-154226-3	MW-303	Total/NA	Ground Water	PrecSep-21	
310-154226-4	MW-304	Total/NA	Ground Water	PrecSep-21	
310-154226-5	MW-305	Total/NA	Ground Water	PrecSep-21	
310-154226-6	MW-306	Total/NA	Ground Water	PrecSep-21	
310-154226-7	MW-307	Total/NA	Ground Water	PrecSep-21	
310-154226-8	MW-308	Total/NA	Ground Water	PrecSep-21	
310-154226-9	Field Blank	Total/NA	Ground Water	PrecSep-21	
MB 160-429878/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-429878/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-429878/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 429948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-154226-1	MW-301	Total/NA	Ground Water	PrecSep_0	
310-154226-2	MW-302	Total/NA	Ground Water	PrecSep_0	
310-154226-3	MW-303	Total/NA	Ground Water	PrecSep_0	
310-154226-4	MW-304	Total/NA	Ground Water	PrecSep_0	
310-154226-5	MW-305	Total/NA	Ground Water	PrecSep_0	
310-154226-6	MW-306	Total/NA	Ground Water	PrecSep_0	
310-154226-7	MW-307	Total/NA	Ground Water	PrecSep_0	
310-154226-8	MW-308	Total/NA	Ground Water	PrecSep_0	
310-154226-9	Field Blank	Total/NA	Ground Water	PrecSep_0	
MB 160-429948/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-429948/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-429948/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Client Sample ID: MW-301
Date Collected: 04/22/19 11:09
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 20:39	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:50	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Client Sample ID: MW-302
Date Collected: 04/22/19 12:03
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 20:39	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:50	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Client Sample ID: MW-303
Date Collected: 04/22/19 13:05
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 20:39	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:50	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Client Sample ID: MW-304
Date Collected: 04/22/19 13:48
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 20:39	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:51	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Client Sample ID: MW-305
Date Collected: 04/22/19 14:32
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 20:39	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:51	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Client Sample ID: MW-306
Date Collected: 04/22/19 15:15
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 20:39	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:51	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Client Sample ID: MW-307
Date Collected: 04/23/19 07:49
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 22:36	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:51	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Client Sample ID: MW-308
Date Collected: 04/23/19 08:45
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 22:36	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434301	07/09/19 11:51	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	SMP	TAL SL

Lab Chronicle

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Client Sample ID: Field Blank
Date Collected: 04/23/19 07:20
Date Received: 04/25/19 17:45

Lab Sample ID: 310-154226-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1	435521	07/18/19 22:37	CDR	TAL SL
Total/NA	Prep	PrecSep_0			429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1	434306	07/09/19 11:54	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	435565	07/19/19 08:11	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: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200023	11-30-19

Method Summary

Client: SCS Engineers
Project/Site: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-154226 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Engineers

City/State: CITY Clive STATE IA Project: IPL - Prairie Creek

Receipt Information

Date/Time Received: DATE 4-25-19 TIME 1745 Received By: LAB

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 1 of 2
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: 1 Correction Factor (°C): -0.1

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

Uncorrected Temp (°C): 0.9 Corrected Temp (°C): 0.8

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here
214

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Engineers

City/State: CITY Clive STATE IA Project: IPL Prairie Creek

Receipt Information

Date/Time Received: DATE 4-25-19 TIME 1745 Received By: LAB

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 2
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: 1 Correction Factor (°C): -0.1

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

Uncorrected Temp (°C): 3.3 Corrected Temp (°C): 3.2

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

#20197

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

TestAmerica Des Moines SC
214

Client Name: SCS Engineers Client #:
Address: 8450 Hickman Rd Suite 20 Project Name: IPL - Prairie Creek
City/State/Zip Code: Clive IA Project #: 25219074
Project Manager: Site/Location ID: Cedar Rapids State: IA
Email Address: Report To:
Telephone Number: Fax: Invoice To:
Sampler Name: (Print Name) Nick Schemmel Quote #: PO#:
Sampler Signature:

TAT
___ Standard
___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y N
Email Results: Y N

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify, Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: Metals	TDS	pH	Chloride/Fluoride/SO_4	Radium 226 / 228	QC Deliverables	REMARKS
MW 301	42219	1109	G		GW	3					1		X	X	X	X	X		
MW 302	42219	1203				3					1		X	X	X	X	X		
MW 303	42219	1305				3					1		X	X	X	X	X		
MW 304	42219	1348				3					1		X	X	X	X	X		
MW 305	42219	1432				3					1		X	X	X	X	X		
MW 306	42219	1515				3					1		X	X	X	X	X		
MW 307	42319	0749				3					1		X	X	X	X	X		
MW 308	42319	0845				3					1		X	X	X	X	X		
Field Blank	42319	0720	↓		↓	3					1		X	X	X	X	X		

QC Deliverables
___ None
___ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

Special Instructions:

LABORATORY COMMENTS:

Relinquished By: Nick Schemmel	Date: 42419	Time: 1705	Received By: Lindsay Binckley	Date: 4-25-19	Time: 1745
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAL-0033 (0708)

Page _____ of _____

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Prairie Creek Generating Station / SCS Engineers Project #25216074.17

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	MW-308	MW-309	MW-310	Field Blank
Appendix III Parameters (Detection Monitoring)	Boron	X	X	X	X	X	X	X	X	X	X	X
	Calcium	X	X	X	X	X	X	X	X	X	X	X
	Chloride	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	pH	X	X	X	X	X	X	X	X	X	X	X
	Sulfate	X	X	X	X	X	X	X	X	X	X	X
	TDS	X	X	X	X	X	X	X	X	X	X	X
Appendix IV Parameters (Assessment Monitoring)	Antimony	X	X	X	X	X	X	X	X	X	X	X
	Arsenic	X	X	X	X	X	X	X	X	X	X	X
	Barium	X	X	X	X	X	X	X	X	X	X	X
	Beryllium	X	X	X	X	X	X	X	X	X	X	X
	Cadmium	X	X	X	X	X	X	X	X	X	X	X
	Chromium	X	X	X	X	X	X	X	X	X	X	X
	Cobalt	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	Lead	X	X	X	X	X	X	X	X	X	X	X
	Lithium	X	X	X	X	X	X	X	X	X	X	X
	Mercury	X	X	X	X	X	X	X	X	X	X	X
	Molybdenum	X	X	X	X	X	X	X	X	X	X	X
	Selenium	X	X	X	X	X	X	X	X	X	X	X
	Thallium	X	X	X	X	X	X	X	X	X	X	X
	Radium	X	X	X	X	X	X	X	X	X	X	X
CCR Rule Field Parameters	Groundwater Elevation	X	X	X	X	X	X	X	X	X	X	
	pH	X	X	X	X	X	X	X	X	X	X	
Low-Flow Sampling Field Parameters	Well Depth	X	X	X	X	X	X	X	X	X	X	
	Specific Conductance	X	X	X	X	X	X	X	X	X	X	
	Dissolved Oxygen	X	X	X	X	X	X	X	X	X	X	
	ORP	X	X	X	X	X	X	X	X	X	X	
	Temperature	X	X	X	X	X	X	X	X	X	X	
	Turbidity	X	X	X	X	X	X	X	X	X	X	
	Color	X	X	X	X	X	X	X	X	X	X	
	Odor	X	X	X	X	X	X	X	X	X	X	

Notes: All samples are unfiltered (total).

C:\Users\fredricks\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\8ZAPY1LX\[PCS_CCR_Rule_Sampling_Revised 1903.xls]Sheet1

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW 301	310-154226-A-1	Plastic 250ml - with Nitric Acid	<2		
MW 301	310-154226-C-1	Plastic 1 liter - Nitric Acid	<2		
MW 301	310-154226-D-1	Plastic 1 liter - Nitric Acid	<2		
MW 302	310-154226-A-2	Plastic 250ml - with Nitric Acid	<2		
MW 302	310-154226-C-2	Plastic 1 liter - Nitric Acid	<2		
MW 302	310-154226-D-2	Plastic 1 liter - Nitric Acid	<2		
MW 303	310-154226-A-3	Plastic 250ml - with Nitric Acid	<2		
MW 303	310-154226-C-3	Plastic 1 liter - Nitric Acid	<2		
MW 303	310-154226-D-3	Plastic 1 liter - Nitric Acid	<2		
MW 304	310-154226-A-4	Plastic 250ml - with Nitric Acid	<2		
MW 304	310-154226-C-4	Plastic 1 liter - Nitric Acid	<2		
MW 304	310-154226-D-4	Plastic 1 liter - Nitric Acid	<2		
MW 305	310-154226-A-5	Plastic 250ml - with Nitric Acid	<2		
MW 305	310-154226-C-5	Plastic 1 liter - Nitric Acid	<2		
MW 305	310-154226-D-5	Plastic 1 liter - Nitric Acid	<2		
MW 306	310-154226-A-6	Plastic 250ml - with Nitric Acid	<2		
MW 306	310-154226-C-6	Plastic 1 liter - Nitric Acid	<2		
MW 306	310-154226-D-6	Plastic 1 liter - Nitric Acid	<2		
MW 307	310-154226-A-7	Plastic 250ml - with Nitric Acid	<2		
MW 307	310-154226-C-7	Plastic 1 liter - Nitric Acid	<2		
MW 307	310-154226-D-7	Plastic 1 liter - Nitric Acid	<2		
MW 308	310-154226-A-8	Plastic 250ml - with Nitric Acid	<2		
MW 308	310-154226-C-8	Plastic 1 liter - Nitric Acid	<2		
MW 308	310-154226-D-8	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-154226-A-9	Plastic 250ml - with Nitric Acid	<2		
Field Blank	310-154226-C-9	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-154226-D-9	Plastic 1 liter - Nitric Acid	<2		

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-154226-2
SDG Number: 25216074

Login Number: 154226
List Number: 1
Creator: Bindert, Lindsay A

List Source: Eurofins TestAmerica, Cedar Falls

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

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-154226-2
SDG Number: 25216074

Login Number: 154226
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/02/19 10:40 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: IPL - Prairie Creek - 25219074

Job ID: 310-154226-2
SDG: 25216074

Method: 903.0 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
310-154226-1	MW-301	90.1
310-154226-2	MW-302	91.8
310-154226-3	MW-303	88.7
310-154226-4	MW-304	94.1
310-154226-5	MW-305	84.7
310-154226-6	MW-306	84.2
310-154226-7	MW-307	85.3
310-154226-8	MW-308	86.7
310-154226-9	Field Blank	101

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 160-429878/1-A	Lab Control Sample	98.3
LCSD 160-429878/2-A	Lab Control Sample Dup	96.0
MB 160-429878/23-A	Method Blank	97.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-154226-1	MW-301	90.1	76.3
310-154226-2	MW-302	91.8	62.8
310-154226-3	MW-303	88.7	77.4
310-154226-4	MW-304	94.1	82.2
310-154226-5	MW-305	84.7	76.6
310-154226-6	MW-306	84.2	70.3
310-154226-7	MW-307	85.3	73.3
310-154226-8	MW-308	86.7	77.8
310-154226-9	Field Blank	101	81.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Tracer/Carrier Summary

Client: SCS Engineers
Job ID: 310-154226-2
Project/Site: IPL - Prairie Creek - 25219074
SDG: 25216074

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 160-429948/1-A	Lab Control Sample	98.3	72.9
LCSD 160-429948/2-A	Lab Control Sample Dup	96.0	70.7
MB 160-429948/23-A	Method Blank	97.5	81.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

A2 Semiannual Sampling Laboratory Reports, October 2019

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ANALYTICAL REPORT

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

Laboratory Job ID: 310-168794-2
Client Project/Site: Prairie Creek CCR 25216074.17

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
12/2/2019 11:38:16 AM

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

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

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

Table of Contents

Job ID: 310-168794-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-168794-2

Comments
No additional comments.

Receipt
The samples were received on 10/30/2019 5:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.4º C, 1.7º C and 3.0º C.

RAD
Method 903.0: Radium-226 prep batch 160-448655/160-448773, Method 903.0: Radium-226 prep batch 160-448774/160-448658. 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 (310-168794-1), MW-303 (310-168794-3), MW-304 (310-168794-4), MW-305 (310-168794-5), MW-306 (310-168794-6), MW-307 (310-168794-7), MW-308 (310-168794-8), MW-309 (310-168794-9), MW-310 (310-168794-10), Field Blank (310-168794-11), (LCS 160-448655/1-A), (LCSD 160-448655/2-A) and (MB 160-448655/19-A)

Method 903.0: Radium-226 Prep Batch: 160-448774. The Method Blank (MB) exhibited a negative result greater in magnitude than the 3 sigma TPU. This occurrence was evaluated and determined to be random in nature. Sporadic occurrences such as this are statistically expected. No further action is required. MW-302 (310-168794-2), (LCS 160-448774/1-A), (LCSD 160-448774/2-A) and (MB 160-448774/4-A)

Method PrecSep_0: Radium 228 Prep batch 160-448658: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-168794-1), MW-303 (310-168794-3), MW-304 (310-168794-4), MW-305 (310-168794-5), MW-306 (310-168794-6), MW-307 (310-168794-7), MW-308 (310-168794-8), MW-309 (310-168794-9), MW-310 (310-168794-10) and Field Blank (310-168794-11). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep_0: Radium 228 Prep batch 160-448773: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-302 (310-168794-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160448655: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-301 (310-168794-1), MW-303 (310-168794-3), MW-304 (310-168794-4), MW-305 (310-168794-5), MW-306 (310-168794-6), MW-307 (310-168794-7), MW-308 (310-168794-8), MW-309 (310-168794-9), MW-310 (310-168794-10) and Field Blank (310-168794-11). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep batch 160-448774: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-302 (310-168794-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were 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.

Sample Summary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-168794-1	MW-301	Water	10/28/19 10:05	10/30/19 17:25	
310-168794-2	MW-302	Water	10/28/19 12:20	10/30/19 17:25	
310-168794-3	MW-303	Water	10/29/19 09:25	10/30/19 17:25	
310-168794-4	MW-304	Water	10/29/19 11:40	10/30/19 17:25	
310-168794-5	MW-305	Water	10/29/19 14:02	10/30/19 17:25	
310-168794-6	MW-306	Water	10/29/19 15:12	10/30/19 17:25	
310-168794-7	MW-307	Water	10/28/19 14:55	10/30/19 17:25	
310-168794-8	MW-308	Water	10/28/19 13:50	10/30/19 17:25	
310-168794-9	MW-309	Water	10/29/19 10:40	10/30/19 17:25	
310-168794-10	MW-310	Water	10/29/19 13:05	10/30/19 17:25	
310-168794-11	Field Blank	Water	10/28/19 23:59	10/30/19 17:25	

Client Sample ID: MW-301
Date Collected: 10/28/19 10:05
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-1
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	**0.259**		0.101	0.103	1.00	0.113	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	0.449	U	0.325	0.327	1.00	0.512	pCi/L	11/04/19 07:26	11/12/19 12:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*1*
Y Carrier	*81.1*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*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	**0.708**		0.340	0.343	5.00	0.512	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-302
Lab Sample ID: 310-168794-2
Date Collected: 10/28/19 12:20
Matrix: Water
Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.228**		0.102	0.104	1.00	0.125	pCi/L	11/05/19 07:17	11/27/19 16:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*11/05/19 07:17*	*11/27/19 16:23*	*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	0.333	U	0.248	0.250	1.00	0.385	pCi/L	11/05/19 07:12	11/11/19 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*11/05/19 07:12*	*11/11/19 13:03*	*1*
Y Carrier	*80.0*		*40 - 110*	*11/05/19 07:12*	*11/11/19 13:03*	*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	**0.562**		0.268	0.271	5.00	0.385	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-303
Date Collected: 10/29/19 09:25
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-3
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	0.164		0.0947	0.0958	1.00	0.130	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.5*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	0.229	U	0.313	0.314	1.00	0.522	pCi/L	11/04/19 07:26	11/12/19 12:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.5*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*1*
Y Carrier	*79.3*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*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	0.393	U	0.327	0.328	5.00	0.522	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-304
Lab Sample ID: 310-168794-4

Date Collected: 10/29/19 11:40
Matrix: Water

Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0929	U	0.0895	0.0899	1.00	0.141	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.1*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	0.181	U	0.304	0.305	1.00	0.513	pCi/L	11/04/19 07:26	11/12/19 12:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.1*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*1*
Y Carrier	*79.6*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*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	0.274	U	0.317	0.318	5.00	0.513	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-305
Date Collected: 10/29/19 14:02
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-5
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	0.160		0.101	0.102	1.00	0.143	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.4*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	0.192	U	0.288	0.289	1.00	0.484	pCi/L	11/04/19 07:26	11/12/19 12:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.4*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*1*
Y Carrier	*80.7*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:57*	*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	0.352	U	0.305	0.306	5.00	0.484	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-306
Lab Sample ID: 310-168794-6

Date Collected: 10/29/19 15:12
Matrix: Water

Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.108	U	0.0880	0.0885	1.00	0.134	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	0.264	0.264	1.00	0.476	pCi/L	11/04/19 07:26	11/12/19 12:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*1*
Y Carrier	*82.6*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*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	0.108	U	0.278	0.278	5.00	0.476	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-307
Lab Sample ID: 310-168794-7

Date Collected: 10/28/19 14:55
Matrix: Water

Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0250	U	0.0639	0.0640	1.00	0.135	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	0.238	U	0.233	0.234	1.00	0.377	pCi/L	11/04/19 07:26	11/12/19 12:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*1*
Y Carrier	*83.0*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*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	0.238	U	0.242	0.243	5.00	0.377	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-308
Lab Sample ID: 310-168794-8

Date Collected: 10/28/19 13:50
Matrix: Water
Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.000737	U	0.0637	0.0637	1.00	0.127	pCi/L	11/04/19 07:08	11/27/19 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.1*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:50*	*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	-0.180	U	0.256	0.257	1.00	0.488	pCi/L	11/04/19 07:26	11/12/19 12:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.1*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*1*
Y Carrier	*80.0*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*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	0.000	U	0.264	0.265	5.00	0.488	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-309
Lab Sample ID: 310-168794-9

Date Collected: 10/29/19 10:40
Matrix: Water
Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.346		0.113	0.118	1.00	0.120	pCi/L	11/04/19 07:08	11/27/19 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.1*		*40 - 110*	*11/04/19 07:08*	*11/27/19 05:51*	*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		0.288	0.291	1.00	0.442	pCi/L	11/04/19 07:26	11/12/19 12:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.1*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*1*
Y Carrier	*79.6*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*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	0.801		0.309	0.314	5.00	0.442	pCi/L		12/02/19 09:21	1

Client Sample ID: MW-310
Lab Sample ID: 310-168794-10

Date Collected: 10/29/19 13:05
Matrix: Water

Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.211		0.0973	0.0992	1.00	0.122	pCi/L	11/04/19 07:08	11/27/19 07:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*11/04/19 07:08*	*11/27/19 07:42*	*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	0.228	U	0.284	0.285	1.00	0.471	pCi/L	11/04/19 07:26	11/12/19 12:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*1*
Y Carrier	*80.4*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*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	0.439	U	0.300	0.302	5.00	0.471	pCi/L		12/02/19 09:21	1

Client Sample ID: Field Blank
Lab Sample ID: 310-168794-11

Date Collected: 10/28/19 23:59
Matrix: Water

Date Received: 10/30/19 17:25

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0219	U	0.0595	0.0595	1.00	0.125	pCi/L	11/04/19 07:08	11/27/19 07:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.0*		*40 - 110*	*11/04/19 07:08*	*11/27/19 07:42*	*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	0.216	U	0.283	0.284	1.00	0.470	pCi/L	11/04/19 07:26	11/12/19 12:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.0*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*1*
Y Carrier	*80.4*		*40 - 110*	*11/04/19 07:26*	*11/12/19 12:58*	*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	0.216	U	0.289	0.290	5.00	0.470	pCi/L		12/02/19 09:21	1

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

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

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-448655/19-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 448655

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.002712	U	0.0449	0.0449	1.00	0.0928	pCi/L	11/04/19 07:08	11/27/19 07:43	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.8*		*40 - 110*	*11/04/19 07:08*	*11/27/19 07:43*	*1*

Lab Sample ID: LCS 160-448655/1-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 448655

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	11.41		1.17	1.00	0.130	pCi/L	100	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.2*		*40 - 110*

Lab Sample ID: LCSD 160-448655/2-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 448655

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	11.30		1.15	1.00	0.0901	pCi/L	100	75 - 125	0.04	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*90.1*		*40 - 110*

Lab Sample ID: MB 160-448774/4-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 448774

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1191	U	0.0260	0.0281	1.00	0.120	pCi/L	11/05/19 07:17	11/27/19 16:23	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.8*		*40 - 110*	*11/05/19 07:17*	*11/27/19 16:23*	*1*

Lab Sample ID: LCS 160-448774/1-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 448774

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.87		1.12	1.00	0.123	pCi/L	96	75 - 125		

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-448774/1-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 448774

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	91.6		40 - 110

Lab Sample ID: LCSD 160-448774/2-A
Matrix: Water
Analysis Batch: 452205

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 448774

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.41		1.07	1.00	0.124	pCi/L	92	75 - 125	0.21	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	90.7		40 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-448658/19-A
Matrix: Water
Analysis Batch: 449886

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 448658

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.09915	U	0.336	0.336	1.00	0.606	pCi/L	11/04/19 07:26	11/12/19 13:01	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.8		40 - 110	11/04/19 07:26	11/12/19 13:01	1
Y Carrier	77.4		40 - 110	11/04/19 07:26	11/12/19 13:01	1

Lab Sample ID: LCS 160-448658/1-A
Matrix: Water
Analysis Batch: 449855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 448658

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.40	10.87		1.27	1.00	0.471	pCi/L	116	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	86.2		40 - 110
Y Carrier	81.9		40 - 110

Lab Sample ID: LCSD 160-448658/2-A
Matrix: Water
Analysis Batch: 449855

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 448658

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.40	8.769		1.06	1.00	0.435	pCi/L	93	75 - 125	0.90	1

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

Lab Sample ID: LCSD 160-448658/2-A
Matrix: Water
Analysis Batch: 449855

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 448658

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	90.1		40 - 110
Y Carrier	83.7		40 - 110

Lab Sample ID: MB 160-448773/4-A
Matrix: Water
Analysis Batch: 449808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 448773

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1383	U	0.237	0.237	1.00	0.446	pCi/L	11/05/19 07:12	11/11/19 13:03	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.8		40 - 110	11/05/19 07:12	11/11/19 13:03	1
Y Carrier	82.6		40 - 110	11/05/19 07:12	11/11/19 13:03	1

Lab Sample ID: LCS 160-448773/1-A
Matrix: Water
Analysis Batch: 449808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 448773

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.41	8.806		1.06	1.00	0.409	pCi/L	94	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	91.6		40 - 110
Y Carrier	81.9		40 - 110

Lab Sample ID: LCSD 160-448773/2-A
Matrix: Water
Analysis Batch: 449808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 448773

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.41	8.898		1.07	1.00	0.364	pCi/L	95	75 - 125	0.04	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	90.7		40 - 110
Y Carrier	78.9		40 - 110

QC Association Summary

Client: SCS Engineers
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Rad

Prep Batch: 448655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	PrecSep-21	
310-168794-3	MW-303	Total/NA	Water	PrecSep-21	
310-168794-4	MW-304	Total/NA	Water	PrecSep-21	
310-168794-5	MW-305	Total/NA	Water	PrecSep-21	
310-168794-6	MW-306	Total/NA	Water	PrecSep-21	
310-168794-7	MW-307	Total/NA	Water	PrecSep-21	
310-168794-8	MW-308	Total/NA	Water	PrecSep-21	
310-168794-9	MW-309	Total/NA	Water	PrecSep-21	
310-168794-10	MW-310	Total/NA	Water	PrecSep-21	
310-168794-11	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-448655/19-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-448655/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-448655/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 448658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	PrecSep_0	
310-168794-3	MW-303	Total/NA	Water	PrecSep_0	
310-168794-4	MW-304	Total/NA	Water	PrecSep_0	
310-168794-5	MW-305	Total/NA	Water	PrecSep_0	
310-168794-6	MW-306	Total/NA	Water	PrecSep_0	
310-168794-7	MW-307	Total/NA	Water	PrecSep_0	
310-168794-8	MW-308	Total/NA	Water	PrecSep_0	
310-168794-9	MW-309	Total/NA	Water	PrecSep_0	
310-168794-10	MW-310	Total/NA	Water	PrecSep_0	
310-168794-11	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-448658/19-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-448658/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-448658/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 448773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-2	MW-302	Total/NA	Water	PrecSep_0	
MB 160-448773/4-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-448773/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-448773/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 448774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-2	MW-302	Total/NA	Water	PrecSep-21	
MB 160-448774/4-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-448774/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-448774/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Lab Chronicle

Client: SCS Engineers
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Client Sample ID: MW-301
Lab Sample ID: 310-168794-1
Date Collected: 10/28/19 10:05
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:57	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-302
Lab Sample ID: 310-168794-2
Date Collected: 10/28/19 12:20
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448774	11/05/19 07:17	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 16:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448773	11/05/19 07:12	MNH	TAL SL
Total/NA	Analysis	904.0		1	449808	11/11/19 13:03	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-303
Lab Sample ID: 310-168794-3
Date Collected: 10/29/19 09:25
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:57	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-304
Lab Sample ID: 310-168794-4
Date Collected: 10/29/19 11:40
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:57	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Lab Chronicle

Client: SCS Engineers
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Client Sample ID: MW-305
Lab Sample ID: 310-168794-5
Date Collected: 10/29/19 14:02
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:57	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-306
Lab Sample ID: 310-168794-6
Date Collected: 10/29/19 15:12
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-307
Lab Sample ID: 310-168794-7
Date Collected: 10/28/19 14:55
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-308
Lab Sample ID: 310-168794-8
Date Collected: 10/28/19 13:50
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 05:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Lab Chronicle

Client: SCS Engineers
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Client Sample ID: MW-309
Lab Sample ID: 310-168794-9
Date Collected: 10/29/19 10:40
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452270	11/27/19 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: MW-310
Lab Sample ID: 310-168794-10
Date Collected: 10/29/19 13:05
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 07:42	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

Client Sample ID: Field Blank
Lab Sample ID: 310-168794-11
Date Collected: 10/28/19 23:59
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			448655	11/04/19 07:08	MNH	TAL SL
Total/NA	Analysis	903.0		1	452205	11/27/19 07:42	SCB	TAL SL
Total/NA	Prep	PrecSep_0			448658	11/04/19 07:26	MNH	TAL SL
Total/NA	Analysis	904.0		1	449855	11/12/19 12:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Pos		1	452601	12/02/19 09:21	SMP	TAL SL

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

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20

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

Method Summary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-2

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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310-168794 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY Clive STATE IA Project: Prairie creek

Receipt Information

Date/Time Received: DATE 103019 TIME 1725 Received By: AAP

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 1 of 3
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: N Correction Factor (°C): 0.0

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

Uncorrected Temp (°C): 3.0 Corrected Temp (°C): 3.0

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY Clive STATE IA Project: Prairie Creek

Receipt Information

Date/Time Received: DATE 103019 TIME 1725 Received By: ARP

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 3
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: N Correction Factor (°C): 0.0

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

Uncorrected Temp (°C): 1.7 Corrected Temp (°C): 1.7

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY: Clive STATE: IA Project: Prairie Creek

Receipt Information

Date/Time Received: DATE: 103019 TIME: 1725 Received By: MB

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 3 of 3
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: N Correction Factor (°C): 0.0

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

Uncorrected Temp (°C): 0.4 Corrected Temp (°C): 0.4

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing TestAmerica

43646

Client Information	Sampler: Louise Jennings	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-43666-14045.1
Client Contact: Louise Jennings	Phone: 608 509 8245	E-Mail: sandie.fredrick@testamericainc.com		Page: Page 1 of 2
Company: SCS Engineers				Job #:
Address: 8450 Hickman Road Suite 20	Due Date Requested:			
City: Clive	TAT Requested (days): Standard			
State, Zip: IA, 50325				
Phone:	PO #: 25216074.17			
Email: ljennings@scsengineers.com	WO #:			
Project Name: Prairie Creek CCR 25216074.17	Project #: 31011020			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A, 7470A	2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+	903.0 - Radium 226	904.0 - Radium 228	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	D	D	X	
MW-301	10.28.19	1005	G	Water			X	X	X	X		
MW-302	10.28.19	1220		Water								
MW-303	10.29.19	0925		Water								
MW-304	10.29.19	1140		Water								
MW-305	10.29.19	1402		Water								
MW-306	10.29.19	1512		Water								
MW-307	10.28.19	1455		Water								
MW-308	10.28.19	1350		Water								
MW-309	10.29.19	1040		Water								
MW-310	10.29.19	1305		Water								
Field Blank	10.28.19	2359		Water								

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 10.29.19 1800	Company: SCS	Received by:	Date/Time: 103019 1725	Company: ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Container Summary Report

emperature readings: _____

lient Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
1W-301	310-168794-A-1	Plastic 250ml - with Nitric Acid	<2		
1W-301	310-168794-C-1	Plastic 1 liter - Nitric Acid	<2		
1W-301	310-168794-D-1	Plastic 1 liter - Nitric Acid	<2		
1W-302	310-168794-A-2	Plastic 250ml - with Nitric Acid	<2		
1W-302	310-168794-C-2	Plastic 1 liter - Nitric Acid	<2		
1W-302	310-168794-D-2	Plastic 1 liter - Nitric Acid	<2		
1W-303	310-168794-A-3	Plastic 250ml - with Nitric Acid	<2		
1W-303	310-168794-C-3	Plastic 1 liter - Nitric Acid	<2		
1W-303	310-168794-D-3	Plastic 1 liter - Nitric Acid	<2		
MW-304	310-168794-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-304	310-168794-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-304	310-168794-D-4	Plastic 1 liter - Nitric Acid	<2		
MW-305	310-168794-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-305	310-168794-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-305	310-168794-D-5	Plastic 1 liter - Nitric Acid	<2		
MW-306	310-168794-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-306	310-168794-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-306	310-168794-D-6	Plastic 1 liter - Nitric Acid	<2		
MW-307	310-168794-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-307	310-168794-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-307	310-168794-D-7	Plastic 1 liter - Nitric Acid	<2		
MW-308	310-168794-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-308	310-168794-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-308	310-168794-D-8	Plastic 1 liter - Nitric Acid	<2		
MW-309	310-168794-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-309	310-168794-C-9	Plastic 1 liter - Nitric Acid	<2		
MW-309	310-168794-D-9	Plastic 1 liter - Nitric Acid	<2		
MW-310	310-168794-A-10	Plastic 250ml - with Nitric Acid	<2		
MW-310	310-168794-C-10	Plastic 1 liter - Nitric Acid	<2		
MW-310	310-168794-D-10	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-168794-A-11	Plastic 250ml - with Nitric Acid	<2		
Field Blank	310-168794-C-11	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-168794-D-11	Plastic 1 liter - Nitric Acid	<2		

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Prairie Creek Generating Station / SCS Engineers Project #25216074.17

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	MW-308	MW-309	MW-310	Field Blank
Appendix III Parameters (Detection Monitoring)	Boron	X	X	X	X	X	X	X	X	X	X	X
	Calcium	X	X	X	X	X	X	X	X	X	X	X
	Chloride	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	pH	X	X	X	X	X	X	X	X	X	X	X
	Sulfate	X	X	X	X	X	X	X	X	X	X	X
	TDS	X	X	X	X	X	X	X	X	X	X	X
Appendix IV Parameters (Assessment Monitoring)	Antimony	X	X	X	X	X	X	X	X	X	X	X
	Arsenic	X	X	X	X	X	X	X	X	X	X	X
	Barium	X	X	X	X	X	X	X	X	X	X	X
	Beryllium	X	X	X	X	X	X	X	X	X	X	X
	Cadmium	X	X	X	X	X	X	X	X	X	X	X
	Chromium	X	X	X	X	X	X	X	X	X	X	X
	Cobalt	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	Lead	X	X	X	X	X	X	X	X	X	X	X
	Lithium	X	X	X	X	X	X	X	X	X	X	X
	Mercury	X	X	X	X	X	X	X	X	X	X	X
	Molybdenum	X	X	X	X	X	X	X	X	X	X	X
	Selenium	X	X	X	X	X	X	X	X	X	X	X
	Thallium	X	X	X	X	X	X	X	X	X	X	X
	Radium	X	X	X	X	X	X	X	X	X	X	X
CCR Rule Field Parameters	Groundwater Elevation	X	X	X	X	X	X	X	X	X	X	
	pH	X	X	X	X	X	X	X	X	X	X	
Low-Flow Sampling Field Parameters	Well Depth	X	X	X	X	X	X	X	X	X	X	
	Specific Conductance	X	X	X	X	X	X	X	X	X	X	
	Dissolved Oxygen	X	X	X	X	X	X	X	X	X	X	
	ORP	X	X	X	X	X	X	X	X	X	X	
	Temperature	X	X	X	X	X	X	X	X	X	X	
	Turbidity	X	X	X	X	X	X	X	X	X	X	
	Color	X	X	X	X	X	X	X	X	X	X	
	Odor	X	X	X	X	X	X	X	X	X	X	

Notes: All samples are unfiltered (total).

C:\Users\FredrickS\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\36W3VFVX\[Table_1_PCS_CCR_Rule_Sam

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-168794-2

Login Number: 168794
List Number: 1
Creator: Bindert, Lindsay A

List Source: Eurofins TestAmerica, Cedar Falls

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

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-168794-2

Login Number: 168794
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 11/01/19 10:25 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.	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.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	24.0
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
Job ID: 310-168794-2
Project/Site: Prairie Creek CCR 25216074.17

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
310-168794-1	MW-301	88.6
310-168794-2	MW-302	84.7
310-168794-3	MW-303	80.5
310-168794-4	MW-304	84.1
310-168794-5	MW-305	81.4
310-168794-6	MW-306	83.5
310-168794-7	MW-307	88.0
310-168794-8	MW-308	87.1
310-168794-9	MW-309	90.1
310-168794-10	MW-310	88.0
310-168794-11	Field Blank	94.0
LCS 160-448655/1-A	Lab Control Sample	86.2
LCS 160-448774/1-A	Lab Control Sample	91.6
LCSD 160-448655/2-A	Lab Control Sample Dup	90.1
LCSD 160-448774/2-A	Lab Control Sample Dup	90.7
MB 160-448655/19-A	Method Blank	86.8
MB 160-448774/4-A	Method Blank	92.8

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
310-168794-1	MW-301	88.6	81.1
310-168794-2	MW-302	84.7	80.0
310-168794-3	MW-303	80.5	79.3
310-168794-4	MW-304	84.1	79.6
310-168794-5	MW-305	81.4	80.7
310-168794-6	MW-306	83.5	82.6
310-168794-7	MW-307	88.0	83.0
310-168794-8	MW-308	87.1	80.0
310-168794-9	MW-309	90.1	79.6
310-168794-10	MW-310	88.0	80.4
310-168794-11	Field Blank	94.0	80.4
LCS 160-448658/1-A	Lab Control Sample	86.2	81.9
LCS 160-448773/1-A	Lab Control Sample	91.6	81.9
LCSD 160-448658/2-A	Lab Control Sample Dup	90.1	83.7
LCSD 160-448773/2-A	Lab Control Sample Dup	90.7	78.9
MB 160-448658/19-A	Method Blank	86.8	77.4
MB 160-448773/4-A	Method Blank	92.8	82.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 310-168794-1
Client Project/Site: Prairie Creek CCR 25216074.17

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
11/18/2019 8:20:42 PM

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

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

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

Table of Contents

Case Narrative

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Job ID: 310-168794-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-168794-1

Comments
No additional comments.

Receipt
The samples were received on 10/30/2019 5:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.4º C, 1.7º C and 3.0º C.

HPLC/IC
Methods 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW-301 (310-168794-1), MW-302 (310-168794-2), MW-305 (310-168794-5), MW-306 (310-168794-6), MW-307 (310-168794-7) and MW-308 (310-168794-8). Elevated reporting limits (RLs) are provided.

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

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

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

Sample Summary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-168794-1	MW-301	Water	10/28/19 10:05	10/30/19 17:25	
310-168794-2	MW-302	Water	10/28/19 12:20	10/30/19 17:25	
310-168794-3	MW-303	Water	10/29/19 09:25	10/30/19 17:25	
310-168794-4	MW-304	Water	10/29/19 11:40	10/30/19 17:25	
310-168794-5	MW-305	Water	10/29/19 14:02	10/30/19 17:25	
310-168794-6	MW-306	Water	10/29/19 15:12	10/30/19 17:25	
310-168794-7	MW-307	Water	10/28/19 14:55	10/30/19 17:25	
310-168794-8	MW-308	Water	10/28/19 13:50	10/30/19 17:25	
310-168794-9	MW-309	Water	10/29/19 10:40	10/30/19 17:25	
310-168794-10	MW-310	Water	10/29/19 13:05	10/30/19 17:25	
310-168794-11	Field Blank	Water	10/28/19 23:59	10/30/19 17:25	

Detection Summary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-301 — Lab Sample ID: 310-168794-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	46		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	110		5.0	1.8	mg/L	5		9056A	Total/NA
Barium	270		2.0	0.84	ug/L	1		6020A	Total/NA
Cadmium	0.064	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	160		0.50	0.10	mg/L	1		6020A	Total/NA
Chromium	5.4		5.0	0.98	ug/L	1		6020A	Total/NA
Cobalt	0.12	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	12		10	2.7	ug/L	1		6020A	Total/NA
Selenium	1.7	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	680	B	30	24	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	715.86				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-7.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.63				mg/L	1		Field Sampling	Total/NA
pH, Field	6.69				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1036				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.34				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.8				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302 — Lab Sample ID: 310-168794-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	23		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	72		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	7.0		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	220		2.0	0.84	ug/L	1		6020A	Total/NA
Cadmium	0.053	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	81		0.50	0.10	mg/L	1		6020A	Total/NA
Chromium	2.1	J	5.0	0.98	ug/L	1		6020A	Total/NA
Cobalt	1.2		0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	5.3	J	10	2.7	ug/L	1		6020A	Total/NA
Selenium	1.1	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	420	B	30	24	mg/L	1		SM 2540C	Total/NA
pH	6.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	715.27				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-5.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.8				mg/L	1		Field Sampling	Total/NA
pH, Field	6.37				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	587				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.74				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	6.92				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303 — Lab Sample ID: 310-168794-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.51		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	95		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	52		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	120		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	940		200	110	ug/L	1		6020A	Total/NA
Calcium	120		0.50	0.10	mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-303 (Continued)

Lab Sample ID: 310-168794-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.87		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.43	J	0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	17		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	20		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	580		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	704.10				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-139.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.35				mg/L	1		Field Sampling	Total/NA
pH, Field	7.12				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	981				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.47				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-168794-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.51		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	110		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	1.5		1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	14		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	110		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	610		200	110	ug/L	1		6020A	Total/NA
Cadmium	0.074	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	96		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	1.2		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.27	J	0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	13		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	31		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	490		30	24	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	704.15				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-74.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.28				mg/L	1		Field Sampling	Total/NA
pH, Field	6.90				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	816				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	15.67				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.96				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-168794-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.31	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	210		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	1.0		1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	7.3		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	130		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	890		200	110	ug/L	1		6020A	Total/NA
Cadmium	0.053	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	130		0.50	0.10	mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-305 (Continued)

Lab Sample ID: 310-168794-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.77		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.56		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	14		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	32		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	650		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.1	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	704.17				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-11.9				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.30				mg/L	1		Field Sampling	Total/NA
pH, Field	6.89				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	980				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	15.87				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.79				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-168794-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	23		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	140		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	1.6	J	2.0	0.75	ug/L	1		6020A	Total/NA
Barium	82		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	2400		200	110	ug/L	1		6020A	Total/NA
Cadmium	0.095	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	61		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.26	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.31	J	0.50	0.27	ug/L	1		6020A	Total/NA
Molybdenum	230		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	400		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	704.40				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-145.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.29				mg/L	1		Field Sampling	Total/NA
pH, Field	7.63				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	633				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.56				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	8.16				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307

Lab Sample ID: 310-168794-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3.5	J	5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.67		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	32		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	1.2		1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	7.4		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	34		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	730		200	110	ug/L	1		6020A	Total/NA
Calcium	18		0.50	0.10	mg/L	1		6020A	Total/NA
Lithium	15		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	5.2		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	140	B	30	24	mg/L	1		SM 2540C	Total/NA
pH	9.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-307 (Continued) — Lab Sample ID: 310-168794-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ground Water Elevation	708.57				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-29.9				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.27				mg/L	1		Field Sampling	Total/NA
pH, Field	9.58				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	157				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	18.43				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.16				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-308 — Lab Sample ID: 310-168794-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.26	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	190		5.0	1.8	mg/L	5		9056A	Total/NA
Antimony	1.7		1.0	0.53	ug/L	1		6020A	Total/NA
Arsenic	63		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	38		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	6100		800	440	ug/L	4		6020A	Total/NA
Cadmium	0.077	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	60		0.50	0.10	mg/L	1		6020A	Total/NA
Lithium	31		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	58		2.0	1.1	ug/L	1		6020A	Total/NA
Selenium	2.2	J	5.0	1.0	ug/L	1		6020A	Total/NA
Total Dissolved Solids	460	B	30	24	mg/L	1		SM 2540C	Total/NA
pH	9.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	706.31				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-58.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.43				mg/L	1		Field Sampling	Total/NA
pH, Field	9.19				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	618				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	15.05				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.44				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-309 — Lab Sample ID: 310-168794-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.68		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	130		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	140		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	130		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	1000		200	110	ug/L	1		6020A	Total/NA
Calcium	120		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.42	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.54		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	15		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	19		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	550		30	24	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	703.84				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-103.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	7.45				mg/L	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-309 (Continued) — Lab Sample ID: 310-168794-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH, Field	7.33				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	931				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	18.60				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	4.96				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-310 — Lab Sample ID: 310-168794-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.53		0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	130		5.0	1.8	mg/L	5		9056A	Total/NA
Arsenic	31		2.0	0.75	ug/L	1		6020A	Total/NA
Barium	130		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	950		200	110	ug/L	1		6020A	Total/NA
Calcium	88		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	0.17	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lithium	15		10	2.7	ug/L	1		6020A	Total/NA
Molybdenum	60		2.0	1.1	ug/L	1		6020A	Total/NA
Total Dissolved Solids	430		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	703.71				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-129.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	7.59				mg/L	1		Field Sampling	Total/NA
pH, Field	7.30				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	801				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	16.48				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.03				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank — Lab Sample ID: 310-168794-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	0.24	J	0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	30	B	30	24	mg/L	1		SM 2540C	Total/NA
pH	6.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-301

Date Collected: 10/28/19 10:05
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**46**		5.0	1.5	mg/L			11/06/19 11:56	5
Fluoride	<0.23		0.50	0.23	mg/L			11/06/19 11:56	5
Sulfate	**110**		5.0	1.8	mg/L			11/06/19 11:56	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 13:43	1
Arsenic	<0.75		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 13:43	1
Barium	**270**		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 13:43	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:43	1
Boron	<110		200	110	ug/L		11/01/19 08:00	11/04/19 13:43	1
Cadmium	**0.064**	**J**	0.10	0.039	ug/L		11/01/19 08:00	11/04/19 13:43	1
Calcium	**160**		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 13:43	1
Chromium	**5.4**		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 13:43	1
Cobalt	**0.12**	**J**	0.50	0.091	ug/L		11/01/19 08:00	11/04/19 13:43	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 13:43	1
Lithium	**12**		10	2.7	ug/L		11/01/19 08:00	11/04/19 13:43	1
Molybdenum	<1.1		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 13:43	1
Selenium	**1.7**	**J**	5.0	1.0	ug/L		11/01/19 08:00	11/04/19 13:43	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:43	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		10/31/19 13:05	11/01/19 15:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**680**	**B**	30	24	mg/L			11/01/19 12:09	1
pH	**6.9**	**HF**	0.1	0.1	SU			10/30/19 18:58	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**715.86**				ft			10/28/19 10:05	1
Oxidation Reduction Potential	**-7.3**				millivolts			10/28/19 10:05	1
Oxygen, Dissolved, Client Supplied	**4.63**				mg/L			10/28/19 10:05	1
pH, Field	**6.69**				SU			10/28/19 10:05	1
Specific Conductance, Field	**1036**				umhos/cm			10/28/19 10:05	1
Temperature, Field	**11.34**				Degrees C			10/28/19 10:05	1
Turbidity, Field	**2.8**				NTU			10/28/19 10:05	1

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-302

Date Collected: 10/28/19 12:20
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23**		5.0	1.5	mg/L			11/05/19 12:12	5
Fluoride	<0.23		0.50	0.23	mg/L			11/05/19 12:12	5
Sulfate	**72**		5.0	1.8	mg/L			11/05/19 12:12	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 13:45	1
Arsenic	**7.0**		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 13:45	1
Barium	**220**		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 13:45	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:45	1
Boron	<110		200	110	ug/L		11/01/19 08:00	11/04/19 13:45	1
Cadmium	**0.053**	**J**	0.10	0.039	ug/L		11/01/19 08:00	11/04/19 13:45	1
Calcium	**81**		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 13:45	1
Chromium	**2.1**	**J**	5.0	0.98	ug/L		11/01/19 08:00	11/04/19 13:45	1
Cobalt	**1.2**		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 13:45	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 13:45	1
Lithium	**5.3**	**J**	10	2.7	ug/L		11/01/19 08:00	11/04/19 13:45	1
Molybdenum	<1.1		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 13:45	1
Selenium	**1.1**	**J**	5.0	1.0	ug/L		11/01/19 08:00	11/04/19 13:45	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:45	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		10/31/19 13:05	11/01/19 15:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**420**	**B**	30	24	mg/L			11/01/19 12:09	1
pH	**6.6**	**HF**	0.1	0.1	SU			10/30/19 19:01	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**715.27**				ft			10/28/19 12:20	1
Oxidation Reduction Potential	**-5.8**				millivolts			10/28/19 12:20	1
Oxygen, Dissolved, Client Supplied	**1.8**				mg/L			10/28/19 12:20	1
pH, Field	**6.37**				SU			10/28/19 12:20	1
Specific Conductance, Field	**587**				umhos/cm			10/28/19 12:20	1
Temperature, Field	**13.74**				Degrees C			10/28/19 12:20	1
Turbidity, Field	**6.92**				NTU			10/28/19 12:20	1

Client Sample Results

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-303

Date Collected: 10/29/19 09:25
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**20**		5.0	1.5	mg/L			11/05/19 12:28	5
Fluoride	**0.51**		0.50	0.23	mg/L			11/05/19 12:28	5
Sulfate	**95**		5.0	1.8	mg/L			11/05/19 12:28	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 13:48	1
Arsenic	**52**		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 13:48	1
Barium	**120**		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 13:48	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:48	1
Boron	**940**		200	110	ug/L		11/01/19 08:00	11/04/19 13:48	1
Cadmium	<0.039		0.10	0.039	ug/L		11/01/19 08:00	11/04/19 13:48	1
Calcium	**120**		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 13:48	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 13:48	1
Cobalt	**0.87**		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 13:48	1
Lead	**0.43**	**J**	0.50	0.27	ug/L		11/01/19 08:00	11/04/19 13:48	1
Lithium	**17**		10	2.7	ug/L		11/01/19 08:00	11/04/19 13:48	1
Molybdenum	**20**		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 13:48	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 13:48	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:48	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		10/31/19 13:05	11/01/19 15:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**580**		30	24	mg/L			11/05/19 11:05	1
pH	**7.2**	**HF**	0.1	0.1	SU			10/30/19 19:02	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**704.10**				ft			10/29/19 09:25	1
Oxidation Reduction Potential	**-139.1**				millivolts			10/29/19 09:25	1
Oxygen, Dissolved, Client Supplied	**0.35**				mg/L			10/29/19 09:25	1
pH, Field	**7.12**				SU			10/29/19 09:25	1
Specific Conductance, Field	**981**				umhos/cm			10/29/19 09:25	1
Temperature, Field	**14.47**				Degrees C			10/29/19 09:25	1
Turbidity, Field	**3.02**				NTU			10/29/19 09:25	1

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-304

Date Collected: 10/29/19 11:40
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		5.0	1.5	mg/L			11/05/19 12:43	5
Fluoride	0.51		0.50	0.23	mg/L			11/05/19 12:43	5
Sulfate	110		5.0	1.8	mg/L			11/05/19 12:43	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.5		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 13:58	1
Arsenic	14		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 13:58	1
Barium	110		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 13:58	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:58	1
Boron	610		200	110	ug/L		11/01/19 08:00	11/04/19 13:58	1
Cadmium	0.074	J	0.10	0.039	ug/L		11/01/19 08:00	11/04/19 13:58	1
Calcium	96		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 13:58	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 13:58	1
Cobalt	1.2		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 13:58	1
Lead	0.27	J	0.50	0.27	ug/L		11/01/19 08:00	11/04/19 13:58	1
Lithium	13		10	2.7	ug/L		11/01/19 08:00	11/04/19 13:58	1
Molybdenum	31		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 13:58	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 13:58	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 13:58	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		10/31/19 13:05	11/01/19 15:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	490		30	24	mg/L			11/05/19 11:05	1
pH	7.0	HF	0.1	0.1	SU			10/30/19 19:03	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	704.15				ft			10/29/19 11:40	1
Oxidation Reduction Potential	-74.3				millivolts			10/29/19 11:40	1
Oxygen, Dissolved, Client Supplied	0.28				mg/L			10/29/19 11:40	1
pH, Field	6.90				SU			10/29/19 11:40	1
Specific Conductance, Field	816				umhos/cm			10/29/19 11:40	1
Temperature, Field	15.67				Degrees C			10/29/19 11:40	1
Turbidity, Field	2.96				NTU			10/29/19 11:40	1

Client Sample Results

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-305

Date Collected: 10/29/19 14:02
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		5.0	1.5	mg/L			11/05/19 12:59	5
Fluoride	0.31	J	0.50	0.23	mg/L			11/05/19 12:59	5
Sulfate	210		5.0	1.8	mg/L			11/05/19 12:59	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.0		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:01	1
Arsenic	7.3		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:01	1
Barium	130		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:01	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:01	1
Boron	890		200	110	ug/L		11/01/19 08:00	11/04/19 14:01	1
Cadmium	0.053	J	0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:01	1
Calcium	130		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:01	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:01	1
Cobalt	0.77		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:01	1
Lead	0.56		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:01	1
Lithium	14		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:01	1
Molybdenum	32		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:01	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:01	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:01	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		10/31/19 13:05	11/01/19 15:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	650		30	24	mg/L			11/05/19 11:05	1
pH	7.1	HF	0.1	0.1	SU			10/30/19 19:04	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	704.17				ft			10/29/19 14:02	1
Oxidation Reduction Potential	-11.9				millivolts			10/29/19 14:02	1
Oxygen, Dissolved, Client Supplied	0.30				mg/L			10/29/19 14:02	1
pH, Field	6.89				SU			10/29/19 14:02	1
Specific Conductance, Field	980				umhos/cm			10/29/19 14:02	1
Temperature, Field	15.87				Degrees C			10/29/19 14:02	1
Turbidity, Field	1.79				NTU			10/29/19 14:02	1

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-306

Date Collected: 10/29/19 15:12
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23**		5.0	1.5	mg/L			11/05/19 13:14	5
Fluoride	<0.23		0.50	0.23	mg/L			11/05/19 13:14	5
Sulfate	**140**		5.0	1.8	mg/L			11/05/19 13:14	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:06	1
Arsenic	**1.6**	**J**	2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:06	1
Barium	**82**		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:06	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:06	1
Boron	**2400**		200	110	ug/L		11/01/19 08:00	11/04/19 14:06	1
Cadmium	**0.095**	**J**	0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:06	1
Calcium	**61**		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:06	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:06	1
Cobalt	**0.26**	**J**	0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:06	1
Lead	**0.31**	**J**	0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:06	1
Lithium	<2.7		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:06	1
Molybdenum	**230**		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:06	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:06	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:06	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		10/31/19 13:05	11/01/19 15:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**400**		30	24	mg/L			11/05/19 11:05	1
pH	**7.6**	**HF**	0.1	0.1	SU			10/30/19 19:06	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**704.40**				ft			10/29/19 15:12	1
Oxidation Reduction Potential	**-145.7**				millivolts			10/29/19 15:12	1
Oxygen, Dissolved, Client Supplied	**0.29**				mg/L			10/29/19 15:12	1
pH, Field	**7.63**				SU			10/29/19 15:12	1
Specific Conductance, Field	**633**				umhos/cm			10/29/19 15:12	1
Temperature, Field	**12.56**				Degrees C			10/29/19 15:12	1
Turbidity, Field	**8.16**				NTU			10/29/19 15:12	1

Client Sample Results

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-307

Date Collected: 10/28/19 14:55
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-7

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.5	J	5.0	1.5	mg/L			11/05/19 13:30	5
Fluoride	0.67		0.50	0.23	mg/L			11/05/19 13:30	5
Sulfate	32		5.0	1.8	mg/L			11/05/19 13:30	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.2		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:09	1
Arsenic	7.4		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:09	1
Barium	34		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:09	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:09	1
Boron	730		200	110	ug/L		11/01/19 08:00	11/04/19 14:09	1
Cadmium	<0.039		0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:09	1
Calcium	18		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:09	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:09	1
Cobalt	<0.091		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:09	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:09	1
Lithium	15		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:09	1
Molybdenum	5.2		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:09	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:09	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:09	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		10/31/19 13:05	11/01/19 15:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	140	B	30	24	mg/L			11/01/19 12:09	1
pH	9.6	HF	0.1	0.1	SU			10/30/19 19:08	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	708.57				ft			10/28/19 14:55	1
Oxidation Reduction Potential	-29.9				millivolts			10/28/19 14:55	1
Oxygen, Dissolved, Client Supplied	0.27				mg/L			10/28/19 14:55	1
pH, Field	9.58				SU			10/28/19 14:55	1
Specific Conductance, Field	157				umhos/cm			10/28/19 14:55	1
Temperature, Field	18.43				Degrees C			10/28/19 14:55	1
Turbidity, Field	2.16				NTU			10/28/19 14:55	1

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-308

Date Collected: 10/28/19 13:50
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-8

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		5.0	1.5	mg/L			11/05/19 15:03	5
Fluoride	0.26	J	0.50	0.23	mg/L			11/05/19 15:03	5
Sulfate	190		5.0	1.8	mg/L			11/05/19 15:03	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.7		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:11	1
Arsenic	63		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:11	1
Barium	38		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:11	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:11	1
Boron	6100		800	440	ug/L		11/01/19 08:00	11/05/19 15:44	4
Cadmium	0.077	J	0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:11	1
Calcium	60		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:11	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:11	1
Cobalt	<0.091		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:11	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:11	1
Lithium	31		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:11	1
Molybdenum	58		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:11	1
Selenium	2.2	J	5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:11	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:11	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		10/31/19 13:05	11/01/19 15:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	460	B	30	24	mg/L			11/01/19 12:09	1
pH	9.2	HF	0.1	0.1	SU			10/30/19 19:09	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	706.31				ft			10/28/19 13:50	1
Oxidation Reduction Potential	-58.1				millivolts			10/28/19 13:50	1
Oxygen, Dissolved, Client Supplied	0.43				mg/L			10/28/19 13:50	1
pH, Field	9.19				SU			10/28/19 13:50	1
Specific Conductance, Field	618				umhos/cm			10/28/19 13:50	1
Temperature, Field	15.05				Degrees C			10/28/19 13:50	1
Turbidity, Field	2.44				NTU			10/28/19 13:50	1

Client Sample Results

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-309

Date Collected: 10/29/19 10:40
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-9

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**18**		5.0	1.5	mg/L			11/05/19 13:45	5
Fluoride	**0.68**		0.50	0.23	mg/L			11/05/19 13:45	5
Sulfate	**130**		5.0	1.8	mg/L			11/05/19 13:45	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:14	1
Arsenic	**140**		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:14	1
Barium	**130**		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:14	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:14	1
Boron	**1000**		200	110	ug/L		11/01/19 08:00	11/04/19 14:14	1
Cadmium	<0.039		0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:14	1
Calcium	**120**		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:14	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:14	1
Cobalt	**0.42**	**J**	0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:14	1
Lead	**0.54**		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:14	1
Lithium	**15**		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:14	1
Molybdenum	**19**		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:14	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:14	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:14	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		10/31/19 13:05	11/01/19 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**550**		30	24	mg/L			11/05/19 11:05	1
pH	**7.4**	**HF**	0.1	0.1	SU			10/30/19 19:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	**703.84**				ft			10/29/19 10:40	1
Oxidation Reduction Potential	**-103.8**				millivolts			10/29/19 10:40	1
Oxygen, Dissolved, Client Supplied	**7.45**				mg/L			10/29/19 10:40	1
pH, Field	**7.33**				SU			10/29/19 10:40	1
Specific Conductance, Field	**931**				umhos/cm			10/29/19 10:40	1
Temperature, Field	**18.60**				Degrees C			10/29/19 10:40	1
Turbidity, Field	**4.96**				NTU			10/29/19 10:40	1

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-310

Date Collected: 10/29/19 13:05
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-10

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		5.0	1.5	mg/L			11/05/19 14:32	5
Fluoride	0.53		0.50	0.23	mg/L			11/05/19 14:32	5
Sulfate	130		5.0	1.8	mg/L			11/05/19 14:32	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:17	1
Arsenic	31		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:17	1
Barium	130		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:17	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:17	1
Boron	950		200	110	ug/L		11/01/19 08:00	11/04/19 14:17	1
Cadmium	<0.039		0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:17	1
Calcium	88		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:17	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:17	1
Cobalt	0.17	J	0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:17	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:17	1
Lithium	15		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:17	1
Molybdenum	60		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:17	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:17	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:17	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		10/31/19 13:05	11/01/19 15:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	430		30	24	mg/L			11/05/19 11:05	1
pH	7.3	HF	0.1	0.1	SU			10/30/19 19:16	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	703.71				ft			10/29/19 13:05	1
Oxidation Reduction Potential	-129.8				millivolts			10/29/19 13:05	1
Oxygen, Dissolved, Client Supplied	7.59				mg/L			10/29/19 13:05	1
pH, Field	7.30				SU			10/29/19 13:05	1
Specific Conductance, Field	801				umhos/cm			10/29/19 13:05	1
Temperature, Field	16.48				Degrees C			10/29/19 13:05	1
Turbidity, Field	3.03				NTU			10/29/19 13:05	1

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: Field Blank

Lab Sample ID: 310-168794-11

Date Collected: 10/28/19 23:59

Matrix: Water

Date Received: 10/30/19 17:25

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			11/05/19 15:19	1
Fluoride	<0.045		0.10	0.045	mg/L			11/05/19 15:19	1
Sulfate	<0.35		1.0	0.35	mg/L			11/05/19 15:19	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 14:19	1
Arsenic	<0.75		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 14:19	1
Barium	<0.84		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 14:19	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:19	1
Boron	<110		200	110	ug/L		11/01/19 08:00	11/04/19 14:19	1
Cadmium	<0.039		0.10	0.039	ug/L		11/01/19 08:00	11/04/19 14:19	1
Calcium	**0.24**	**J**	0.50	0.10	mg/L		11/01/19 08:00	11/04/19 14:19	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 14:19	1
Cobalt	<0.091		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 14:19	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 14:19	1
Lithium	<2.7		10	2.7	ug/L		11/01/19 08:00	11/04/19 14:19	1
Molybdenum	<1.1		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 14:19	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 14:19	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 14:19	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		10/31/19 13:05	11/01/19 15:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**30**	**B**	30	24	mg/L			11/01/19 12:09	1
pH	**6.0**	**HF**	0.1	0.1	SU			10/30/19 19:24	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance 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
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-259791/3
Matrix: Water
Analysis Batch: 259791

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			11/05/19 04:58	1
Fluoride	<0.045		0.10	0.045	mg/L			11/05/19 04:58	1
Sulfate	<0.35		1.0	0.35	mg/L			11/05/19 04:58	1

Lab Sample ID: LCS 310-259791/4
Matrix: Water
Analysis Batch: 259791

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	9.86		mg/L		99	90 - 110
Fluoride	2.00	1.99		mg/L		99	90 - 110
Sulfate	10.0	9.76		mg/L		98	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-259037/1-A
Matrix: Water
Analysis Batch: 259465

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 259037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		11/01/19 08:00	11/04/19 12:36	1
Arsenic	<0.75		2.0	0.75	ug/L		11/01/19 08:00	11/04/19 12:36	1
Barium	<0.84		2.0	0.84	ug/L		11/01/19 08:00	11/04/19 12:36	1
Beryllium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 12:36	1
Boron	<110		200	110	ug/L		11/01/19 08:00	11/04/19 12:36	1
Cadmium	<0.039		0.10	0.039	ug/L		11/01/19 08:00	11/04/19 12:36	1
Calcium	<0.10		0.50	0.10	mg/L		11/01/19 08:00	11/04/19 12:36	1
Chromium	<0.98		5.0	0.98	ug/L		11/01/19 08:00	11/04/19 12:36	1
Cobalt	<0.091		0.50	0.091	ug/L		11/01/19 08:00	11/04/19 12:36	1
Lead	<0.27		0.50	0.27	ug/L		11/01/19 08:00	11/04/19 12:36	1
Lithium	<2.7		10	2.7	ug/L		11/01/19 08:00	11/04/19 12:36	1
Molybdenum	<1.1		2.0	1.1	ug/L		11/01/19 08:00	11/04/19 12:36	1
Selenium	<1.0		5.0	1.0	ug/L		11/01/19 08:00	11/04/19 12:36	1
Thallium	<0.27		1.0	0.27	ug/L		11/01/19 08:00	11/04/19 12:36	1

Lab Sample ID: LCS 310-259037/2-A
Matrix: Water
Analysis Batch: 259465

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 259037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	70.3		ug/L		88	80 - 120
Barium	80.0	78.7		ug/L		98	80 - 120
Beryllium	40.0	39.3		ug/L		98	80 - 120
Boron	1760	1690		ug/L		96	80 - 120
Cadmium	40.0	38.9		ug/L		97	80 - 120
Calcium	4.00	4.45		mg/L		111	80 - 120
Chromium	80.0	78.0		ug/L		97	80 - 120
Cobalt	40.0	38.4		ug/L		96	80 - 120
Lead	40.0	39.2		ug/L		98	80 - 120

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

Lab Sample ID: LCS 310-259037/2-A
Matrix: Water
Analysis Batch: 259465

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 259037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	200	192		ug/L		96	80 - 120
Selenium	80.0	74.2		ug/L		93	80 - 120
Thallium	32.0	29.2		ug/L		91	80 - 120

Lab Sample ID: LCS 310-259037/2-A
Matrix: Water
Analysis Batch: 259697

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 259037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	37.3		ug/L		93	80 - 120
Molybdenum	80.0	74.9		ug/L		94	80 - 120

Lab Sample ID: 310-168794-5 DU
Matrix: Water
Analysis Batch: 259465

Client Sample ID: MW-305
Prep Type: Total/NA
Prep Batch: 259037

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	7.3		7.31		ug/L		0.4	20
Barium	130		125		ug/L		2	20
Beryllium	<0.27		<0.27		ug/L		NC	20
Boron	890		904		ug/L		2	20
Cadmium	0.053	J	0.0470	J	ug/L		12	20
Calcium	130		130		mg/L		1	20
Chromium	<0.98		<0.98		ug/L		NC	20
Cobalt	0.77		0.690		ug/L		11	20
Lead	0.56		<0.27		ug/L		NC	20
Lithium	14		15.3		ug/L		8	20
Selenium	<1.0		<1.0		ug/L		NC	20
Thallium	<0.27		<0.27		ug/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-258997/1-A
Matrix: Water
Analysis Batch: 259222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 258997

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		10/31/19 13:05	11/01/19 14:29	1

Lab Sample ID: LCS 310-258997/2-A
Matrix: Water
Analysis Batch: 259222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 258997

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.67	1.35		ug/L		81	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 310-168794-11 MS
Matrix: Water
Analysis Batch: 259222

Client Sample ID: Field Blank
Prep Type: Total/NA
Prep Batch: 258997

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.10	F1	1.67	1.09	F1	ug/L		65	80 - 120

Lab Sample ID: 310-168794-11 MSD
Matrix: Water
Analysis Batch: 259222

Client Sample ID: Field Blank
Prep Type: Total/NA
Prep Batch: 258997

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.10	F1	1.67	1.17	F1	ug/L		70	80 - 120	8	20

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

Lab Sample ID: MB 310-259162/1
Matrix: Water
Analysis Batch: 259162

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	26.0	J	30	24	mg/L			11/01/19 12:09	1

Lab Sample ID: LCS 310-259162/2
Matrix: Water
Analysis Batch: 259162

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: 310-168794-2 DU
Matrix: Water
Analysis Batch: 259162

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	420	B	388		mg/L		9	24

Lab Sample ID: MB 310-259585/1
Matrix: Water
Analysis Batch: 259585

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			11/05/19 11:05	1

Lab Sample ID: LCS 310-259585/2
Matrix: Water
Analysis Batch: 259585

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	946		mg/L		95	90 - 110

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

Lab Sample ID: 310-168794-5 DU
Matrix: Water
Analysis Batch: 259585

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	650			642		mg/L				0.9	24

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-258879/108
Matrix: Water
Analysis Batch: 258879

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

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

Lab Sample ID: LCS 310-258879/81
Matrix: Water
Analysis Batch: 258879

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: 310-168794-1 DU
Matrix: Water
Analysis Batch: 258879

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.9	HF		7.0		SU				0.7	20

Lab Sample ID: 310-168794-10 DU
Matrix: Water
Analysis Batch: 258879

Client Sample ID: MW-310
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.3	HF		7.3		SU				0.3	20

HPLC/IC

Analysis Batch: 259791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	9056A	
310-168794-2	MW-302	Total/NA	Water	9056A	
310-168794-3	MW-303	Total/NA	Water	9056A	
310-168794-4	MW-304	Total/NA	Water	9056A	
310-168794-5	MW-305	Total/NA	Water	9056A	
310-168794-6	MW-306	Total/NA	Water	9056A	
310-168794-7	MW-307	Total/NA	Water	9056A	
310-168794-8	MW-308	Total/NA	Water	9056A	
310-168794-9	MW-309	Total/NA	Water	9056A	
310-168794-10	MW-310	Total/NA	Water	9056A	
310-168794-11	Field Blank	Total/NA	Water	9056A	
MB 310-259791/3	Method Blank	Total/NA	Water	9056A	
LCS 310-259791/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 258997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	7470A	
310-168794-2	MW-302	Total/NA	Water	7470A	
310-168794-3	MW-303	Total/NA	Water	7470A	
310-168794-4	MW-304	Total/NA	Water	7470A	
310-168794-5	MW-305	Total/NA	Water	7470A	
310-168794-6	MW-306	Total/NA	Water	7470A	
310-168794-7	MW-307	Total/NA	Water	7470A	
310-168794-8	MW-308	Total/NA	Water	7470A	
310-168794-9	MW-309	Total/NA	Water	7470A	
310-168794-10	MW-310	Total/NA	Water	7470A	
310-168794-11	Field Blank	Total/NA	Water	7470A	
MB 310-258997/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-258997/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-168794-11 MS	Field Blank	Total/NA	Water	7470A	
310-168794-11 MSD	Field Blank	Total/NA	Water	7470A	

Prep Batch: 259037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	3010A	
310-168794-2	MW-302	Total/NA	Water	3010A	
310-168794-3	MW-303	Total/NA	Water	3010A	
310-168794-4	MW-304	Total/NA	Water	3010A	
310-168794-5	MW-305	Total/NA	Water	3010A	
310-168794-6	MW-306	Total/NA	Water	3010A	
310-168794-7	MW-307	Total/NA	Water	3010A	
310-168794-8	MW-308	Total/NA	Water	3010A	
310-168794-9	MW-309	Total/NA	Water	3010A	
310-168794-10	MW-310	Total/NA	Water	3010A	
310-168794-11	Field Blank	Total/NA	Water	3010A	
MB 310-259037/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-259037/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-168794-5 DU	MW-305	Total/NA	Water	3010A	

Metals

Analysis Batch: 259222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	7470A	258997
310-168794-2	MW-302	Total/NA	Water	7470A	258997
310-168794-3	MW-303	Total/NA	Water	7470A	258997
310-168794-4	MW-304	Total/NA	Water	7470A	258997
310-168794-5	MW-305	Total/NA	Water	7470A	258997
310-168794-6	MW-306	Total/NA	Water	7470A	258997
310-168794-7	MW-307	Total/NA	Water	7470A	258997
310-168794-8	MW-308	Total/NA	Water	7470A	258997
310-168794-9	MW-309	Total/NA	Water	7470A	258997
310-168794-10	MW-310	Total/NA	Water	7470A	258997
310-168794-11	Field Blank	Total/NA	Water	7470A	258997
MB 310-258997/1-A	Method Blank	Total/NA	Water	7470A	258997
LCS 310-258997/2-A	Lab Control Sample	Total/NA	Water	7470A	258997
310-168794-11 MS	Field Blank	Total/NA	Water	7470A	258997
310-168794-11 MSD	Field Blank	Total/NA	Water	7470A	258997

Analysis Batch: 259465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	6020A	259037
310-168794-2	MW-302	Total/NA	Water	6020A	259037
310-168794-3	MW-303	Total/NA	Water	6020A	259037
310-168794-4	MW-304	Total/NA	Water	6020A	259037
310-168794-5	MW-305	Total/NA	Water	6020A	259037
310-168794-6	MW-306	Total/NA	Water	6020A	259037
310-168794-7	MW-307	Total/NA	Water	6020A	259037
310-168794-8	MW-308	Total/NA	Water	6020A	259037
310-168794-9	MW-309	Total/NA	Water	6020A	259037
310-168794-10	MW-310	Total/NA	Water	6020A	259037
310-168794-11	Field Blank	Total/NA	Water	6020A	259037
MB 310-259037/1-A	Method Blank	Total/NA	Water	6020A	259037
LCS 310-259037/2-A	Lab Control Sample	Total/NA	Water	6020A	259037
310-168794-5 DU	MW-305	Total/NA	Water	6020A	259037

Analysis Batch: 259495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-4	MW-304	Total/NA	Water	6020A	259037
310-168794-5	MW-305	Total/NA	Water	6020A	259037
310-168794-6	MW-306	Total/NA	Water	6020A	259037
310-168794-7	MW-307	Total/NA	Water	6020A	259037
310-168794-8	MW-308	Total/NA	Water	6020A	259037
310-168794-9	MW-309	Total/NA	Water	6020A	259037
310-168794-10	MW-310	Total/NA	Water	6020A	259037
310-168794-11	Field Blank	Total/NA	Water	6020A	259037
310-168794-5 DU	MW-305	Total/NA	Water	6020A	259037

Analysis Batch: 259697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-8	MW-308	Total/NA	Water	6020A	259037
LCS 310-259037/2-A	Lab Control Sample	Total/NA	Water	6020A	259037

General Chemistry

Analysis Batch: 258879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-168794-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-168794-3	MW-303	Total/NA	Water	SM 4500 H+ B	
310-168794-4	MW-304	Total/NA	Water	SM 4500 H+ B	
310-168794-5	MW-305	Total/NA	Water	SM 4500 H+ B	
310-168794-6	MW-306	Total/NA	Water	SM 4500 H+ B	
310-168794-7	MW-307	Total/NA	Water	SM 4500 H+ B	
310-168794-8	MW-308	Total/NA	Water	SM 4500 H+ B	
310-168794-9	MW-309	Total/NA	Water	SM 4500 H+ B	
310-168794-10	MW-310	Total/NA	Water	SM 4500 H+ B	
310-168794-11	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-258879/108	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-258879/81	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-168794-1 DU	MW-301	Total/NA	Water	SM 4500 H+ B	
310-168794-10 DU	MW-310	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 259162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	SM 2540C	
310-168794-2	MW-302	Total/NA	Water	SM 2540C	
310-168794-7	MW-307	Total/NA	Water	SM 2540C	
310-168794-8	MW-308	Total/NA	Water	SM 2540C	
310-168794-11	Field Blank	Total/NA	Water	SM 2540C	
MB 310-259162/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-259162/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-168794-2 DU	MW-302	Total/NA	Water	SM 2540C	

Analysis Batch: 259585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-3	MW-303	Total/NA	Water	SM 2540C	
310-168794-4	MW-304	Total/NA	Water	SM 2540C	
310-168794-5	MW-305	Total/NA	Water	SM 2540C	
310-168794-6	MW-306	Total/NA	Water	SM 2540C	
310-168794-9	MW-309	Total/NA	Water	SM 2540C	
310-168794-10	MW-310	Total/NA	Water	SM 2540C	
MB 310-259585/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-259585/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-168794-5 DU	MW-305	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 259232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-1	MW-301	Total/NA	Water	Field Sampling	
310-168794-2	MW-302	Total/NA	Water	Field Sampling	
310-168794-3	MW-303	Total/NA	Water	Field Sampling	
310-168794-4	MW-304	Total/NA	Water	Field Sampling	
310-168794-5	MW-305	Total/NA	Water	Field Sampling	
310-168794-6	MW-306	Total/NA	Water	Field Sampling	
310-168794-7	MW-307	Total/NA	Water	Field Sampling	
310-168794-8	MW-308	Total/NA	Water	Field Sampling	

Field Service / Mobile Lab (Continued)

Analysis Batch: 259232 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168794-9	MW-309	Total/NA	Water	Field Sampling	
310-168794-10	MW-310	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Job ID: 310-168794-1
Project/Site: Prairie Creek CCR 25216074.17

Client Sample ID: MW-301
Lab Sample ID: 310-168794-1
Date Collected: 10/28/19 10:05
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/06/19 11:56	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 13:43	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:15	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259162	11/01/19 12:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 18:58	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/28/19 10:05	EAR	TAL CF

Client Sample ID: MW-302
Lab Sample ID: 310-168794-2
Date Collected: 10/28/19 12:20
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 12:12	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 13:45	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:17	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259162	11/01/19 12:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:01	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/28/19 12:20	EAR	TAL CF

Client Sample ID: MW-303
Lab Sample ID: 310-168794-3
Date Collected: 10/29/19 09:25
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 12:28	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 13:48	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:19	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259585	11/05/19 11:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:02	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/29/19 09:25	EAR	TAL CF

Client Sample ID: MW-304
Lab Sample ID: 310-168794-4
Date Collected: 10/29/19 11:40
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 12:43	ACJ	TAL CF

Lab Chronicle

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

Client Sample ID: MW-304

Date Collected: 10/29/19 11:40
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 13:58	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 13:58	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:22	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259585	11/05/19 11:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:03	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/29/19 11:40	EAR	TAL CF

Client Sample ID: MW-305

Date Collected: 10/29/19 14:02
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 12:59	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:01	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:01	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:24	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259585	11/05/19 11:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:04	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/29/19 14:02	EAR	TAL CF

Client Sample ID: MW-306

Date Collected: 10/29/19 15:12
Date Received: 10/30/19 17:25

Lab Sample ID: 310-168794-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 13:14	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:06	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:06	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:26	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259585	11/05/19 11:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:06	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/29/19 15:12	EAR	TAL CF

Lab Chronicle

Client: SCS Engineers
Job ID: 310-168794-1
Project/Site: Prairie Creek CCR 25216074.17

Client Sample ID: MW-307
Lab Sample ID: 310-168794-7
Date Collected: 10/28/19 14:55
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 13:30	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:09	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:09	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:28	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259162	11/01/19 12:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:08	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/28/19 14:55	EAR	TAL CF

Client Sample ID: MW-308
Lab Sample ID: 310-168794-8
Date Collected: 10/28/19 13:50
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 15:03	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:11	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:11	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		4	259697	11/05/19 15:44	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:30	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259162	11/01/19 12:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:09	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/28/19 13:50	EAR	TAL CF

Client Sample ID: MW-309
Lab Sample ID: 310-168794-9
Date Collected: 10/29/19 10:40
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 13:45	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:14	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:14	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:32	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259585	11/05/19 11:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:10	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/29/19 10:40	EAR	TAL CF

Lab Chronicle

Client: SCS Engineers
Job ID: 310-168794-1
Project/Site: Prairie Creek CCR 25216074.17

Client Sample ID: MW-310
Lab Sample ID: 310-168794-10
Date Collected: 10/29/19 13:05
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259791	11/05/19 14:32	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:17	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:17	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:42	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259585	11/05/19 11:05	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:16	JWG	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/29/19 13:05	EAR	TAL CF

Client Sample ID: Field Blank
Lab Sample ID: 310-168794-11
Date Collected: 10/28/19 23:59
Matrix: Water
Date Received: 10/30/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	259791	11/05/19 15:19	ACJ	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259465	11/04/19 14:19	SAD	TAL CF
Total/NA	Prep	3010A			259037	11/01/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	259495	11/04/19 14:19	SAD	TAL CF
Total/NA	Prep	7470A			258997	10/31/19 13:05	HIS	TAL CF
Total/NA	Analysis	7470A		1	259222	11/01/19 15:44	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	259162	11/01/19 12:09	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258879	10/30/19 19:24	JWG	TAL CF

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-168794-1
Project/Site: Prairie Creek CCR 25216074.17

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

Method Summary

Client: SCS Engineers
Project/Site: Prairie Creek CCR 25216074.17

Job ID: 310-168794-1

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 | Environment Testing TestAmerica

310-168794 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY Clive STATE IA Project: Prairie creek

Receipt Information

Date/Time Received: DATE 103019 TIME 1725 Received By: AAP

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 1 of 3
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: N Correction Factor (°C): 0.0

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

Uncorrected Temp (°C): 3.0 Corrected Temp (°C): 3.0

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY Clive STATE IA Project: Prairie Creek

Receipt Information

Date/Time Received: DATE 103019 TIME 1725 Received By: ARP

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 3
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: N Correction Factor (°C): 0.0

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

Uncorrected Temp (°C): 1.7 Corrected Temp (°C): 1.7

• Sample Container Temperature

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

Exceptions Noted

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

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

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

Additional Comments

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY: Clive STATE: IA

Project: Prairie Creek

Receipt Information

Date/Time Received: DATE: 103019 TIME: 1725

Received By: AB

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 3 of 3
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: N

Correction Factor (°C): 0.0

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

Uncorrected Temp (°C): 0.4

Corrected Temp (°C): 0.4

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing TestAmerica

43646

Client Information	Sampler: Louise Jennings	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-43666-14045.1
Client Contact: Louise Jennings	Phone: 608 509 8245	E-Mail: sandie.fredrick@testamericainc.com		Page: Page 1 of 2
Company: SCS Engineers				Job #:
Address: 8450 Hickman Road Suite 20	Due Date Requested:			
City: Clive	TAT Requested (days): Standard			
State, Zip: IA, 50325				
Phone:	PO #: 25216074.17			
Email: ljennings@scsengineers.com	WO #:			
Project Name: Prairie Creek CCR 25216074.17	Project #: 31011020			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A, 7470A	2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+	903.0 - Radium 226	904.0 - Radium 228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	D		
MW-301	10.28.19	1005	G	Water			X	X	X	X		
MW-302	10.28.19	1220		Water								
MW-303	10.29.19	0925		Water								
MW-304	10.29.19	1140		Water								
MW-305	10.29.19	1402		Water								
MW-306	10.29.19	1512		Water								
MW-307	10.28.19	1455		Water								
MW-308	10.28.19	1350		Water								
MW-309	10.29.19	1040		Water								
MW-310	10.29.19	1305		Water								
Field Blank	10.28.19	2359		Water								

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 10.29.19 1800	Company: SCS	Received by:	Date/Time: 103019 1725	Company: ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

11/18/2019

Login Container Summary Report

emperature readings: _____

lient Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
AW-301	310-168794-A-1	Plastic 250ml - with Nitric Acid	<2		
AW-301	310-168794-C-1	Plastic 1 liter - Nitric Acid	<2		
AW-301	310-168794-D-1	Plastic 1 liter - Nitric Acid	<2		
AW-302	310-168794-A-2	Plastic 250ml - with Nitric Acid	<2		
AW-302	310-168794-C-2	Plastic 1 liter - Nitric Acid	<2		
AW-302	310-168794-D-2	Plastic 1 liter - Nitric Acid	<2		
AW-303	310-168794-A-3	Plastic 250ml - with Nitric Acid	<2		
AW-303	310-168794-C-3	Plastic 1 liter - Nitric Acid	<2		
AW-303	310-168794-D-3	Plastic 1 liter - Nitric Acid	<2		
MW-304	310-168794-A-4	Plastic 250ml - with Nitric Acid	<2		
MW-304	310-168794-C-4	Plastic 1 liter - Nitric Acid	<2		
MW-304	310-168794-D-4	Plastic 1 liter - Nitric Acid	<2		
MW-305	310-168794-A-5	Plastic 250ml - with Nitric Acid	<2		
MW-305	310-168794-C-5	Plastic 1 liter - Nitric Acid	<2		
MW-305	310-168794-D-5	Plastic 1 liter - Nitric Acid	<2		
MW-306	310-168794-A-6	Plastic 250ml - with Nitric Acid	<2		
MW-306	310-168794-C-6	Plastic 1 liter - Nitric Acid	<2		
MW-306	310-168794-D-6	Plastic 1 liter - Nitric Acid	<2		
MW-307	310-168794-A-7	Plastic 250ml - with Nitric Acid	<2		
MW-307	310-168794-C-7	Plastic 1 liter - Nitric Acid	<2		
MW-307	310-168794-D-7	Plastic 1 liter - Nitric Acid	<2		
MW-308	310-168794-A-8	Plastic 250ml - with Nitric Acid	<2		
MW-308	310-168794-C-8	Plastic 1 liter - Nitric Acid	<2		
MW-308	310-168794-D-8	Plastic 1 liter - Nitric Acid	<2		
MW-309	310-168794-A-9	Plastic 250ml - with Nitric Acid	<2		
MW-309	310-168794-C-9	Plastic 1 liter - Nitric Acid	<2		
MW-309	310-168794-D-9	Plastic 1 liter - Nitric Acid	<2		
MW-310	310-168794-A-10	Plastic 250ml - with Nitric Acid	<2		
MW-310	310-168794-C-10	Plastic 1 liter - Nitric Acid	<2		
MW-310	310-168794-D-10	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-168794-A-11	Plastic 250ml - with Nitric Acid	<2		
Field Blank	310-168794-C-11	Plastic 1 liter - Nitric Acid	<2		
Field Blank	310-168794-D-11	Plastic 1 liter - Nitric Acid	<2		

Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Prairie Creek Generating Station / SCS Engineers Project #25216074.17

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	MW-308	MW-309	MW-310	Field Blank
Appendix III Parameters (Detection Monitoring)	Boron	X	X	X	X	X	X	X	X	X	X	X
	Calcium	X	X	X	X	X	X	X	X	X	X	X
	Chloride	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	pH	X	X	X	X	X	X	X	X	X	X	X
	Sulfate	X	X	X	X	X	X	X	X	X	X	X
	TDS	X	X	X	X	X	X	X	X	X	X	X
Appendix IV Parameters (Assessment Monitoring)	Antimony	X	X	X	X	X	X	X	X	X	X	X
	Arsenic	X	X	X	X	X	X	X	X	X	X	X
	Barium	X	X	X	X	X	X	X	X	X	X	X
	Beryllium	X	X	X	X	X	X	X	X	X	X	X
	Cadmium	X	X	X	X	X	X	X	X	X	X	X
	Chromium	X	X	X	X	X	X	X	X	X	X	X
	Cobalt	X	X	X	X	X	X	X	X	X	X	X
	Fluoride	X	X	X	X	X	X	X	X	X	X	X
	Lead	X	X	X	X	X	X	X	X	X	X	X
	Lithium	X	X	X	X	X	X	X	X	X	X	X
	Mercury	X	X	X	X	X	X	X	X	X	X	X
	Molybdenum	X	X	X	X	X	X	X	X	X	X	X
	Selenium	X	X	X	X	X	X	X	X	X	X	X
	Thallium	X	X	X	X	X	X	X	X	X	X	X
	Radium	X	X	X	X	X	X	X	X	X	X	X
CCR Rule Field Parameters	Groundwater Elevation	X	X	X	X	X	X	X	X	X	X	
	pH	X	X	X	X	X	X	X	X	X	X	
Low-Flow Sampling Field Parameters	Well Depth	X	X	X	X	X	X	X	X	X	X	
	Specific Conductance	X	X	X	X	X	X	X	X	X	X	
	Dissolved Oxygen	X	X	X	X	X	X	X	X	X	X	
	ORP	X	X	X	X	X	X	X	X	X	X	
	Temperature	X	X	X	X	X	X	X	X	X	X	
	Turbidity	X	X	X	X	X	X	X	X	X	X	
	Color	X	X	X	X	X	X	X	X	X	X	
	Odor	X	X	X	X	X	X	X	X	X	X	

Notes: All samples are unfiltered (total).

C:\Users\FredrickS\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\36W3VFVX\[Table_1_PCS_CCR_Rule_Sam

Table 1, page 1 of 1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-168794-1

Login Number: 168794
List Number: 1
Creator: Bindert, Lindsay A

List Source: Eurofins TestAmerica, Cedar Falls

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

Groundwater Monitoring Results - Field Parameters
Prairie Creek Generating Station / SCS Engineers Project #25219074
October 2019

Sample	Sample Date/Time	GW Elevation (ft amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity
MW-301	10.28.19/1005	715.86	11.34	6.69	4.63	1036	-7.3	2.8
MW-302	10.28.19/1220	715.27	13.74	6.37	1.8	587	-5.8	6.92
MW-303	10.29.19/0925	704.10	14.47	7.12	0.35	981	-139.1	3.02
MW-304	10.29.19/1140	704.15	15.67	6.90	0.28	816	-74.3	2.96
MW-305	10.29.19/1402	704.17	15.87	6.89	0.30	980	-11.9	1.79
MW-306	10.29.19/1512	704.40	12.56	7.63	0.29	633	-145.7	8.16
MW-307	10.28.19/1455	708.57	18.43	9.58	0.27	157	-29.9	2.16
MW-308	10.28.19/1350	706.31	15.05	9.19	0.43	618	-58.1	2.44
MW-309	10.29.19/1040	703.84	18.60	7.33	7.45	931	-103.8	4.96
MW-310	10.29.19/1305	703.71	16.48	7.30	7.59	801	-129.8	3.03

Abbreviations:
mg/L = milligrams per liter
mV = millivolts amsl = above mean sea level
NA = Not Analyzed

Notes:

Created by:	JSN	Date:	4/30/2019
Last revision by:	LWJ	Date:	10/31/2019
Checked by:	JSN	Date:	11/1/2019
Scientist QA/QC:	NDK	Date:	11/1/2019

\\Mad-fs01\data\Projects\25219074.00\Data and Calculations\Tables\Field Data\[PCS_CCR_Field_October 2019.xlsx]GW Field Parameters

Appendix B

Alternative Source Demonstration

Alternative Source Demonstration Assessment Monitoring

Prairie Creek Generating Station
Cedar Rapids, Iowa

Prepared for:

SCS ENGINEERS

25219074.00 | April 15, 2019

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

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Appendices

I:\25219074.00\Deliverables\1904_Assessment ASD\190415_ASD_PCS AM_Final.docx

PE CERTIFICATION

I, Eric J. Nelson, hereby certify that that the information in this alternate source demonstration is accurate and meets the requirements of 40 CFR 257.95(g)(3). This certification is based on my review of the groundwater data and related site information available for the Prairie Creek Generating Station. I am a duly licensed Professional Engineer under the laws of the State of Iowa.

4/14/2019

(signature) (date)

Eric J. Nelson

(printed or typed name)

License number 23136

My license renewal date is December 31, 2020.

Pages or sheets covered by this seal:
Alternative Source Demonstration

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1.0 INTRODUCTION

This Alternative Source Demonstration (ASD) 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 257.95(g)(3)(ii). The applicable sections of the Rule are provided below in *italics*.

1.1 §257.95(G)(3) ALTERNATIVE SOURCE DEMONSTRATION REQUIREMENTS

(3) Within 90 days of finding that any of the constituents listed in appendix IV to this part have been detected at a statistically significant level exceeding the groundwater protection standards the owner or operator must either:

(i) Initiate an assessment of corrective measures as required by § 257.96; or

(ii) Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents in Appendix III and Appendix IV of this part are at or below background as specified in paragraph (e) of this section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority.

This ASD was performed in response to results indicating that constituents listed in appendix IV had been detected at a statistically significant level exceeding the groundwater protection standards (GPSs) during assessment monitoring under the CCR Rule at the Prairie Creek Generating Station (PCS). GPS exceedances for assessment monitoring performed in 2018 were reported to Alliant Energy by SCS Engineers on January 14, 2019.

This ASD documents that one of the wells and parameters identified as exceeding GPSs in the January 2019 correspondence did not exceed the GPS at a statistically significant level based on additional testing and statistical evaluation.

1.2 SITE INFORMATION AND MAP

The PCS is located along the west bank of the Cedar River in the city of Cedar Rapids, in Linn County, Iowa. The postal address of the plant is 3300 C St. Southwest, Cedar Rapids, Iowa. In addition to the coal-fired generating plant, the property also historically contained a coal stockpile, an Eco-Stone

(c-stone) storage area, two CCR pile areas, several ash ponds, and several storm water and wastewater ponds.

All CCR units at PCS were closed in 2018. The groundwater monitoring system consists of two upgradient and six downgradient monitoring wells, which exceeds the minimum requirements of 40 CFR 257.91(c)(1). The groundwater monitoring system monitors the closure area, which includes the following closed CCR units:

- PCS Pond 1
- PCS Pond 2
- PCS Pond 3
- PCS Pond 4
- PCS Pond 5
- PCS Pond 6
- PCS Pond 7
- PCS Discharge Pond
- PCS Beneficial Use Storage Area
- PCS Bottom Ash Pile

A map showing the CCR Units and all background (or upgradient) and downgradient monitoring wells with identification numbers for the CCR groundwater monitoring program is provided as **Figure 1**.

1.3 GROUNDWATER PROTECTION STANDARD EXCEEDANCES IDENTIFIED

GPS exceedances were identified in the January 14, 2019 correspondence, for the following wells and parameters:

- Arsenic: MW-303, MW-304, MW-305
- Molybdenum: MW-306

This initial evaluation of the assessment monitoring results was based on the first three sampling events for the Appendix IV assessment monitoring parameters. Samples were collected in May, August, and October 2018. For each of the well-parameter pairs listed above, at least one of the three results exceeded the GPS.

2.0 RETESTING AND ADDITIONAL STATISTICAL EVALUATION

For comparison of assessment monitoring data to fixed GPS values, the USEPA's Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (EPA 530-R-09-007, March 2009) recommends the use of confidence intervals. Specifically, the suggested approach for comparing assessment groundwater monitoring data to GPS values based on long-term chronic health risk, such as drinking water Maximum Contaminant Levels (MCLs), is to compare the lower confidence limit around the arithmetic mean with the fixed GPS. Although a confidence interval approach is recommended, a minimum of four samples are required for this approach, and only three assessment monitoring compliance samples had been collected at the time of the January 2019 evaluation; therefore, the initial evaluation presented a direct comparison of the results to the GPS values.

To allow comparison of the lower confidence limit of the mean to the GPS, additional samples were collected from wells MW-304 and MW-305 for arsenic analysis. These two wells were selected for additional testing because the previous results were close to the GPS and/or did not exceed the GPS in all three 2018 sampling events. The additional samples were collected in March 2019, so the four sampling events fell within 1 year (May 2018 to March 2019) and provided some representation of seasonal variability in constituent concentrations.

The results for the four sampling events are summarized in **Table 1** for the two wells that were retested for arsenic. The laboratory reports for the first three events were included in the 2018 Annual Groundwater Monitoring and Corrective Action Report. The laboratory report for the March 2019 event is provided in **Appendix A**.

For each well-parameter pair that was tested, the calculated mean concentration and the lower confidence limit for the mean are shown in **Table 1**. For arsenic, the lower confidence limit for the mean was below the GPS for well MW-305.

3.0 ASD CONCLUSIONS

Based on the findings of the retesting and statistical evaluation, the number of well-parameter pairs for which appendix IV constituents are present at a statistically significant level exceeding the GPSs was reduced to the following:

- Arsenic: MW-303, MW-304
- Molybdenum: MW-306

Although the ASD reduced the number of well-parameter pairs exceeding GPSs, IPL must initiate an assessment of corrective measures based on the exceedances for the wells and parameters listed above.

4.0 REFERENCES

SCS Engineers, 2019a, 2018 Annual Groundwater Monitoring and Corrective Action Report, Prairie Creek Generating Station, January 2019.

SCS Engineers, 2019b, Assessment Groundwater Monitoring – Statistical Evaluation, Prairie Creek Generating Station, January 14, 2019.

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

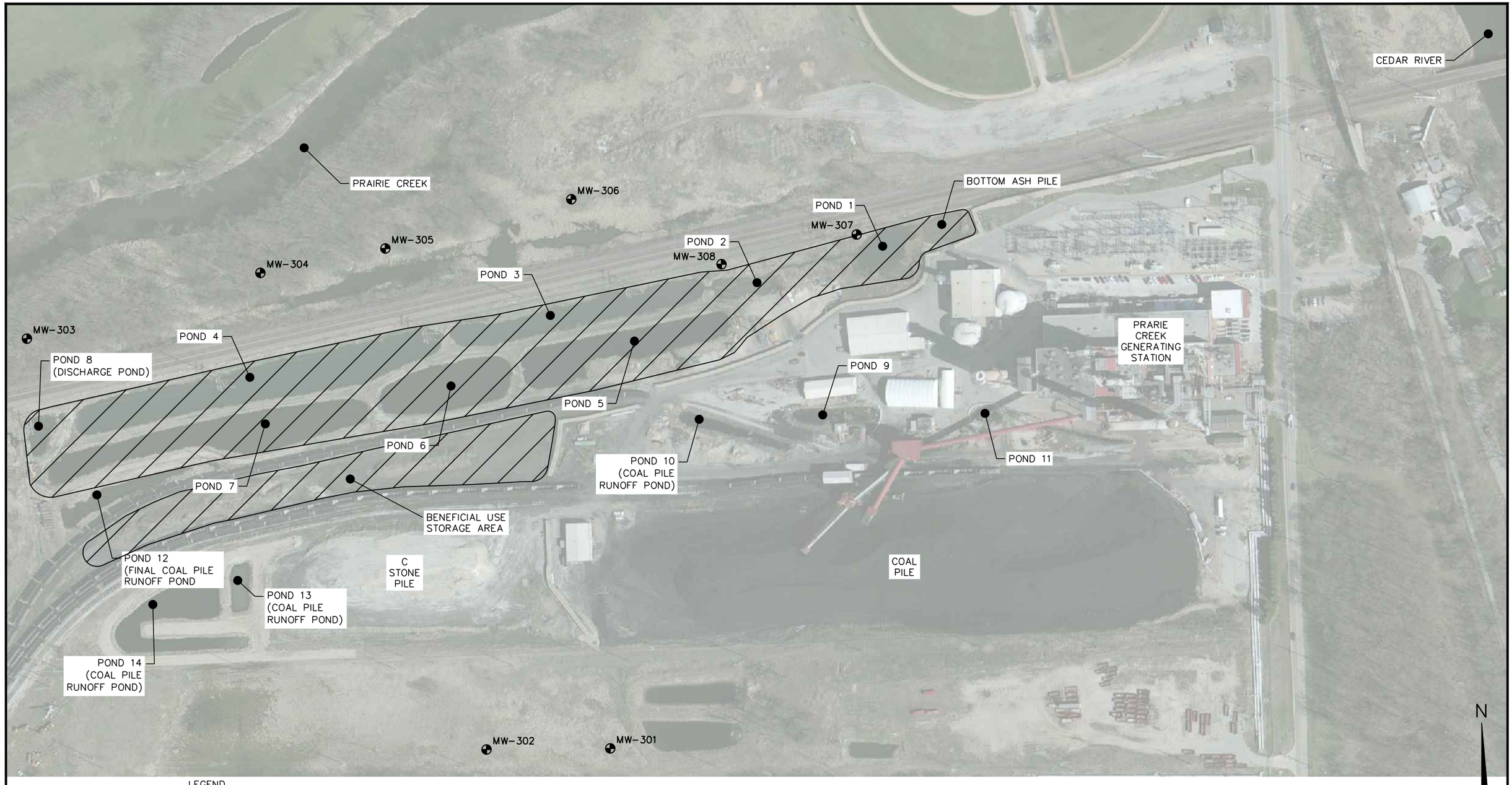
Table 1
Assessment Monitoring Results with March 2019 Retest Event - Arsenic
IPL - Prairie Creek Generating Station

			Assessment Monitoring Results with Retest						
Monitoring Well	**Units**	**Groundwater Protection Standard (GPS)**	**5/8/2018**	**8/6/2018**	**10/9/2018**	**3/11/2019**	**Mean**	**Lower Confidence Limit for Mean (α = 95%)**	**LCL Exceeds GPS?**
MW-304	ug/L	10	15.0	12.3	14.4	12.9	13.7	12.4	**YES**
MW-305	ug/L	10	14.3	13.0	6.6	11.6	11.4	8.5	NO

Created by: SCC 4/12/19
Checked by: TK 4/13/19

I:\25219074.00\Deliverables\1904_Assessment ASD\[As_Table.xlsx]Sheet2

Figures



LEGEND

- MONITORING WELL
- CLOSURE AREA (APPROXIMATE)

NOTE:
PCS PONDS 1-8, THE BOTTOM ASH PILE, AND THE BENEFICIAL USE STORAGE AREA WERE CLOSED IN DECEMBER 2018.

200 0 200

SCALE: 1" = 200'

PROJECT NO.	25216074.00	DRAWN BY:	BJM/BSS
DRAWN:	01/26/17	CHECKED BY:	NK
REVISED:	01/21/19	APPROVED BY:	TK 04/09/19

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

CLIENT: ALLIANT ENERGY
4902 N. BILTMORE LANE
MADISON, WI 53718

SITE: IPL-PRAIRIE CREEK GENERATING STATION
3300 C ST. SW
CEDAR RAPIDS, IA 52404

MONITORING WELL LOCATION MAP

FIGURE 1

I:\2521□074.00\Drawings\Prairie Cree□Monitoring □ell Location Map.dwg, 4/9/2019 11:00:0□AM

Appendix A

Analytical Laboratory Report– March 2019 Retesting

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

March 15, 2019

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Kansas Certification IDs

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

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60296439001	**MW-304**	Water	03/11/19 11:22	03/12/19 08:30
60296439002	**MW-305**	Water	03/11/19 10:28	03/12/19 08:30
60296439003	**FIELD BLANK**	Water	03/11/19 11:30	03/12/19 08:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60296439001	**MW-304**	EPA 6020	JGP	1	PASI-K
60296439002	**MW-305**	EPA 6020	JGP	1	PASI-K
60296439003	**FIELD BLANK**	EPA 6020	JGP	1	PASI-K

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

ANALYTICAL RESULTS

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Sample: MW-304 **Lab ID: 60296439001** Collected: 03/11/19 11:22 Received: 03/12/19 08:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		03/11/19 11:22		
Field pH	**5.82**	Std. Units	0.10	0.050	1		03/11/19 11:22		
Field Temperature	**8.80**	deg C	0.50	0.25	1		03/11/19 11:22		
Field Specific Conductance	**537**	umhos/cm	1.0	1.0	1		03/11/19 11:22		
Field Oxidation Potential	**-84.2**	mV			1		03/11/19 11:22		
Oxygen, Dissolved	**0.86**	mg/L			1		03/11/19 11:22	7782-44-7	
Turbidity	**8.73**	NTU	1.0	1.0	1		03/11/19 11:22		
Groundwater Elevation	**704.24**	feet			1		03/11/19 11:22		
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	**12.9**	ug/L	1.0	0.065	1	03/14/19 09:05	03/14/19 14:45	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Sample: MW-305 **Lab ID: 60296439002** Collected: 03/11/19 10:28 Received: 03/12/19 08:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		03/11/19 10:28		
Field pH	**6.92**	Std. Units	0.10	0.050	1		03/11/19 10:28		
Field Temperature	**7.54**	deg C	0.50	0.25	1		03/11/19 10:28		
Field Specific Conductance	**526**	umhos/cm	1.0	1.0	1		03/11/19 10:28		
Field Oxidation Potential	**-78.9**	mV			1		03/11/19 10:28		
Oxygen, Dissolved	**1.58**	mg/L			1		03/11/19 10:28	7782-44-7	
Turbidity	**3.61**	NTU	1.0	1.0	1		03/11/19 10:28		
Groundwater Elevation	**704.05**	feet			1		03/11/19 10:28		
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	**11.6**	ug/L	1.0	0.065	1	03/14/19 09:05	03/14/19 14:46	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Sample: FIELD BLANK **Lab ID: 60296439003** Collected: 03/11/19 11:30 Received: 03/12/19 08:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	**<0.065**	ug/L	1.0	0.065	1	03/14/19 16:16	03/15/19 10:08	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

QC Batch: 573334 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60296439001, 60296439002

METHOD BLANK: 2351628 Matrix: Water
Associated Lab Samples: 60296439001, 60296439002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	<0.065	1.0	0.065	03/14/19 14:35	

LABORATORY CONTROL SAMPLE: 2351629

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.7	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2351630 2351631

Parameter	Units	60295553004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	29.4	40	40	65.6	65.3	90	90	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

QC Batch: 573686 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60296439003

METHOD BLANK: 2353082 Matrix: Water
Associated Lab Samples: 60296439003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	<0.065	1.0	0.065	03/15/19 09:50	

LABORATORY CONTROL SAMPLE: 2353083

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	40.8	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2353084 2353085

Parameter	Units	60295982005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	3.7	40	40	43.5	43.9	100	100	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IPL Prairie Creek 25216074
Pace Project No.: 60296439

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60296439001	**MW-304**		573509		
60296439002	**MW-305**		573509		
60296439001	**MW-304**	EPA 3010	573334	EPA 6020	573618
60296439002	**MW-305**	EPA 3010	573334	EPA 6020	573618
60296439003	**FIELD BLANK**	EPA 3010	573686	EPA 6020	573781

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60296439

60296439

Client Name: SCS Engineers

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

Tracking #: 7859 5406 5630 Pace Shipping Label Used? Yes ☑ No ☐

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

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

Thermometer Used: T-298 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 4.9 **Corr. Factor** -0.1 **Corrected** 4.8

Date and initials of person examining contents: 3/12/19 [illegible]

Temperature should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A — **Required** Client Information:

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

Section B — **Required** Project Information:

Report To:	Meghan Blodgett
Copy To:	Tom Karwaski
Purchase Order No.:	
Project Name:	IPL Prairie Creek
Project Number:	25216074

Section C — Invoice Information:

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

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Section D — **Required** Client Information

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

Valid Matrix Codes

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	6020; As	6020; Mo															Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N															
1	MW-303	WT	G	xxx	xxx				1			1							X																60296439
2	MW-304	WT	G	xxx	xxx	3/11	1122		1			1							X	BP3N																001
3	MW-305	WT	G	xxx	xxx	3/11	1028		1			1							X	↓																002
4	MW-306	WT	G	xxx	xxx				1			1								X																
5	Field Blank					3/11	1130												X	BP3N																003
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	Nick Schommer / SCS	3/11/19	1215	/ Pace	3/12/19	0830	4.8	Y	Y	Y
* Sb-As-Ba-Be-Cd-Cr-Co-Pb-Mo-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

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

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

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

Appendix C

Assessment of Corrective Measures Deadline Extension

July 10, 2019
File No. 25218201.00

Ms. Jennifer Hynek
Interstate Power and Light
3300 C Street SW
Cedar Rapids, IA 52404

Subject: Demonstration of Need for Deadline Extension
Assessment of Corrective Measures
Prairie Creek Generating Station, Cedar Rapids, Iowa

Dear Ms. Hynek:

In accordance with 40 CFR 257.96(a), Interstate Power and Light Company (IPL) has initiated an Assessment of Corrective Measures (ACM) for the Prairie Creek Generating Station. The ACM was initiated on April 15, 2019, in response to detections of constituents in Appendix IV to 40 CFR Part 257 at statistically significant levels above the groundwater protection standards (GPS) established under 40 CFR 257.95(h). As allowed under 40 CFR 257.96(a), this letter provides a demonstration that additional time beyond the 90-day deadline is needed to complete the ACM, and that the deadline may be extended by 60 days. Therefore, the ACM must be completed by September 13, 2019.

Demonstration of Need for Additional Time

Additional time is needed to complete the ACM in order to investigate the nature and extent of downgradient groundwater impacts and consider that information in preparing the ACM. The additional information obtained through further investigation of site conditions is important to the selection of suitable corrective measures and the evaluation of those corrective measures in meeting the requirements and objectives outlined in 40 CFR 257.96(c). Specifically, additional data about the nature and extent of groundwater impacts is needed to determine the current level of risk, evaluate the reduction of risk provided, and evaluate the implementation of potential corrective measures.

In January 2019, prior to initiating an ACM in April 2019, IPL began the process of designing, permitting, installing, and sampling additional groundwater monitoring wells to investigate the nature and extent of these constituents in groundwater, in accordance with 40 CFR 257.95(g)(1).

The following factors contributed to delays in the installation and sampling of the new wells, which in turn created the need for the extension of the ACM deadline by up to 60 days as allowed under 40 CFR 257.96(a):

- Permitting the new wells, which included Federal, state, and local permit reviews related to floodplains, wetlands, sovereign lands, and work within a public right-of-way, which significantly delayed well installation.

- Extensive flooding in the area of the Prairie Creek Generating Station significantly delayed well installation. The wells have not been installed as of the date of this letter due to continued flooding.

Additional information regarding the nature and extent of groundwater impacts will provide further understanding of existing risks associated with the groundwater impacts identified at the Prairie Creek Generating Station, which provides the basis for evaluating potential corrective measures as required under 40 CFR 257.96. While evaluation of the nature and extent of impacts may continue in parallel with the ACM and selection of remedy, extending the ACM deadline as allowed under the coal combustion residuals (CCR) rule will allow for the consideration of additional information and provide for a more complete ACM. Thus, the 60-day extension is needed.

As required by 40 CFR 257.96(a), a professional engineer's certification of the accuracy of this demonstration is enclosed.

PE Certification

As required by 40 CFR 257.96, I, Eric J. Nelson, hereby certify that this demonstration of need for the 60-day extension of the deadline for completing an Assessment of Corrective Measures is accurate. I am a duly licensed Professional Engineer under the laws of the State of Iowa.

(signature) 7/10/2019 (date)

Eric J. Nelson
(printed or typed name)

License number 23136

My license renewal date is December 31, 2020.

Pages or sheets covered by this seal:

ACM - Demonstration of Need for Deadline Extension

Prairie Creek Generating Station

Sincerely,

Eric J. Nelson, PE
Project Director
SCS Engineers

Thomas J. Karwoski
Senior Project Manager
SCS Engineers

EJN/AJR/SC

cc: John Watts, Interstate Power and Light Company
Jeff Maxted, Alliant Energy

I:\25218201.00\Correspondence\Client\ACM Extension\190710_Hynek_PCS_ACM Ext_PE_Certification_Letter.docx