

2019 Annual Groundwater Monitoring and Corrective Action Report

Zero Liquid Discharge Pond
Ottumwa Generating Station
20775 Power Plant Road
Ottumwa, Iowa

Prepared for:



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

SCS ENGINEERS

25220072.00 | August 3, 2020

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

Table of Contents

Section	Page
1.0 Introduction.....	1
2.0 §257.100(e)(5) Groundwater Monitoring and Corrective Action for Inactive CCR Surface Impoundments	1
3.0 §257.90(e) Annual Report Requirements.....	1
3.1 §257.90(e)(1) Site Map.....	2
3.2 §257.90(e)(2) Monitoring System Changes.....	2
3.3 §257.90(e)(3) Summary of Sampling Events.....	2
3.4 §257.90(e)(4) Monitoring Transition Narrative.....	2
3.5 §257.90(e)(5) Other Requirements.....	3
3.5.1 §257.90(e) General Requirements.....	3
3.5.2 §257.94(d) Alternative Detection Monitoring Frequency.....	4
3.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring	4
3.5.4 §257.95(c) Alternative Assessment Monitoring Frequency.....	4
3.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards	4
3.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring ..	5
3.5.7 §257.96(a) Extension of Time for Corrective Measures Assessment	5

Tables

Table 1. CCR Rule Groundwater Samples Summary

Figures

Figure 1. Site Location Map

Figure 2. Site Plan and Monitoring Well Locations–Zero Liquid Discharge Pond

Appendices

Appendix A Analytical Laboratory Reports

A1 Round 1 Detection Sampling, Analytical Laboratory Reports

A2 Round 2 Detection Sampling, Analytical Laboratory Report

A3 Round 1 of Assessment Sampling, Analytical Laboratory Report

I:\25220072.00\Deliverables\2019 Federal Annual Report - OGS ZLDP\200803_2019 Federal Annual Report_OGS ZLDP_Final.docx

[This page left blank intentionally]

1.0 INTRODUCTION

This 2019 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the “Coal Combustion Residuals (CCR) Final Rule” published by the U.S. Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities*; Final Rule, dated April 17, 2015 (USEPA, 2015) and subsequent amendments. Specifically, this report was prepared to fulfill the requirements of 40 CFR.100 and 40 CFR 257.90(e) for inactive CCR surface impoundments. The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2018 Annual Groundwater Monitoring and Corrective Action Report for the CCR unit.

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

The groundwater monitoring system for the Zero Liquid Discharge Pond (ZLDP) at the Ottumwa Generating Station (OGS) monitors a single inactive CCR unit:

- OGS ZLDP (inactive CCR surface impoundment)

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

The OGS Ash Pond is a separate CCR unit at the OGS facility. The annual groundwater monitoring and corrective action report for this existing CCR unit is submitted separately on January 31 of each year in accordance with 40 CFR 257.90(e).

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

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

This report is submitted to fulfill the report requirement.

3.0 §257.90(E) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. . . . For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility’s operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

3.1 §257.90(E)(1) SITE MAP

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

A map showing the site location of the OGS site is provided as **Figure 1**. A map showing the site layout and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 2**. The location of the OGS ash pond CCR unit is also shown on **Figure 2**.

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

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

No new monitoring wells were installed and no wells were decommissioned as part of the groundwater monitoring program for the OGS ZLDP in 2019.

3.3 §257.90(E)(3) SUMMARY OF SAMPLING EVENTS

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

Three groundwater sampling events were completed for the inactive OGS ZLDP CCR unit in 2019. The semiannual sampling program for the site was established and sampling occurred in April 2019 and October 2019. As described in **Section 3.4** and **Section 3.5**, the site transitioned to an assessment monitoring program in 2019. The first round of assessment monitoring sampling was completed in December 2019.

Groundwater samples collected in April and October 2019 were analyzed for Appendix III constituents. The groundwater samples collected in December 2019 were analyzed for both Appendix III and Appendix IV constituents. A summary including the number of groundwater samples that were collected, and whether the sample was required by the detection monitoring or assessment monitoring program is included in **Table 1**. The results of the analytical laboratory analyses are provided in the laboratory reports in **Appendix A1** through **Appendix A3**.

3.4 §257.90(E)(4) MONITORING TRANSITION NARRATIVE

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

Detection monitoring at the OGS ZLDP was initiated in April 2019. The statistical evaluation of the April 2019 detection monitoring results completed on July 15, 2019, identified statistically significant increases (SSIs) in detection monitoring constituents at the downgradient wells. SSIs were identified for boron, calcium, chloride, pH, sulfate and total dissolved solids (TDS) at one or more wells based on the April 2019 detection monitoring event. Interstate Power and Light Company (IPL) collected the first round of assessment monitoring samples in December 2019 and established an assessment monitoring program on January 13, 2020, in accordance with §257.95(b).

3.5 §257.90(E)(5) OTHER REQUIREMENTS

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

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

3.5.1 §257.90(e) General Requirements

For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.

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

Summary of Key Actions Completed.

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

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

Discussion of Actions to Resolve the Problems: Not Applicable.

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

- Transmittal of results for the October 2019 detection monitoring event and notification of the initial round of assessment monitoring sampling in December 2019 (January 13, 2020).
- Establishment of assessment monitoring program (January 13, 2020).
- Establishment of groundwater protection standards (April 2020). Statistical evaluation and determination of any statistically significant levels exceeding the GPS for the December 2019, February 2020, and April 2020 monitoring events (July 2020).

- If one or more Appendix IV constituents is detected at a statistically significant level about the GPS, then within 30 days WPL will prepare a notification in accordance with §257.95(g) and within 90 days complete an alternative source demonstration or initiate an assessment of corrective measures (§257.95(g)(3)). WPL will also characterize the release (§257.95(g)(1)) and notify property owners (§257.95(g)(2)).
- Two semiannual groundwater sampling and analysis events (April and October 2020).

3.5.2 §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. No alternative frequency proposed.

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

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

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

3.5.4 §257.95(c) Alternative Assessment Monitoring Frequency

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

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

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

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

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

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

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

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

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

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

Not applicable. Corrective measures assessment has not been initiated.

[This page left blank intentionally]

Table 1
CCR Rule Groundwater Samples Summary

**Table 1. CCR Rule Groundwater Samples Summary
Ottumwa Generating Station ZLDP / SCS Engineers Project #25220072.00**

Sample Dates	Downgradient Wells			Background Well
	MW-307	MW-308	MW-309	MW-301
4/8/2019	D	D	D	D
10/23-24/2019	D	D	D	D
12/11/2019	A	A	A	A
Total Samples	3	3	3	3

Abbreviations:

D = Detection Monitoring

A = Assessment Monitoring

Notes:

Note: MW-301 is a shared background well with another CCR unit. This well was sampled for assessment monitoring parameters in April and October 2019 as part of the assessment monitoring for the Ash Pond CCR Unit.

Created by: JR

Date: 6/5/2019

Last revision by: LWJ

Date: 6/29/2020

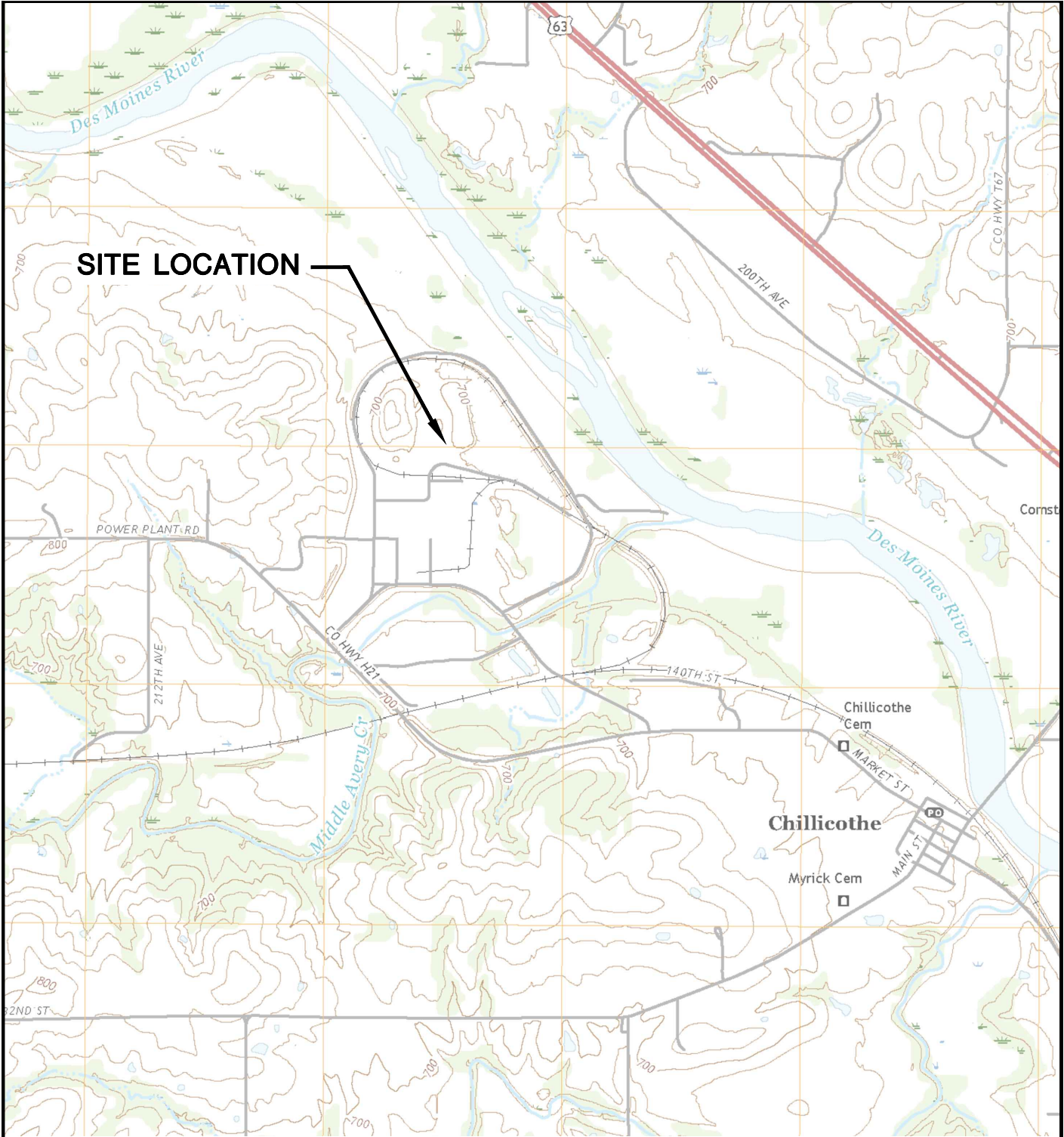
Checked by: NDK

Date: 6/29/2020

I:\25220072.00\Deliverables\2019 Federal Annual Report - OGS ZLDP\Tables\[Table 1_GW_Samples_Summary_Table_ZLDP.xlsx]GW Summary

Figures

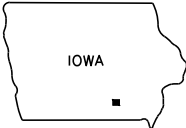
- 1 Site Location Map
- 2 Site Plan and Monitoring Well Locations-
Zero Liquid Discharge Pond



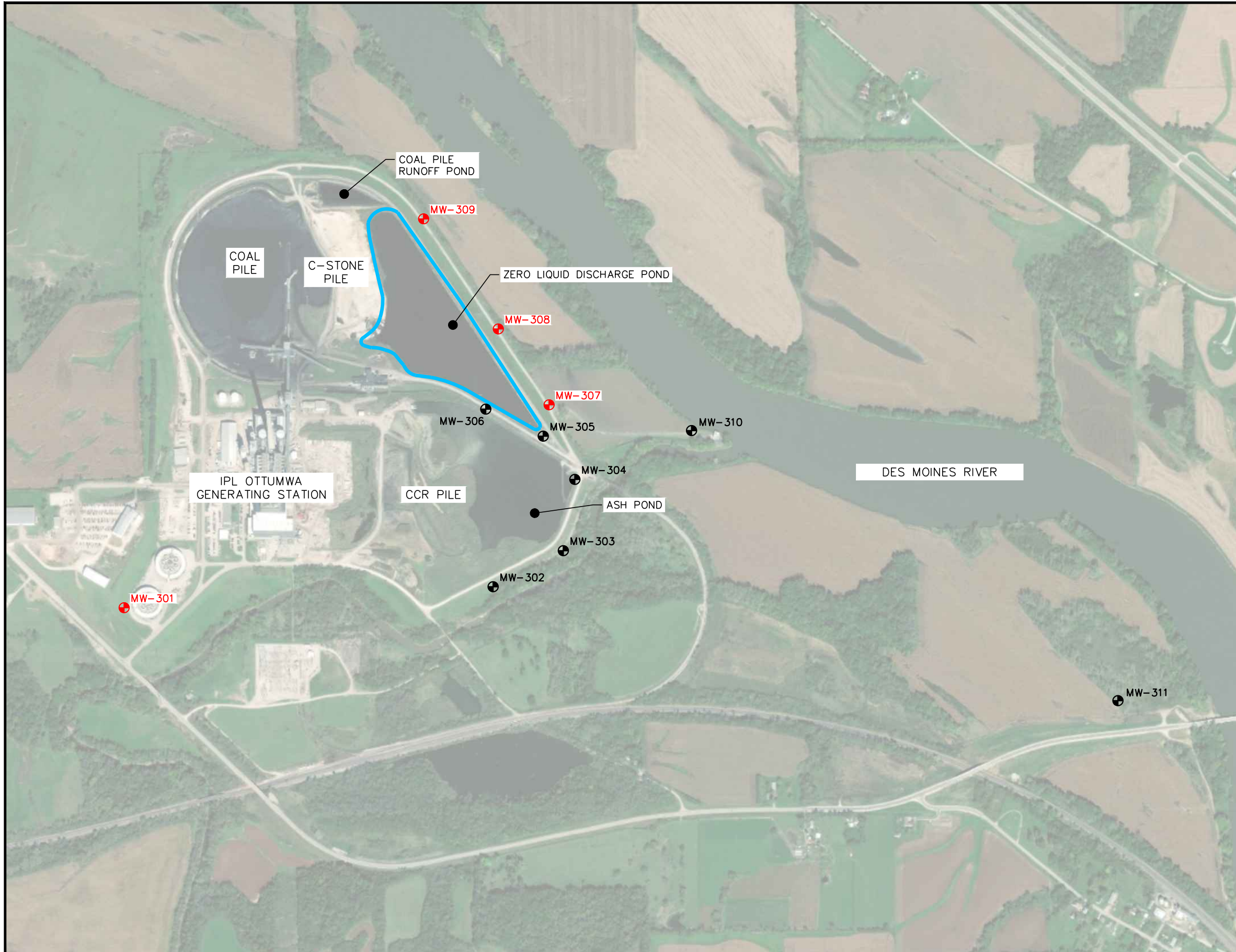
SITE LOCATION



CHILLICOTHE QUADRANGLE
 IOWA—WAPELLO CO.
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'



CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501		SITE	ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA		ENGINEER	SITE LOCATION MAP	
	PROJECT NO.	25219072.00		DRAWN BY:	BSS		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
	DRAWN:	11/15/2019		CHECKED BY:	MDB			1
REVISED:	01/10/2020	APPROVED BY:						



LEGEND

- ZERO LIQUID DISCHARGE POND (ZLDP)
- ZLDP MONITORING WELL
- ADDITIONAL MONITORING WELL


NOTES:

1. 2014 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AEROGRIID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
2. CCR UNIT LIMITS ARE APPROXIMATE.
3. MONITORING WELLS MW-301, MW-302, AND MW-304, WERE INSTALLED BY CASCADE DRILLING, LLP. UNDER THE SUPERVISION OF SCS ENGINEERS FROM NOVEMBER 11-12, 2015.
4. MONITORING WELLS MW-303 AND MW-305 WERE INSTALLED BY CASCADE DRILLING LLP. UNDER THE SUPERVISION OF SCS ENGINEERS ON DECEMBER 7-8, 2015.
5. MONITORING WELLS MW-307, MW-308, AND MW-309 WERE INSTALLED BY CASCADE DRILLING, LLP. UNDER THE SUPERVISION OF SCS ENGINEERS FROM OCTOBER 25-27, 2016.
6. MONITORING WELLS MW-310 AND MW-311 WERE INSTALLED BY ROBERTS ENVIRONMENTAL DRILLING ON AUGUST 27, 2019.



SCALE: 1" = 800'

PROJECT NO.	25219072.00	DRAWN BY:	BSS	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE	ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA	SITE PLAN AND MONITORING WELL LOCATIONS-ZERO LIQUID DISCHARGE POND	FIGURE
DRAWN:	11/15/2019	CHECKED BY:	MDB								2
REVISED:	01/13/2020	APPROVED BY:									



Appendix A
Analytical Laboratory Reports

A1 Round 1 Detection Sampling, Analytical Laboratory Reports

ANALYTICAL REPORT

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

Laboratory Job ID: 310-152915-3
Laboratory Sample Delivery Group: 25219072
Client Project/Site: IPL Ottumwa Generating Station 25219072
Revision: 2

For:
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:
5/23/2019 1:49:24 PM

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

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

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

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

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



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	9
QC Sample Results	10
QC Association	12
Chronicle	13
Certification Summary	14
Method Summary	15
Chain of Custody	16
Receipt Checklists	23

Case Narrative

Client: SCS Engineers
Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
SDG: 25219072

Job ID: 310-152915-3

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-152915-3

Comments

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

Receipt

The samples were received on 4/9/2019 5:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.1° C and 0.8° C.

HPLC/IC

Method(s) 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW 307 (310-152915-8), MW 308 (310-152915-9) and MW 309 (310-152915-10). 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 Ottumwa Generating Station 25219072

Job ID: 310-152915-3
SDG: 25219072

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Assest ID
310-152915-8	MW 307	Ground Water	04/08/19 15:15	04/09/19 17:15	
310-152915-9	MW 308	Ground Water	04/08/19 15:59	04/09/19 17:15	
310-152915-10	MW 309	Ground Water	04/08/19 16:37	04/09/19 17:15	

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

Detection Summary

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

Client Sample ID: MW 307

Lab Sample ID: 310-152915-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	220		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.28	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	100		5.0	1.8	mg/L	5		9056A	Total/NA
Boron	240		200	110	ug/L	1		6020A	Total/NA
Calcium	240		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1000		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1599				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.51				mg/L	1		Field Sampling	Total/NA
Field pH	6.76				SU	1		Field Sampling	Total/NA
Field Temperature	12.47				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	26.0				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	654.90				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-3.7				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW 308

Lab Sample ID: 310-152915-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	160		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	300		20	7.0	mg/L	20		9056A	Total/NA
Boron	190	J	200	110	ug/L	1		6020A	Total/NA
Calcium	240		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1200		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1539				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.66				mg/L	1		Field Sampling	Total/NA
Field pH	6.90				SU	1		Field Sampling	Total/NA
Field Temperature	12.54				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	6.87				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	653.70				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-23				millivolts	1		Field Sampling	Total/NA

Client Sample ID: MW 309

Lab Sample ID: 310-152915-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	72		5.0	1.5	mg/L	5		9056A	Total/NA
Fluoride	0.27	J	0.50	0.23	mg/L	5		9056A	Total/NA
Sulfate	410		20	7.0	mg/L	20		9056A	Total/NA
Boron	1500		200	110	ug/L	1		6020A	Total/NA
Calcium	160		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1100		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Field Conductivity	1396				umhos/cm	1		Field Sampling	Total/NA
Field Dissolved Oxygen	0.66				mg/L	1		Field Sampling	Total/NA
Field pH	7.18				SU	1		Field Sampling	Total/NA
Field Temperature	12.40				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	72.1				NTU	1		Field Sampling	Total/NA
Groundwater Elevation (ft MSL)	653.55				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-3.3				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

Client Sample ID: MW 307

Lab Sample ID: 310-152915-8

Date Collected: 04/08/19 15:15

Matrix: Ground Water

Date Received: 04/09/19 17:15

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		5.0	1.5	mg/L			04/10/19 21:02	5
Fluoride	0.28	J	0.50	0.23	mg/L			04/10/19 21:02	5
Sulfate	100		5.0	1.8	mg/L			04/10/19 21:02	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	240		200	110	ug/L		04/10/19 08:11	04/22/19 22:42	1
Calcium	240		0.50	0.10	mg/L		04/10/19 08:11	04/22/19 22:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	24	mg/L			04/12/19 09:34	1
pH	6.7	HF	0.1		SU			04/10/19 00:23	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1599				umhos/cm			04/08/19 15:15	1
Field Dissolved Oxygen	0.51				mg/L			04/08/19 15:15	1
Field pH	6.76				SU			04/08/19 15:15	1
Field Temperature	12.47				Degrees C			04/08/19 15:15	1
Field Turbidity	26.0				NTU			04/08/19 15:15	1
Groundwater Elevation (ft MSL)	654.90				ft			04/08/19 15:15	1
Oxidation Reduction Potential	-3.7				millivolts			04/08/19 15:15	1

Client Sample Results

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

Client Sample ID: MW 308

Lab Sample ID: 310-152915-9

Date Collected: 04/08/19 15:59

Matrix: Ground Water

Date Received: 04/09/19 17:15

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		5.0	1.5	mg/L			04/10/19 21:17	5
Fluoride	<0.23		0.50	0.23	mg/L			04/10/19 21:17	5
Sulfate	300		20	7.0	mg/L			04/11/19 11:19	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	190	J	200	110	ug/L		04/10/19 08:11	04/22/19 22:45	1
Calcium	240		0.50	0.10	mg/L		04/10/19 08:11	04/22/19 22:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1200		30	24	mg/L			04/12/19 09:34	1
pH	6.8	HF	0.1		SU			04/10/19 00:25	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1539				umhos/cm			04/08/19 15:59	1
Field Dissolved Oxygen	0.66				mg/L			04/08/19 15:59	1
Field pH	6.90				SU			04/08/19 15:59	1
Field Temperature	12.54				Degrees C			04/08/19 15:59	1
Field Turbidity	6.87				NTU			04/08/19 15:59	1
Groundwater Elevation (ft MSL)	653.70				ft			04/08/19 15:59	1
Oxidation Reduction Potential	-23				millivolts			04/08/19 15:59	1

Client Sample Results

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

Client Sample ID: MW 309

Lab Sample ID: 310-152915-10

Date Collected: 04/08/19 16:37

Matrix: Ground Water

Date Received: 04/09/19 17:15

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	72		5.0	1.5	mg/L			04/10/19 22:04	5
Fluoride	0.27	J	0.50	0.23	mg/L			04/10/19 22:04	5
Sulfate	410		20	7.0	mg/L			04/11/19 11:35	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1500		200	110	ug/L		04/10/19 08:11	04/22/19 22:48	1
Calcium	160		0.50	0.10	mg/L		04/10/19 08:11	04/22/19 22:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	24	mg/L			04/12/19 09:34	1
pH	7.2	HF	0.1		SU			04/10/19 00:29	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field Conductivity	1396				umhos/cm			04/08/19 16:37	1
Field Dissolved Oxygen	0.66				mg/L			04/08/19 16:37	1
Field pH	7.18				SU			04/08/19 16:37	1
Field Temperature	12.40				Degrees C			04/08/19 16:37	1
Field Turbidity	72.1				NTU			04/08/19 16:37	1
Groundwater Elevation (ft MSL)	653.55				ft			04/08/19 16:37	1
Oxidation Reduction Potential	-3.3				millivolts			04/08/19 16:37	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
SDG: 25219072

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

General Chemistry

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-235649/3
 Matrix: Water
 Analysis Batch: 235649

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.29		1.0	0.29	mg/L			04/10/19 15:44	1
Fluoride	<0.045		0.10	0.045	mg/L			04/10/19 15:44	1
Sulfate	<0.35		1.0	0.35	mg/L			04/10/19 15:44	1

Lab Sample ID: LCS 310-235649/4
 Matrix: Water
 Analysis Batch: 235649

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.50	1.47		mg/L		98	90 - 110
Sulfate	7.50	7.49		mg/L		100	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-235260/1-A
 Matrix: Water
 Analysis Batch: 236802

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 235260

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Boron	<110		200	110	ug/L		04/10/19 08:11	04/22/19 21:37	1
Calcium	<0.10		0.50	0.10	mg/L		04/10/19 08:11	04/22/19 21:37	1

Lab Sample ID: LCS 310-235260/2-A
 Matrix: Water
 Analysis Batch: 236802

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 235260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	2.00	1.97		mg/L		99	80 - 120

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

Lab Sample ID: MB 310-235607/1
 Matrix: Water
 Analysis Batch: 235607

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<30.0		30.0		mg/L			04/12/19 09:34	1

Lab Sample ID: LCS 310-235607/2
 Matrix: Water
 Analysis Batch: 235607

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

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

QC Sample Results

Client: SCS Engineers
Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
SDG: 25219072

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-235230/1
Matrix: Water
Analysis Batch: 235230

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

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

QC Association Summary

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

HPLC/IC

Analysis Batch: 235649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152915-8	MW 307	Total/NA	Ground Water	9056A	
310-152915-9	MW 308	Total/NA	Ground Water	9056A	
310-152915-9	MW 308	Total/NA	Ground Water	9056A	
310-152915-10	MW 309	Total/NA	Ground Water	9056A	
310-152915-10	MW 309	Total/NA	Ground Water	9056A	
MB 310-235649/3	Method Blank	Total/NA	Water	9056A	
LCS 310-235649/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 235260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152915-8	MW 307	Total/NA	Ground Water	3010A	
310-152915-9	MW 308	Total/NA	Ground Water	3010A	
310-152915-10	MW 309	Total/NA	Ground Water	3010A	
MB 310-235260/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-235260/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 236802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152915-8	MW 307	Total/NA	Ground Water	6020A	235260
310-152915-9	MW 308	Total/NA	Ground Water	6020A	235260
310-152915-10	MW 309	Total/NA	Ground Water	6020A	235260
MB 310-235260/1-A	Method Blank	Total/NA	Water	6020A	235260
LCS 310-235260/2-A	Lab Control Sample	Total/NA	Water	6020A	235260

General Chemistry

Analysis Batch: 235230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152915-8	MW 307	Total/NA	Ground Water	SM 4500 H+ B	
310-152915-9	MW 308	Total/NA	Ground Water	SM 4500 H+ B	
310-152915-10	MW 309	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-235230/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 235607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152915-8	MW 307	Total/NA	Ground Water	SM 2540C	
310-152915-9	MW 308	Total/NA	Ground Water	SM 2540C	
310-152915-10	MW 309	Total/NA	Ground Water	SM 2540C	
MB 310-235607/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-235607/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 236698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152915-8	MW 307	Total/NA	Ground Water	Field Sampling	
310-152915-9	MW 308	Total/NA	Ground Water	Field Sampling	
310-152915-10	MW 309	Total/NA	Ground Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
 SDG: 25219072

Client Sample ID: MW 307

Lab Sample ID: 310-152915-8

Date Collected: 04/08/19 15:15

Matrix: Ground Water

Date Received: 04/09/19 17:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/10/19 21:02	MLU	TAL CF
Total/NA	Prep	3010A			235260	04/10/19 08:11	HED	TAL CF
Total/NA	Analysis	6020A		1	236802	04/22/19 22:42	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235607	04/12/19 09:34	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235230	04/10/19 00:23	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	236698	04/08/19 15:15	ANO	TAL CF

Client Sample ID: MW 308

Lab Sample ID: 310-152915-9

Date Collected: 04/08/19 15:59

Matrix: Ground Water

Date Received: 04/09/19 17:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/10/19 21:17	MLU	TAL CF
Total/NA	Analysis	9056A		20	235649	04/11/19 11:19	MLU	TAL CF
Total/NA	Prep	3010A			235260	04/10/19 08:11	HED	TAL CF
Total/NA	Analysis	6020A		1	236802	04/22/19 22:45	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235607	04/12/19 09:34	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235230	04/10/19 00:25	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	236698	04/08/19 15:59	ANO	TAL CF

Client Sample ID: MW 309

Lab Sample ID: 310-152915-10

Date Collected: 04/08/19 16:37

Matrix: Ground Water

Date Received: 04/09/19 17:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/10/19 22:04	MLU	TAL CF
Total/NA	Analysis	9056A		20	235649	04/11/19 11:35	MLU	TAL CF
Total/NA	Prep	3010A			235260	04/10/19 08:11	HED	TAL CF
Total/NA	Analysis	6020A		1	236802	04/22/19 22:48	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235607	04/12/19 09:34	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	235230	04/10/19 00:29	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	236698	04/08/19 16:37	ANO	TAL CF

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
SDG: 25219072

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

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

Method Summary

Client: SCS Engineers
Project/Site: IPL Ottumwa Generating Station 25219072

Job ID: 310-152915-3
SDG: 25219072

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

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

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



Cooler/Sample Receipt and Temperature Log Form

Client Information				
Client: <u>SCS Engineers</u>				
City/State: <u>Clive IA</u>	CITY	STATE	Project: <u>IPL - Ottumwa Generating Station</u>	
Receipt Information				
Date/Time Received: <u>4-9-19 1715</u>	DATE	TIME	Received By: <u>LAB</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____				
Condition of Cooler/Containers				
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record				
Coolant:	<input checked="" type="checkbox"/> Wet ice	<input type="checkbox"/> Blue ice	<input type="checkbox"/> Dry ice	<input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE
Thermometer ID: <u>N</u>	Correction Factor (°C): <u>+0.0</u>			
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature				
Uncorrected Temp (°C): <u>0.1</u>	Corrected Temp (°C): <u>0.1</u>			
• 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? <input type="checkbox"/> Yes <input type="checkbox"/> No				
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No				
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No				
NOTE: If yes, contact PM before proceeding. If no, proceed with login				
Additional Comments				



Place COC scanning label here
214

Cooler/Sample Receipt and Temperature Log Form

Client Information					
Client: <u>SCS Engineers</u>					
City/State: <u>Clive IA</u>		Project: <u>IPL - Ottumwa Generating Station</u>			
Receipt Information					
Date/Time Received: <u>4-9-19</u> <u>1715</u>		Received By: <u>LAB</u>			
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Other: _____					
Condition of Cooler/Containers					
Sample(s) received in Cooler?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes: Cooler ID: _____	
Multiple Coolers?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes: Which VOA samples are in cooler? ↓	
Temperature Record					
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE					
Thermometer ID: <u>N</u>			Correction Factor (°C): <u>+0.0</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature					
Uncorrected Temp (°C): <u>0.8</u>			Corrected Temp (°C): <u>0.8</u>		
• 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		TEMP 1	TEMP 2
Exceptions Noted					
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No					
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No					
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No					
NOTE: If yes, contact PM before proceeding. If no, proceed with login					
Additional Comments					

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

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW 301	310-152915-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 301	310-152915-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 301	310-152915-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 302	310-152915-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 302	310-152915-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 302	310-152915-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 303	310-152915-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 303	310-152915-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 303	310-152915-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 304	310-152915-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 304	310-152915-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 304	310-152915-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 305	310-152915-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 305	310-152915-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 305	310-152915-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 306	310-152915-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 306	310-152915-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 306	310-152915-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-152915-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-152915-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-152915-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW 307	310-152915-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 308	310-152915-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW 309	310-152915-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____

Fredrick, Sandie

From: Blodgett, Meghan <mblodgett@scsengineers.com>
Sent: Wednesday, April 10, 2019 9:01 AM
To: Fredrick, Sandie
Cc: Schemmel, Nick; Karwoski, Thomas; Kron, Nicole
Subject: RE: TestAmerica Sample Login Confirmation files from 310-152915 IPL Ottumwa Generating Station 25219072

-External Email-

Sandie,

A couple changes on this one:

-For reporting, please split MW-301 through MW-306 plus the field blank onto one report, and MW-307 through MW-309 on a second report.

-We do not need all the listed metals for MW-307 through MW-309. The only metals needed for those three wells are boron and calcium (full parameter list for these three is boron, calcium, chloride, fluoride, sulfate, TDS, and pH).

-Meg

Meghan Blodgett
608.216.7362 (o)
608.345.9221 (m)

From: Sandie Fredrick <sandie.fredrick@testamericainc.com>
Sent: Tuesday, April 9, 2019 9:21 PM
To: Blodgett, Meghan <mblodgett@scsengineers.com>; Schemmel, Nick <NSchemmel@scsengineers.com>; Karwoski, Thomas <TKarwoski@scsengineers.com>
Subject: TestAmerica Sample Login Confirmation files from 310-152915 IPL Ottumwa Generating Station 25219072

Hello Everyone,

Please send over field data when you can.

Thanks,
Sandie

Attached, please find the Sample Confirmation files for job 310-152915; IPL Ottumwa Generating Station 25219072

Please feel free to contact me if you have any questions.

Thank you.

Sandie Fredrick
Project Manager

TestAmerica Laboratories, Inc.
Phone: 920-261-1660

E-mail: sandie.fredrick@testamericainc.com
www.eurofinsus.com | www.testamericainc.com



Reference: [310-351154]
Attachments: 5

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

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-152915-3

SDG Number: 25219072

Login Number: 152915

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bindert, Lindsay A

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



A2 Round 2 Detection Sampling, Analytical Laboratory Report

ANALYTICAL REPORT

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

Laboratory Job ID: 310-168508-3

Client Project/Site: Ottumwa Generating Station 25219072

For:

SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



*Authorized for release by:
1/6/2020 3:19:05 PM*

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

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

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

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

Table of Contents

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



Case Narrative

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Job ID: 310-168508-3

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-168508-3

Comments

No additional comments.

Receipt

The samples were received on 10/25/2019 6:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.2° C and 4.3° C.

HPLC/IC

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MW-307 (310-168508-8), MW-308 (310-168508-9) and MW-309 (310-168508-10). 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: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-168508-8	MW-307	Water	10/23/19 13:15	10/25/19 18:30	
310-168508-9	MW-308	Water	10/23/19 11:56	10/25/19 18:30	
310-168508-10	MW-309	Water	10/23/19 10:32	10/25/19 18:30	

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

Detection Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Client Sample ID: MW-307

Lab Sample ID: 310-168508-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	220		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	95		5.0	1.8	mg/L	5		9056A	Total/NA
Boron	200		200	110	ug/L	1		6020A	Total/NA
Calcium	230		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1000		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	651.89				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-24.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.25				mg/L	1		Field Sampling	Total/NA
pH, Field	6.68				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1684				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.38				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	12.5				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-308

Lab Sample ID: 310-168508-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	160		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	300		10	3.5	mg/L	10		9056A	Total/NA
Boron	220		200	110	ug/L	1		6020A	Total/NA
Calcium	240		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1100		30	24	mg/L	1		SM 2540C	Total/NA
pH	7.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	651.31				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-38.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.42				mg/L	1		Field Sampling	Total/NA
pH, Field	6.78				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1637				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.16				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	7.42				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-309

Lab Sample ID: 310-168508-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	74		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	400		10	3.5	mg/L	10		9056A	Total/NA
Boron	1300		200	110	ug/L	1		6020A	Total/NA
Calcium	150		0.50	0.10	mg/L	1		6020A	Total/NA
Total Dissolved Solids	1100		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	651.28				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-27.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.36				mg/L	1		Field Sampling	Total/NA
pH, Field	6.98				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1461				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.83				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	42.6				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Client Sample ID: MW-307

Lab Sample ID: 310-168508-8

Date Collected: 10/23/19 13:15

Matrix: Water

Date Received: 10/25/19 18:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		5.0	1.5	mg/L			10/31/19 14:35	5
Fluoride	<0.23		0.50	0.23	mg/L			10/31/19 14:35	5
Sulfate	95		5.0	1.8	mg/L			10/31/19 14:35	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	200		200	110	ug/L		10/29/19 08:00	10/29/19 22:06	1
Calcium	230		0.50	0.10	mg/L		10/29/19 08:00	10/29/19 22:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	24	mg/L			10/29/19 13:03	1
pH	7.5	HF	0.1	0.1	SU			10/25/19 23:02	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	651.89				ft			10/23/19 13:15	1
Oxidation Reduction Potential	-24.8				millivolts			10/23/19 13:15	1
Oxygen, Dissolved, Client Supplied	0.25				mg/L			10/23/19 13:15	1
pH, Field	6.68				SU			10/23/19 13:15	1
Specific Conductance, Field	1684				umhos/cm			10/23/19 13:15	1
Temperature, Field	13.38				Degrees C			10/23/19 13:15	1
Turbidity, Field	12.5				NTU			10/23/19 13:15	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Client Sample ID: MW-308

Lab Sample ID: 310-168508-9

Date Collected: 10/23/19 11:56

Matrix: Water

Date Received: 10/25/19 18:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		5.0	1.5	mg/L			10/31/19 14:50	5
Fluoride	<0.23		0.50	0.23	mg/L			10/31/19 14:50	5
Sulfate	300		10	3.5	mg/L			11/01/19 12:24	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	220		200	110	ug/L		10/29/19 08:00	10/29/19 22:09	1
Calcium	240		0.50	0.10	mg/L		10/29/19 08:00	10/29/19 22:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	24	mg/L			10/29/19 13:03	1
pH	7.9	HF	0.1	0.1	SU			10/25/19 23:03	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	651.31				ft			10/23/19 11:56	1
Oxidation Reduction Potential	-38.7				millivolts			10/23/19 11:56	1
Oxygen, Dissolved, Client Supplied	4.42				mg/L			10/23/19 11:56	1
pH, Field	6.78				SU			10/23/19 11:56	1
Specific Conductance, Field	1637				umhos/cm			10/23/19 11:56	1
Temperature, Field	13.16				Degrees C			10/23/19 11:56	1
Turbidity, Field	7.42				NTU			10/23/19 11:56	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Client Sample ID: MW-309

Lab Sample ID: 310-168508-10

Date Collected: 10/23/19 10:32

Matrix: Water

Date Received: 10/25/19 18:30

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	74		5.0	1.5	mg/L			10/31/19 15:06	5
Fluoride	<0.23		0.50	0.23	mg/L			10/31/19 15:06	5
Sulfate	400		10	3.5	mg/L			11/01/19 12:41	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300		200	110	ug/L		10/29/19 08:00	10/29/19 22:13	1
Calcium	150		0.50	0.10	mg/L		10/29/19 08:00	10/29/19 22:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	24	mg/L			10/29/19 13:03	1
pH	7.2	HF	0.1	0.1	SU			10/25/19 23:35	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	651.28				ft			10/23/19 10:32	1
Oxidation Reduction Potential	-27.5				millivolts			10/23/19 10:32	1
Oxygen, Dissolved, Client Supplied	0.36				mg/L			10/23/19 10:32	1
pH, Field	6.98				SU			10/23/19 10:32	1
Specific Conductance, Field	1461				umhos/cm			10/23/19 10:32	1
Temperature, Field	12.83				Degrees C			10/23/19 10:32	1
Turbidity, Field	42.6				NTU			10/23/19 10:32	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Qualifiers

General Chemistry

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-259370/3
Matrix: Water
Analysis Batch: 259370

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			10/31/19 08:19	1
Fluoride	<0.045		0.10	0.045	mg/L			10/31/19 08:19	1
Sulfate	<0.35		1.0	0.35	mg/L			10/31/19 08:19	1

Lab Sample ID: LCS 310-259370/4
Matrix: Water
Analysis Batch: 259370

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	10.1		mg/L		101	90 - 110
Fluoride	2.00	2.07		mg/L		104	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-258560/1-A
Matrix: Water
Analysis Batch: 258765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 258560

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<110		200	110	ug/L		10/29/19 08:00	10/29/19 21:05	1
Calcium	<0.10		0.50	0.10	mg/L		10/29/19 08:00	10/29/19 21:05	1

Lab Sample ID: LCS 310-258560/2-A
Matrix: Water
Analysis Batch: 258765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 258560

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1760	1680		ug/L		95	80 - 120
Calcium	4.00	4.04		mg/L		101	80 - 120

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

Lab Sample ID: MB 310-258685/1
Matrix: Water
Analysis Batch: 258685

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			10/29/19 13:03	1

Lab Sample ID: LCS 310-258685/2
Matrix: Water
Analysis Batch: 258685

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-258389/1
Matrix: Water
Analysis Batch: 258389

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: 310-168508-10 DU
Matrix: Water
Analysis Batch: 258389

Client Sample ID: MW-309
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.2	HF	7.2		SU	-	0.1	20

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

QC Association Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

HPLC/IC

Analysis Batch: 259370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168508-8	MW-307	Total/NA	Water	9056A	
310-168508-9	MW-308	Total/NA	Water	9056A	
310-168508-9	MW-308	Total/NA	Water	9056A	
310-168508-10	MW-309	Total/NA	Water	9056A	
310-168508-10	MW-309	Total/NA	Water	9056A	
MB 310-259370/3	Method Blank	Total/NA	Water	9056A	
LCS 310-259370/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 258560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168508-8	MW-307	Total/NA	Water	3010A	
310-168508-9	MW-308	Total/NA	Water	3010A	
310-168508-10	MW-309	Total/NA	Water	3010A	
MB 310-258560/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-258560/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 258765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168508-8	MW-307	Total/NA	Water	6020A	258560
310-168508-9	MW-308	Total/NA	Water	6020A	258560
310-168508-10	MW-309	Total/NA	Water	6020A	258560
MB 310-258560/1-A	Method Blank	Total/NA	Water	6020A	258560
LCS 310-258560/2-A	Lab Control Sample	Total/NA	Water	6020A	258560

General Chemistry

Analysis Batch: 258389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168508-8	MW-307	Total/NA	Water	SM 4500 H+ B	
310-168508-9	MW-308	Total/NA	Water	SM 4500 H+ B	
310-168508-10	MW-309	Total/NA	Water	SM 4500 H+ B	
LCS 310-258389/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-168508-10 DU	MW-309	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 258685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168508-8	MW-307	Total/NA	Water	SM 2540C	
310-168508-9	MW-308	Total/NA	Water	SM 2540C	
310-168508-10	MW-309	Total/NA	Water	SM 2540C	
MB 310-258685/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-258685/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 259232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-168508-8	MW-307	Total/NA	Water	Field Sampling	
310-168508-9	MW-308	Total/NA	Water	Field Sampling	
310-168508-10	MW-309	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

Client Sample ID: MW-307

Lab Sample ID: 310-168508-8

Date Collected: 10/23/19 13:15

Matrix: Water

Date Received: 10/25/19 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259370	10/31/19 14:35	CJT	TAL CF
Total/NA	Prep	3010A			258560	10/29/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	258765	10/29/19 22:06	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	258685	10/29/19 13:03	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258389	10/25/19 23:02	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/23/19 13:15	EAR	TAL CF

Client Sample ID: MW-308

Lab Sample ID: 310-168508-9

Date Collected: 10/23/19 11:56

Matrix: Water

Date Received: 10/25/19 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259370	10/31/19 14:50	CJT	TAL CF
Total/NA	Analysis	9056A		10	259370	11/01/19 12:24	CJT	TAL CF
Total/NA	Prep	3010A			258560	10/29/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	258765	10/29/19 22:09	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	258685	10/29/19 13:03	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258389	10/25/19 23:03	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/23/19 11:56	EAR	TAL CF

Client Sample ID: MW-309

Lab Sample ID: 310-168508-10

Date Collected: 10/23/19 10:32

Matrix: Water

Date Received: 10/25/19 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	259370	10/31/19 15:06	CJT	TAL CF
Total/NA	Analysis	9056A		10	259370	11/01/19 12:41	CJT	TAL CF
Total/NA	Prep	3010A			258560	10/29/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	258765	10/29/19 22:13	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	258685	10/29/19 13:03	MDK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	258389	10/25/19 23:35	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	259232	10/23/19 10:32	EAR	TAL CF

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

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 *

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

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

Method Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-168508-3

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

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

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



Environment Testing
TestAmerica



310-168508 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information		
Client: <u>SCS Engineers</u>		
City/State: <u>CA</u> <small>CITY</small>	<u>IA</u> <small>STATE</small>	Project: <u>Ottumwa Generating Station</u>
Receipt Information		
Date/Time Received: <u>10-25-19</u> <small>DATE</small> <u>1830</u> <small>TIME</small>	Received By: <u>LAB</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____		
Condition of Cooler/Containers		
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record		
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID: <u>N</u>	Correction Factor (°C): <u>+0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature		
Uncorrected Temp (°C): <u>1.2</u>	Corrected Temp (°C): <u>1.2</u>	
• Sample Container Temperature		
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>
Uncorrected Temp (°C):		
Corrected Temp (°C):		
Exceptions Noted		
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No		
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No		
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No		
NOTE: If yes, contact PM before proceeding. If no, proceed with login		
Additional Comments		

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



Environment Testing
TestAmerica

Place COC scanning label

here
214

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS engineers</u>			
City/State: <u>Clive IA</u>	CITY	STATE	Project: <u>Ottumwa Generating station</u>
Receipt Information			
Date/Time Received: <u>10-25-19 1830</u>	DATE	TIME	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>N</u>	Correction Factor (°C): <u>+0.0</u>		
• Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>4.3</u>	Corrected Temp (°C): <u>4.3</u>		
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

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

14167

Client Information		Sampler: <u>Louise Jennings</u>		Lab P/M: <u>Fredrick, Sandie</u>		Carrier Tracking No(s):		COC No: <u>310-44167-12671.2</u>	
Client Contact: <u>Louise Jennings</u>		Phone: <u>508 509 8245</u>		E-Mail: <u>sandie.fredrick@testamericainc.com</u>		Page: <u>Page 2 of 2</u>		Job #:	
Company: <u>SCS Engineers</u>		Due Date Requested:		Analysis Requested		Total Number of containers		Preservation Codes:	
Address: <u>8450 Hickman Road Suite 20</u>		TAT Requested (days):		Perform M/M/SD (Yes or No)		Field Filtered Sample (Yes or No)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
City: <u>Clive</u>		PO #: <u>25219072</u>		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)		2540C_Calcd, 9056A_ORGFM_28D, SM4500_H+		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
State/Zip: <u>IA, 50325</u>		WO #: <u>31011020</u>		Sample Type (C=comp, G=grab)		903.0, 904.0		Special Instructions/Note:	
Phone: <u>jennings@scsengineers.com</u>		Project #: <u>31011020</u>		Sample Time		903.0, 904.0			
Email: <u>jennings@scsengineers.com</u>		SSOW#: <u>31011020</u>		Sample Date		903.0, 904.0			
Project Name: <u>Ottumwa Generating Station 25219072</u>		Sample Date		Preservation Code:		903.0, 904.0			
Site: <u>31011020</u>		Sample Date		Water		903.0, 904.0			
Sample Identification		Sample Date		Water		903.0, 904.0			
MW-310		10.24.19		G		903.0, 904.0			
MW-311		11.24.19		G		903.0, 904.0			
Possible Hazard Identification		Sample Date		Preservation Code:		903.0, 904.0			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Date		Water		903.0, 904.0			
Deliverable Requested: I, II, III, IV, Other (specify)		Sample Date		Water		903.0, 904.0			
Empty Kit Relinquished by:		Sample Date		Water		903.0, 904.0			
Relinquished by: <u>[Signature]</u>		Sample Date		Water		903.0, 904.0			
Relinquished by:		Sample Date		Water		903.0, 904.0			
Relinquished by:		Sample Date		Water		903.0, 904.0			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Sample Date		Water		903.0, 904.0			
Custody Seal No.:		Sample Date		Water		903.0, 904.0			

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> pH	<u>Preservative</u> Added (mls)	<u>Lot #</u>
MW-301	310-168508-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-301	310-168508-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-301	310-168508-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-168508-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-302	310-168508-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-168508-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-168508-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-303	310-168508-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-168508-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-168508-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-304	310-168508-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-168508-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-168508-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-305	310-168508-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-168508-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-168508-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-306	310-168508-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-168508-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
FIELD BLANK	310-168508-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
FIELD BLANK	310-168508-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
FIELD BLANK	310-168508-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-307	310-168508-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-308	310-168508-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-309	310-168508-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-310	310-168508-A-11	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-310	310-168508-C-11	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-310	310-168508-D-11	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-311	310-168508-A-12	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-311	310-168508-C-12	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-311	310-168508-D-12	Plastic 1 liter - Nitric Acid	<2	_____	_____



**Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Ottumwa Generating Station / SCS Engineers Project #25219072**

Parameter	COC #1		COC #2								COC #3			TOTAL
	MW-301	Field Blank	MW-302	MW-303	MW-304	MW-305	MW-306	MW-310	MW-311	MW-307	MW-308	MW-309		
Appendix III Parameters	Boron	x	x	x	x	x	x	x	x	x	x	x	x	12
	Calcium	x	x	x	x	x	x	x	x	x	x	x	x	12
	Chloride	x	x	x	x	x	x	x	x	x	x	x	x	12
	Fluoride	x	x	x	x	x	x	x	x	x	x	x	x	12
	pH	x	x	x	x	x	x	x	x	x	x	x	x	12
	Sulfate	x	x	x	x	x	x	x	x	x	x	x	x	12
	TDS	x	x	x	x	x	x	x	x	x	x	x	x	12
Appendix IV Parameters	Antimony	x	x	x	x	x	x	x	x	x				9
	Arsenic	x	x	x	x	x	x	x	x	x				9
	Barium	x	x	x	x	x	x	x	x	x				9
	Beryllium	x	x	x	x	x	x	x	x	x				9
	Cadmium	x	x	x	x	x	x	x	x	x				9
	Chromium	x	x	x	x	x	x	x	x	x				9
	Cobalt	x	x	x	x	x	x	x	x	x				9
	Fluoride	x	x	x	x	x	x	x	x	x				9
	Lead	x	x	x	x	x	x	x	x	x				9
	Lithium	x	x	x	x	x	x	x	x	x				9
	Mercury	x	x	x	x	x	x	x	x	x				9
	Molybdenum	x	x	x	x	x	x	x	x	x				9
	Selenium	x	x	x	x	x	x	x	x	x				9
Thallium	x	x	x	x	x	x	x	x	x				9	
Radium	x	x	x	x	x	x	x	x	x				9	
Field Parameters	Groundwater Elevation	x		x	x	x	x	x	x	x	x	x	x	11
	Well Depth	x		x	x	x	x	x	x	x	x	x	x	11
	pH (field)	x		x	x	x	x	x	x	x	x	x	x	11
	Specific Conductance	x		x	x	x	x	x	x	x	x	x	x	11
	Dissolved Oxygen	x		x	x	x	x	x	x	x	x	x	x	11
	ORP	x		x	x	x	x	x	x	x	x	x	x	11
	Temperature	x		x	x	x	x	x	x	x	x	x	x	11
	Turbidity	x		x	x	x	x	x	x	x	x	x	x	11
	Color	x		x	x	x	x	x	x	x	x	x	x	11
Odor	x		x	x	x	x	x	x	x	x	x	x	11	

Notes: All samples are unfiltered (total).

C:\Users\fredricks\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\2320UB0Y\OGS_CCR_Rule_Sampling_2019_O

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-168508-3

Login Number: 168508

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bovy, Lorraine L

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

A3 Round 1 of Assessment Sampling, Analytical Laboratory Report

ANALYTICAL REPORT

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

Laboratory Job ID: 310-171907-1

Client Project/Site: Ottumwa Generating Station 25219072

For:

SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



*Authorized for release by:
12/23/2019 3:38:09 PM*

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

LINKS

Review your project
results through
Total Access

Have a Question?



Visit us at:
www.testamericainc.com

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

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



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	7
Definitions	11
QC Sample Results	12
QC Association	16
Chronicle	18
Certification Summary	20
Method Summary	21
Chain of Custody	22
Receipt Checklists	26

Case Narrative

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Job ID: 310-171907-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative 310-171907-1

Comments

No additional comments.

Receipt

The samples were received on 12/11/2019 5:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -0.2° C.

HPLC/IC

Methods 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW-307 (310-171907-1), MW-308 (310-171907-2) and MW-309 (310-171907-3). 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: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-171907-1	MW-307	Water	12/11/19 08:55	12/11/19 17:25	
310-171907-2	MW-308	Water	12/11/19 09:50	12/11/19 17:25	
310-171907-3	MW-309	Water	12/11/19 10:50	12/11/19 17:25	
310-171907-4	Field Blank	Water	12/11/19 08:40	12/11/19 17:25	

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

Detection Summary

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-307

Lab Sample ID: 310-171907-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	200		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	92		5.0	1.8	mg/L	5		9056A	Total/NA
Barium	140		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	190	J	200	110	ug/L	1		6020A	Total/NA
Calcium	230		0.50	0.10	mg/L	1		6020A	Total/NA
Cobalt	11		0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.71		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	12		10	2.7	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1000		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.7	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	649.59				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-45.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.18				mg/L	1		Field Sampling	Total/NA
pH, Field	6.37				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1576				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.50				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	43.13				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-308

Lab Sample ID: 310-171907-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	150		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	280		10	3.5	mg/L	10		9056A	Total/NA
Barium	130		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	160	J	200	110	ug/L	1		6020A	Total/NA
Calcium	220		0.50	0.10	mg/L	1		6020A	Total/NA
Chromium	5.9		5.0	0.98	ug/L	1		6020A	Total/NA
Cobalt	0.26	J	0.50	0.091	ug/L	1		6020A	Total/NA
Lead	0.52		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	16		10	2.7	ug/L	1		6020A	Total/NA
Total Dissolved Solids	1100		30	24	mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	647.39				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-56.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.43				mg/L	1		Field Sampling	Total/NA
pH, Field	6.55				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1532				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	10.50				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	15.72				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-309

Lab Sample ID: 310-171907-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	66		5.0	1.5	mg/L	5		9056A	Total/NA
Sulfate	370		10	3.5	mg/L	10		9056A	Total/NA
Arsenic	1.1	J	2.0	0.75	ug/L	1		6020A	Total/NA
Barium	54		2.0	0.84	ug/L	1		6020A	Total/NA
Boron	1100		200	110	ug/L	1		6020A	Total/NA
Cadmium	0.090	J	0.10	0.039	ug/L	1		6020A	Total/NA
Calcium	150		0.50	0.10	mg/L	1		6020A	Total/NA
Chromium	1.7	J	5.0	0.98	ug/L	1		6020A	Total/NA
Cobalt	3.7		0.50	0.091	ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-309 (Continued)

Lab Sample ID: 310-171907-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	2.8		0.50	0.27	ug/L	1		6020A	Total/NA
Lithium	8.2	J	10	2.7	ug/L	1		6020A	Total/NA
Total Dissolved Solids	980		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	647.24				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-37.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.26				mg/L	1		Field Sampling	Total/NA
pH, Field	6.67				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1350				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	413.6				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-171907-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	0.19	J	0.50	0.10	mg/L	1		6020A	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-307

Lab Sample ID: 310-171907-1

Date Collected: 12/11/19 08:55

Matrix: Water

Date Received: 12/11/19 17:25

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		5.0	1.5	mg/L			12/12/19 15:56	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 10:26	5
Sulfate	92		5.0	1.8	mg/L			12/12/19 15:56	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		12/13/19 07:50	12/19/19 11:36	1
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 19:49	1
Barium	140		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 19:49	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 19:49	1
Boron	190	J	200	110	ug/L		12/13/19 07:50	12/17/19 19:49	1
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 19:49	1
Calcium	230		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 19:49	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 19:49	1
Cobalt	11		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 19:49	1
Lead	0.71		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 19:49	1
Lithium	12		10	2.7	ug/L		12/13/19 07:50	12/19/19 11:36	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 11:36	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 19:49	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 19:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		30	24	mg/L			12/13/19 11:40	1
pH	6.7	HF	0.1	0.1	SU			12/11/19 22:51	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	649.59				ft			12/11/19 08:55	1
Oxidation Reduction Potential	-45.8				millivolts			12/11/19 08:55	1
Oxygen, Dissolved, Client Supplied	0.18				mg/L			12/11/19 08:55	1
pH, Field	6.37				SU			12/11/19 08:55	1
Specific Conductance, Field	1576				umhos/cm			12/11/19 08:55	1
Temperature, Field	11.50				Degrees C			12/11/19 08:55	1
Turbidity, Field	43.13				NTU			12/11/19 08:55	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-308

Lab Sample ID: 310-171907-2

Date Collected: 12/11/19 09:50

Matrix: Water

Date Received: 12/11/19 17:25

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		5.0	1.5	mg/L			12/12/19 16:43	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 10:41	5
Sulfate	280		10	3.5	mg/L			12/13/19 10:57	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 11:43	1
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:00	1
Barium	130		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:00	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:00	1
Boron	160 J		200	110	ug/L		12/13/19 07:50	12/17/19 20:00	1
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:00	1
Calcium	220		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:00	1
Chromium	5.9		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:00	1
Cobalt	0.26 J		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:00	1
Lead	0.52		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:00	1
Lithium	16		10	2.7	ug/L		12/13/19 07:50	12/19/19 11:43	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 11:43	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:00	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:00	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1100		30	24	mg/L			12/13/19 11:40	1
pH	6.8	HF	0.1	0.1	SU			12/11/19 22:52	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	647.39				ft			12/11/19 09:50	1
Oxidation Reduction Potential	-56.6				millivolts			12/11/19 09:50	1
Oxygen, Dissolved, Client Supplied	0.43				mg/L			12/11/19 09:50	1
pH, Field	6.55				SU			12/11/19 09:50	1
Specific Conductance, Field	1532				umhos/cm			12/11/19 09:50	1
Temperature, Field	10.50				Degrees C			12/11/19 09:50	1
Turbidity, Field	15.72				NTU			12/11/19 09:50	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-309

Lab Sample ID: 310-171907-3

Date Collected: 12/11/19 10:50

Matrix: Water

Date Received: 12/11/19 17:25

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	66		5.0	1.5	mg/L			12/12/19 16:58	5
Fluoride	<0.23		0.50	0.23	mg/L			12/13/19 11:13	5
Sulfate	370		10	3.5	mg/L			12/13/19 11:28	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 11:46	1
Arsenic	1.1	J	2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:02	1
Barium	54		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:02	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:02	1
Boron	1100		200	110	ug/L		12/13/19 07:50	12/17/19 20:02	1
Cadmium	0.090	J	0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:02	1
Calcium	150		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:02	1
Chromium	1.7	J	5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:02	1
Cobalt	3.7		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:02	1
Lead	2.8		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:02	1
Lithium	8.2	J	10	2.7	ug/L		12/13/19 07:50	12/19/19 11:46	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 11:46	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:02	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:02	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	980		30	24	mg/L			12/13/19 11:40	1
pH	7.1	HF	0.1	0.1	SU			12/11/19 22:53	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	647.24				ft			12/11/19 10:50	1
Oxidation Reduction Potential	-37.8				millivolts			12/11/19 10:50	1
Oxygen, Dissolved, Client Supplied	0.26				mg/L			12/11/19 10:50	1
pH, Field	6.67				SU			12/11/19 10:50	1
Specific Conductance, Field	1350				umhos/cm			12/11/19 10:50	1
Temperature, Field	11.5				Degrees C			12/11/19 10:50	1
Turbidity, Field	413.6				NTU			12/11/19 10:50	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: Field Blank

Lab Sample ID: 310-171907-4

Date Collected: 12/11/19 08:40

Matrix: Water

Date Received: 12/11/19 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			12/12/19 17:14	1
Fluoride	<0.045		0.10	0.045	mg/L			12/13/19 11:44	1
Sulfate	<0.35		1.0	0.35	mg/L			12/12/19 17:14	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 11:48	1
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 20:05	1
Barium	<0.84		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 20:05	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:05	1
Boron	<110		200	110	ug/L		12/13/19 07:50	12/17/19 20:05	1
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 20:05	1
Calcium	0.19	J	0.50	0.10	mg/L		12/13/19 07:50	12/17/19 20:05	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 20:05	1
Cobalt	<0.091		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 20:05	1
Lead	<0.27		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 20:05	1
Lithium	<2.7		10	2.7	ug/L		12/13/19 07:50	12/19/19 11:48	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/19/19 11:48	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 20:05	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 20:05	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 13:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			12/13/19 11:40	1
pH	7.2	HF	0.1	0.1	SU			12/11/19 22:56	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

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

Glossary

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

QC Sample Results

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-264765/3
Matrix: Water
Analysis Batch: 264765

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.29		1.0	0.29	mg/L			12/12/19 14:07	1
Sulfate	<0.35		1.0	0.35	mg/L			12/12/19 14:07	1

Lab Sample ID: MB 310-264765/60
Matrix: Water
Analysis Batch: 264765

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.045		0.10	0.045	mg/L			12/13/19 16:40	1

Lab Sample ID: LCS 310-264765/4
Matrix: Water
Analysis Batch: 264765

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.69		mg/L		97	90 - 110
Sulfate	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: LCS 310-264765/61
Matrix: Water
Analysis Batch: 264765

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	2.00	1.98		mg/L		99	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-264522/1-A
Matrix: Water
Analysis Batch: 265032

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.75		2.0	0.75	ug/L		12/13/19 07:50	12/17/19 19:44	1
Barium	<0.84		2.0	0.84	ug/L		12/13/19 07:50	12/17/19 19:44	1
Beryllium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 19:44	1
Boron	<110		200	110	ug/L		12/13/19 07:50	12/17/19 19:44	1
Cadmium	<0.039		0.10	0.039	ug/L		12/13/19 07:50	12/17/19 19:44	1
Calcium	<0.10		0.50	0.10	mg/L		12/13/19 07:50	12/17/19 19:44	1
Chromium	<0.98		5.0	0.98	ug/L		12/13/19 07:50	12/17/19 19:44	1
Cobalt	<0.091		0.50	0.091	ug/L		12/13/19 07:50	12/17/19 19:44	1
Lead	<0.27		0.50	0.27	ug/L		12/13/19 07:50	12/17/19 19:44	1
Molybdenum	<1.1		2.0	1.1	ug/L		12/13/19 07:50	12/17/19 19:44	1
Selenium	<1.0		5.0	1.0	ug/L		12/13/19 07:50	12/17/19 19:44	1
Thallium	<0.27		1.0	0.27	ug/L		12/13/19 07:50	12/17/19 19:44	1

QC Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

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

Lab Sample ID: MB 310-264522/1-A
Matrix: Water
Analysis Batch: 265426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 264522

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.53		1.0	0.53	ug/L		12/13/19 07:50	12/19/19 11:23	1
Lithium	<2.7		10	2.7	ug/L		12/13/19 07:50	12/19/19 11:23	1

Lab Sample ID: LCS 310-264522/2-A
Matrix: Water
Analysis Batch: 265032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	68.5		ug/L		86	80 - 120
Barium	80.0	76.1		ug/L		95	80 - 120
Beryllium	40.0	41.2		ug/L		103	80 - 120
Boron	1760	1520		ug/L		86	80 - 120
Cadmium	40.0	39.0		ug/L		98	80 - 120
Calcium	4.00	3.84		mg/L		96	80 - 120
Chromium	80.0	80.2		ug/L		100	80 - 120
Cobalt	40.0	41.3		ug/L		103	80 - 120
Lead	40.0	39.3		ug/L		98	80 - 120
Selenium	80.0	69.7		ug/L		87	80 - 120
Thallium	32.0	29.8		ug/L		93	80 - 120

Lab Sample ID: LCS 310-264522/2-A
Matrix: Water
Analysis Batch: 265426

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	200	198		ug/L		99	80 - 120

Lab Sample ID: LCS 310-264522/2-A
Matrix: Water
Analysis Batch: 265741

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	38.9		ug/L		97	80 - 120
Molybdenum	80.0	83.2		ug/L		104	80 - 120

Lab Sample ID: 310-171907-1 MS
Matrix: Water
Analysis Batch: 265032

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.75		80.0	72.4		ug/L		91	75 - 125
Barium	140		80.0	207		ug/L		89	75 - 125
Beryllium	<0.27		40.0	41.4		ug/L		103	75 - 125
Boron	190	J	1760	1660		ug/L		84	75 - 125
Cadmium	<0.039		40.0	36.6		ug/L		91	75 - 125
Calcium	230		4.00	230	4	mg/L		64	75 - 125
Chromium	<0.98		80.0	78.2		ug/L		98	75 - 125
Cobalt	11		40.0	49.9		ug/L		96	75 - 125
Lead	0.71		40.0	40.6		ug/L		100	75 - 125

QC Sample Results

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

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

Lab Sample ID: 310-171907-1 MS
Matrix: Water
Analysis Batch: 265032

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Molybdenum	<1.1		80.0	80.0		ug/L		100		75 - 125
Selenium	<1.0		80.0	69.2		ug/L		87		75 - 125
Thallium	<0.27		32.0	30.7		ug/L		96		75 - 125

Lab Sample ID: 310-171907-1 MS
Matrix: Water
Analysis Batch: 265426

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Antimony	<0.53		40.0	37.3		ug/L		93		75 - 125
Lithium	12		200	201		ug/L		94		75 - 125

Lab Sample ID: 310-171907-1 MSD
Matrix: Water
Analysis Batch: 265032

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Arsenic	<0.75		80.0	71.8		ug/L		90		75 - 125	1	20
Barium	140		80.0	204		ug/L		85		75 - 125	2	20
Beryllium	<0.27		40.0	41.1		ug/L		103		75 - 125	1	20
Boron	190	J	1760	1660		ug/L		84		75 - 125	0	20
Cadmium	<0.039		40.0	36.6		ug/L		91		75 - 125	0	20
Calcium	230		4.00	227	4	mg/L		-11		75 - 125	1	20
Chromium	<0.98		80.0	77.7		ug/L		97		75 - 125	1	20
Cobalt	11		40.0	49.8		ug/L		96		75 - 125	0	20
Lead	0.71		40.0	40.2		ug/L		99		75 - 125	1	20
Molybdenum	<1.1		80.0	81.1		ug/L		101		75 - 125	1	20
Selenium	<1.0		80.0	69.1		ug/L		86		75 - 125	0	20
Thallium	<0.27		32.0	30.4		ug/L		95		75 - 125	1	20

Lab Sample ID: 310-171907-1 MSD
Matrix: Water
Analysis Batch: 265426

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 264522

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Antimony	<0.53		40.0	37.1		ug/L		93		75 - 125	0	20
Lithium	12		200	200		ug/L		94		75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-264564/1-A
Matrix: Water
Analysis Batch: 264800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 264564

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.10		0.20	0.10	ug/L		12/13/19 11:22	12/16/19 12:54	1

QC Sample Results

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 310-264564/2-A
 Matrix: Water
 Analysis Batch: 264800

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 264564
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.67	1.71		ug/L		102	80 - 120

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

Lab Sample ID: MB 310-264588/1
 Matrix: Water
 Analysis Batch: 264588

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<24		30	24	mg/L			12/13/19 11:40	1

Lab Sample ID: LCS 310-264588/2
 Matrix: Water
 Analysis Batch: 264588

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	954		mg/L		95	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-264318/1
 Matrix: Water
 Analysis Batch: 264318

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

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

QC Association Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

HPLC/IC

Analysis Batch: 264765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	9056A	
310-171907-1	MW-307	Total/NA	Water	9056A	
310-171907-2	MW-308	Total/NA	Water	9056A	
310-171907-2	MW-308	Total/NA	Water	9056A	
310-171907-2	MW-308	Total/NA	Water	9056A	
310-171907-3	MW-309	Total/NA	Water	9056A	
310-171907-3	MW-309	Total/NA	Water	9056A	
310-171907-3	MW-309	Total/NA	Water	9056A	
310-171907-4	Field Blank	Total/NA	Water	9056A	
310-171907-4	Field Blank	Total/NA	Water	9056A	
MB 310-264765/3	Method Blank	Total/NA	Water	9056A	
MB 310-264765/60	Method Blank	Total/NA	Water	9056A	
LCS 310-264765/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 310-264765/61	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 264522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	3010A	
310-171907-2	MW-308	Total/NA	Water	3010A	
310-171907-3	MW-309	Total/NA	Water	3010A	
310-171907-4	Field Blank	Total/NA	Water	3010A	
MB 310-264522/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-171907-1 MS	MW-307	Total/NA	Water	3010A	
310-171907-1 MSD	MW-307	Total/NA	Water	3010A	

Prep Batch: 264564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	7470A	
310-171907-2	MW-308	Total/NA	Water	7470A	
310-171907-3	MW-309	Total/NA	Water	7470A	
310-171907-4	Field Blank	Total/NA	Water	7470A	
MB 310-264564/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-264564/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 264800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	7470A	264564
310-171907-2	MW-308	Total/NA	Water	7470A	264564
310-171907-3	MW-309	Total/NA	Water	7470A	264564
310-171907-4	Field Blank	Total/NA	Water	7470A	264564
MB 310-264564/1-A	Method Blank	Total/NA	Water	7470A	264564
LCS 310-264564/2-A	Lab Control Sample	Total/NA	Water	7470A	264564

Analysis Batch: 265032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	6020A	264522
310-171907-2	MW-308	Total/NA	Water	6020A	264522
310-171907-3	MW-309	Total/NA	Water	6020A	264522

Eurofins TestAmerica, Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Metals (Continued)

Analysis Batch: 265032 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-4	Field Blank	Total/NA	Water	6020A	264522
MB 310-264522/1-A	Method Blank	Total/NA	Water	6020A	264522
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	6020A	264522
310-171907-1 MS	MW-307	Total/NA	Water	6020A	264522
310-171907-1 MSD	MW-307	Total/NA	Water	6020A	264522

Analysis Batch: 265426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	6020A	264522
310-171907-2	MW-308	Total/NA	Water	6020A	264522
310-171907-3	MW-309	Total/NA	Water	6020A	264522
310-171907-4	Field Blank	Total/NA	Water	6020A	264522
MB 310-264522/1-A	Method Blank	Total/NA	Water	6020A	264522
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	6020A	264522
310-171907-1 MS	MW-307	Total/NA	Water	6020A	264522
310-171907-1 MSD	MW-307	Total/NA	Water	6020A	264522

Analysis Batch: 265741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-264522/2-A	Lab Control Sample	Total/NA	Water	6020A	264522

General Chemistry

Analysis Batch: 264318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	SM 4500 H+ B	
310-171907-2	MW-308	Total/NA	Water	SM 4500 H+ B	
310-171907-3	MW-309	Total/NA	Water	SM 4500 H+ B	
310-171907-4	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-264318/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 264588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	SM 2540C	
310-171907-2	MW-308	Total/NA	Water	SM 2540C	
310-171907-3	MW-309	Total/NA	Water	SM 2540C	
310-171907-4	Field Blank	Total/NA	Water	SM 2540C	
MB 310-264588/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-264588/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 265262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-171907-1	MW-307	Total/NA	Water	Field Sampling	
310-171907-2	MW-308	Total/NA	Water	Field Sampling	
310-171907-3	MW-309	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-307

Lab Sample ID: 310-171907-1

Date Collected: 12/11/19 08:55

Matrix: Water

Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 15:56	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 10:26	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 19:49	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265426	12/19/19 11:36	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:34	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:51	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/11/19 08:55	EAR	TAL CF

Client Sample ID: MW-308

Lab Sample ID: 310-171907-2

Date Collected: 12/11/19 09:50

Matrix: Water

Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 16:43	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 10:41	ACJ	TAL CF
Total/NA	Analysis	9056A		10	264765	12/13/19 10:57	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:00	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265426	12/19/19 11:43	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:32	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:52	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/11/19 09:50	EAR	TAL CF

Client Sample ID: MW-309

Lab Sample ID: 310-171907-3

Date Collected: 12/11/19 10:50

Matrix: Water

Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	264765	12/12/19 16:58	ACJ	TAL CF
Total/NA	Analysis	9056A		5	264765	12/13/19 11:13	ACJ	TAL CF
Total/NA	Analysis	9056A		10	264765	12/13/19 11:28	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:02	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265426	12/19/19 11:46	SAD	TAL CF

Lab Chronicle

Client: SCS Engineers
 Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Client Sample ID: MW-309

Lab Sample ID: 310-171907-3

Date Collected: 12/11/19 10:50

Matrix: Water

Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:26	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:53	JMH	TAL CF
Total/NA	Analysis	Field Sampling		1	265262	12/11/19 10:50	EAR	TAL CF

Client Sample ID: Field Blank

Lab Sample ID: 310-171907-4

Date Collected: 12/11/19 08:40

Matrix: Water

Date Received: 12/11/19 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	264765	12/12/19 17:14	ACJ	TAL CF
Total/NA	Analysis	9056A		1	264765	12/13/19 11:44	ACJ	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265032	12/17/19 20:05	SAD	TAL CF
Total/NA	Prep	3010A			264522	12/13/19 07:50	HED	TAL CF
Total/NA	Analysis	6020A		1	265426	12/19/19 11:48	SAD	TAL CF
Total/NA	Prep	7470A			264564	12/13/19 11:22	HIS	TAL CF
Total/NA	Analysis	7470A		1	264800	12/16/19 13:24	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	264588	12/13/19 11:40	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	264318	12/11/19 22:56	JMH	TAL CF

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

Laboratory: Eurofins TestAmerica, Cedar Falls

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

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

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

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

Method Summary

Client: SCS Engineers
Project/Site: Ottumwa Generating Station 25219072

Job ID: 310-171907-1

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



310-171907 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS Eng.</u>			
City/State: <u>Chive</u>	CITY	STATE <u>IA</u>	Project: <u>Ottumwa Gen. Station</u>
Receipt Information			
Date/Time Received: <u>12-16-19</u>	DATE	<u>1725</u>	TIME
Received By: <u>LAB</u>			
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>-0.1</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.1</u>	Corrected Temp (°C): <u>-0.2</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Client Information Client Contact: Louise Jennings Company: SCS Engineers Address: 8450 Hickman Road Suite 20 City: Clive State, Zip: IA, 50325 Phone: Email: Jennings@scsengineers.com Project Name: Ottumwa Generating Station 25219072 Site:		Sampler: Charlie B, IS Phone: (262) 518-4085 Lab PM: Fredrick, Sandie E-Mail: sandie.fredrick@testamericainc.com		COC No: 310-45502-14200.1 Page: Page 1 of 1 Job #: Camer Tracking No(s):			
Due Date Requested: TAT Requested (days): PO #: 25219072 WO #: Project #: 31011020 SSOW#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2540C_Calcd, 9066A_ORGFM_28D, SM4500_H+ <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 6020A, 7470A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 903.0, 904.0 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Sample Identification MW-307 MW-308 MW-309 Field Blank		Sample Time 0855 0950 1050 0840	Sample Type (C=comp, G=grab) G G G G	Matrix (W=Water, S=solid, O=soil, BT=tissue, A=air) Water Water Water Water Water	Preservation Code: D D D D	Total Number of Containers X X X X	Special Instructions/Note: X X X X
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Method of Shipment:					
Relinquished by: <i>Charlie</i>		Received by: _____ Date/Time: _____ Company: SCS					
Relinquished by: _____		Received by: _____ Date/Time: _____ Company: _____					
Relinquished by: _____		Received by: _____ Date/Time: _____ Company: _____					
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:					



Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW-301	310-171908-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-301	310-171908-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-301	310-171908-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-171908-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-302	310-171908-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-302	310-171908-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-171908-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-303	310-171908-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-303	310-171908-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-171908-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-304	310-171908-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-304	310-171908-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-171908-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-305	310-171908-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-305	310-171908-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-171908-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW-306	310-171908-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW-306	310-171908-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-171908-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-171908-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
Field Blank	310-171908-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____

**Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Ottumwa Generating Station / SCS Engineers Project #25219072**

	Parameter	Background		Primary Pond						Zero Liquid Discharge Pond			TOTAL	
		MW-301	Field Blank	MW-302	MW-303	MW-304	MW-305	MW-306	MW-310	MW-311	MW-307	MW-308		MW-309
Appendix III Parameters	Boron		x								x	x	x	4
	Calcium		x								x	x	x	4
	Chloride		x								x	x	x	4
	Fluoride		x								x	x	x	4
	pH		x								x	x	x	4
	Sulfate		x								x	x	x	4
	TDS		x								x	x	x	4
Appendix IV Parameters	Antimony		x								x	x	x	4
	Arsenic		x								x	x	x	4
	Barium		x								x	x	x	4
	Beryllium		x								x	x	x	4
	Cadmium		x								x	x	x	4
	Chromium		x								x	x	x	4
	Cobalt		x								x	x	x	4
	Fluoride		x								x	x	x	4
	Lead		x								x	x	x	4
	Lithium		x								x	x	x	4
	Mercury		x								x	x	x	4
	Molybdenum		x								x	x	x	4
	Selenium		x								x	x	x	4
	Thallium		x								x	x	x	4
Radium		x								x	x	x	4	
Field Parameters	Groundwater Elevation										x	x	x	3
	Well Depth										x	x	x	3
	pH (field)										x	x	x	3
	Specific Conductance										x	x	x	3
	Dissolved Oxygen										x	x	x	3
	ORP										x	x	x	3
	Temperature										x	x	x	3
	Turbidity										x	x	x	3
	Color										x	x	x	3
Odor										x	x	x	3	

Notes: All samples are unfiltered (total).

C:\Users\FredrickS\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\L7YR5M9Z\OGS_CCR_Rule_Sampling_2019_D

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-171907-1

Login Number: 171907

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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

