

2023 Annual Groundwater Monitoring and Corrective Action Report

Ottumwa Generating Station – Ash Pond
Ottumwa, Iowa

Prepared for:

Alliant Energy



SCS ENGINEERS

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OVERVIEW OF CURRENT STATUS

Ottumwa Generating Station, Ash Pond 2023 Annual Report

In accordance with §257.90(e)(6), this section at the beginning of the annual report provides an overview of the current status of groundwater monitoring and corrective action programs for the coal combustion residual (CCR) unit. Supporting information is provided in the text of the annual report.

Category	Rule Requirement	Site Status
Monitoring Status – Start of Year	(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Assessment
Monitoring Status – End of Year	(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Assessment
Statistically Significant Increases (SSIs)	(iii) If it was determined that there was an SSI over background for one or more constituents listed in Appendix III to this part pursuant to §257.94(e):	
	(A) Identify those constituents listed in Appendix III to this part and the names of the monitoring wells associated with such an increase; and	<p>SSIs initially determined on January 15, 2018, based on November 2017 monitoring results. For October 2022 and April 2023, SSIs for semiannual events for compliance wells at waste boundary included the following; see Table 5 for complete results.</p> <p><u>October 2022</u></p> <p>Boron: MW-302</p> <p>Calcium: MW-302, MW-304</p> <p>Chloride: MW-304, MW-305, MW-306</p> <p>Fluoride: MW-304</p> <p>Field pH: MW-304, MW-305</p> <p>Sulfate: MW-302, MW-304</p>

Category	Rule Requirement	Site Status
		<p>Total Dissolved Solids: MW-302, MW-304, MW-305, MW-306</p> <p><u>April 2023</u></p> <p>Boron: MW-302, MW-304</p> <p>Calcium: MW-302, MW-303, MW-304, MW-305</p> <p>Chloride: MW-304, MW-305, MW-306</p> <p>Fluoride: MW-304</p> <p>Sulfate: MW-302, MW-303, MW-304, MW-305</p> <p>Total Dissolved Solids: MW-302, MW-303, MW-304, MW-305, MW-306</p>
	(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	July 16, 2018
Statistically Significant Levels (SSL) Above Groundwater Protection Standard (GPS)	(iv) If it was determined that there was an SSL above the GPS for one or more constituents listed in Appendix IV to this part pursuant to §257.95(g) include all of the following:	
	(A) Identify those constituents listed in Appendix IV to this part and the names of the monitoring wells associated with such an increase;	<p>Cobalt: Initially determined to be at SSL above the GPS in January 2019 at compliance monitoring wells MW-305 and MW-306. In October 2022 and April 2023, concentrations determined to be at SSL above the GPS as follows:</p> <p><u>October 2022</u> MW-305</p> <p><u>April 2023</u> MW-305</p>
	(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	Cobalt: April 15, 2019

Category	Rule Requirement	Site Status
	(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	June 4, 2020 An additional public meeting was held on February 18, 2021.
	(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.	September 12, 2019 - Original ACM November 25, 2020 – Addendum No. 1 to ACM August 5, 2022 – Addendum No. 2 to ACM
Selection of Remedy	(v) Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection; and	Not Selected (In Progress)
Corrective Action	(vi) Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.	Not Initiated

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Table of Contents

Section	Page
Overview of Current Status	i
1.0 Introduction.....	1
2.0 Background.....	1
2.1 Geologic and Hydrogeologic Setting.....	1
2.1.1 Regional Information.....	1
2.1.2 Site Information	2
2.2 CCR Rule Monitoring System	3
3.0 § 257.90(e) Annual Report Requirements.....	4
3.1 §257.90(e)(1) Site Map.....	4
3.2 §257.90(e)(2) Monitoring System Changes.....	4
3.3 §257.90(e)(3) Summary of Sampling Events.....	4
3.4 § 257.90(E)(4) Monitoring Transition Narrative	5
3.5 § 257.90(e)(5) Other Requirements.....	6
3.5.1 § 257.90(e) General Requirements.....	7
3.5.2 § 257.94(d) Alternative Detection Monitoring Frequency.....	8
3.5.3 § 257.94(e)(2) Alternative Source Demonstration for Detection Monitoring	9
3.5.4 § 257.95(c) Alternative Assessment Monitoring Frequency.....	9
3.5.5 § 257.95(d)(3) Assessment Monitoring Results and Standards	9
3.5.6 § 257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring .	9
3.5.7 § 257.96(a) Extension of Time for Corrective Measures Assessment	9
3.6 §257.90(e)(6) Overview.....	10
4.0 References.....	10

Tables

Table 1	Groundwater Monitoring Well Network
Table 2	CCR Rule Groundwater Samples Summary
Table 3	Groundwater Elevations – CCR Rule Monitoring Well Networks
Table 4A	Horizontal Gradients and Flow Velocity
Table 4B	Vertical Gradients
Table 5	Groundwater Analytical Results Summary – October 2022 and April 2023
Table 6	Groundwater Field Parameters

Figures

Figure 1	Site Location Map
Figure 2	Site Plan and Monitoring Well Locations—Ash Pond
Figure 3	Shallow Potentiometric Surface, April 4-6, 2023
Figure 4	Deep Potentiometric Surface, April 4-6, 2023
Figure 5	Shallow Potentiometric Surface, October 25-26, 2023
Figure 6	Deep Potentiometric Surface, October 25-26, 2023

Appendices

Appendix A	Regional Hydrogeologic Information
Appendix B	Boring Logs and Well Construction Documentation
Appendix C	Laboratory Reports
	C1 Assessment Monitoring, October 2022
	C2 Assessment Monitoring, April 2023
Appendix D	Historical Monitoring Results
Appendix E	Statistical Evaluation
	E1 LCL Evaluation – October 2022 Event
	E2 LCL Evaluation – April 2023 Event

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1.0 INTRODUCTION

This 2023 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the Coal Combustion Residuals (CCR) Rule [40 CFR 257.50-107]. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2023 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units. The Ottumwa Generating Station (OGS) site location is shown on **Figure 1**.

This report covers the period of groundwater monitoring from January 1 through December 31, 2023.

The groundwater monitoring system is designed to detect monitored constituents at the waste boundary of the OGS Ash Pond (existing CCR surface impoundment), as required by 40 CFR 257.91(d). The groundwater monitoring system currently consists of 1 upgradient monitoring well, 5 downgradient compliance monitoring wells at the waste boundaries, and 10 additional downgradient delineation monitoring wells.

Closure of the Ash Pond was initiated in 2022 and was completed in Summer 2023.

A separate groundwater monitoring system evaluates groundwater conditions for the OGS Zero Liquid Discharge Pond (ZLDP) CCR Unit. Monitoring results for the ZLDP monitoring system provide supplemental information for the Ash Pond evaluation. Complete documentation of the ZLDP groundwater monitoring in 2023 will be provided in a separate annual report for the ZLDP CCR Unit.

2.0 BACKGROUND

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

- Geologic and hydrogeologic setting
- CCR Rule monitoring system

2.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

2.1.1 Regional Information

The uppermost aquifer unit at the site, as defined under 40 CFR 257.53, is the Mississippian bedrock aquifer and hydraulically connected overlying unconsolidated deposits. Regionally, unconsolidated alluvial aquifers near the Des Moines River and deeper bedrock aquifers are both used for water supply. The thickness and water-producing capacity of the unconsolidated material in the area is variable. A summary of the regional hydrogeologic stratigraphy is included in **Appendix A**.

The bedrock surface elevation is highly variable due to erosion. A map showing regional bedrock surface topography is included in **Appendix A**.

Although not encountered in drilling at the OGS site, the uppermost bedrock unit in the surrounding region consists of Pennsylvanian shales with minor siltstone, sandstone, limestone, and coal intervals. The continuity of these minor beds is highly variable. The Pennsylvanian bedrock unit is considered to be a regional aquitard. The thickness of the Pennsylvanian shale is variable; in some

areas of Wapello County it is over 100 feet thick, while in other areas it is absent. The variation in thickness is due to erosion of the bedrock surface. Based on the available boring logs from the OGS site, it appears that the Pennsylvanian shale is absent at the site.

Underlying the Pennsylvanian shales are Mississippian limestone and dolomite, with some shale and sandstone. A map showing the elevation of the top of the Mississippian limestone in Southeastern Iowa is included in **Appendix A**. The Mississippian unit is the shallowest regional bedrock aquifer.

The Devonian units underlying the Mississippian are composed of shale, dolomite, and limestone, and are in turn underlain by Silurian dolomite and Cambrian-Ordovician dolomite and sandstone. The Cambrian-Ordovician aquifer is commonly the source of municipal and industrial high-capacity wells in the region (Coble, 1971).

Groundwater flow within the Mississippian limestone is generally to the east. A map showing the regional potentiometric surface in the Mississippian limestone is included with the hydrogeologic background information presented in **Appendix A**.

2.1.2 Site Information

Site boring logs indicate that the unconsolidated material at the site is fairly thin (approximately 20 to 30 feet or less) and consists of a clay layer overlying clay and sand. Monitoring wells MW-301 through MW-306 were installed to intersect the bedrock aquifer or unconsolidated material in contact with the bedrock aquifer at the site. The unconsolidated material at these well locations is generally clay, silt, and sand, and the uppermost bedrock appears to be weathered. The total boring depths were between 14.5 and 52 feet, and weathered bedrock was encountered at depths between 7 and 44 feet below ground surface. Boring logs, well construction, and development documentation for MW-301 through MW-306 are included in **Appendix B**.

Monitoring wells MW-310 and MW-311 were installed in August 2019 as delineation wells to assess the downgradient extent of groundwater impacts. Both wells were installed along the Des Moines River. Both are screened in alluvial sands. The total boring depths were 23 feet at MW-310 and 16 feet at MW-311. Boring logs, well construction, and development documentation for MW-310 and MW-311 are included in **Appendix B**.

Monitoring wells MW-305A, MW-310A, and MW-311A were installed in February and March 2020 as additional delineation wells to assess the downgradient vertical extent of groundwater impacts. They were installed as nested wells with MW-305, MW-310, and MW-311. All three wells were screened in the Mississippian Dolomite. The bedrock at the MW-305A location was a combination of interbedded sandstone and dolomite. The total boring depths were 80 feet at MW-305A, 54 feet at MW-310A, and 46 feet at MW-311A. Boring logs, well construction, and development documentation for MW-305A, MW-310A, and MW-311A are included in **Appendix B**.

Monitoring wells MW-312 and MW-313 were installed in December 2021 as additional delineation wells to assess groundwater conditions between the compliance well network and delineation well MW-310. MW-312 is screened in weathered Mississippian Dolomite, and MW-313 is screened in alluvial sand. The total boring depths were 27.5 feet at MW-312 and 22.5 feet at MW-313. Boring logs, well construction, and development documentation for MW-312 and MW-313 are included in **Appendix B**.

Additional downgradient delineation wells (MW-316, MW-316A, and MW-317) were installed in March 2023 prior to the April 2023 event. Boring logs, well construction, and development documentation are added in **Appendix B**.

The Mississippian bedrock aquifer, including some overlying weathered bedrock and sand, is confined below the clay layer. To evaluate groundwater flow directions and rates, potentiometric surface maps were developed for two depth intervals within the confined aquifer. The shallow potentiometric surface is based on monitoring wells installed near the top of the aquifer. The deep potentiometric surface is based on the deeper “A” wells.

The shallow and deep potentiometric surfaces and groundwater flow patterns based on April 2023 water level measurements are shown on **Figures 3** and **4**. The shallow and deep potentiometric surfaces and groundwater flow patterns for the October 2023 water level measurements are shown on **Figures 5** and **6**. All four potentiometric surface maps show groundwater flow moving to the east, following the same flow patterns observed in regional flow maps of the area. The groundwater elevation data for the CCR monitoring wells are provided in **Table 3**. Estimated horizontal gradients and flow velocities for flow at the shallow and deep levels within the aquifer are provided in **Table 4A**. Calculated vertical gradients for the nested wells are provided in **Table 4B**.

2.2 CCR RULE MONITORING SYSTEM

The groundwater monitoring system established in accordance with the CCR Rule consists of one upgradient (background) monitoring well and five downgradient monitoring for the OGS Ash Pond (**Table 1** and **Figure 2**). The background well is MW-301, and the five downgradient compliance wells include MW-302, MW-303, MW-304, MW-305, and MW-306. Seven additional wells, MW-305A, MW-310/310A, MW-311/311A, MW-312, and MW-313 were added as delineation wells following initiation of assessment monitoring and the determination that cobalt concentrations in MW-305 and MW-306 exceeded the Groundwater Protection Standard (GPS). Three more delineation wells were installed in March 2023, including MW-316/316A and MW-317. The CCR Rule wells are installed in the Mississippian aquifer and/or hydraulically connected overlying unconsolidated deposits, which comprise the uppermost aquifer unit at the site. Well depths range from approximately 14 to 80 feet.

The background well (MW-301) is located west of the site. The downgradient compliance wells (MW-302 through MW-306) are located along the northeastern, eastern, and southeastern edges of the Ash Pond. The downgradient wells were installed as close as practicable to the pond boundaries considering the site layout.

Monitoring wells MW-307, MW-308, MW-309, and MW-315 were installed to monitor the ZLDP CCR Unit, which has a separate monitoring system.

Four additional water table monitoring wells, MW-302WT, MW-304WT, MW-306WT, MW-314WT, and monitoring well MW-314 were installed at OGS in 2022 to support closure activities for the Ash Pond. The water table wells are not part of the CCR rule monitoring system. Water levels from monitoring well MW-314, installed as a piezometer in the uppermost aquifer, are used in the evaluation of groundwater flow in the Ash Pond area, but this upgradient well will not be added to the sampling and analysis program.

3.0 § 257.90(E) ANNUAL REPORT REQUIREMENTS

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

3.1 §257.90(E)(1) SITE MAP

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

A map of the site location is provided on **Figure 1**. A map with an aerial image showing the CCR unit and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 2**. The ZLDP CCR Unit, which is monitored by a separate network and is discussed in a separate groundwater monitoring report, 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;

There were no changes to the compliance monitoring system installed at the waste boundary. As discussed in **Section 2.2**, three additional delineation wells were installed in March 2023, including MW-316/316A and MW-317. These wells were installed to evaluate the nature and extent of cobalt impacts downgradient of the Ash Pond as part of the selection of remedy activities. Surface water elevation gauges were also installed on the Middle Avery Creek as "Avery Creek 1" and "Avery Creek 2" in April 2023 to obtain additional information on surface water/groundwater interactions in support of remedy selection.

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;

Two groundwater sampling events were completed in 2023. 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 assessment monitoring program is included in **Table 2**.

The two semiannual assessment monitoring rounds for the complete monitoring network were completed in April and October 2023. Samples from the background well and compliance wells installed at the waste boundary were analyzed for Appendix III and Appendix IV parameters. Samples from the delineation wells were analyzed for cobalt. Both semiannual events included parameters chosen to support the selection of remedy. Supplemental parameters included dissolved and total metals, general water quality parameters, and parameters used to evaluate feasibility of monitored natural attenuation (MNA). The October 2023 sampling event was the first event following completion of closure construction activities in the OGS Ash Pond.

The validation and evaluation of the October 2022 monitoring event data was completed and transmitted to IPL on February 28, 2023. The April 2023 monitoring event data validation and evaluation was completed and transmitted to IPL on August 8, 2023. The validation and evaluation of the October 2023 monitoring event data was in progress at the end of 2023 and will be transmitted to IPL in 2024; therefore, the October 2023 monitoring results will be included in the 2024 annual report. The October 2023 groundwater elevation data is included in this report.

The October 2022 and April 2023 monitoring results are summarized in **Table 5**. Field parameter results for the October 2022 and April 2023 sampling events are provided in **Table 6**. The analytical laboratory reports for October 2022 and April 2023 are provided in **Appendix C**. Historical results through April 2023 for each monitoring well are summarized in **Appendix D**.

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);

There was no monitoring program transition in 2023.

Assessment monitoring for the OGS Ash Pond was initiated in April 2018 and continued through 2023. An Assessment of Corrective Measures (ACM) was initiated for the OGS Ash Pond in April 2019 and completed in September 2019. Addendum No. 1 to the ACM was completed in November 2020. Addendum No. 2 to the ACM was completed in August 2022. The selection of remedy is in progress. The ACM was initiated in response to the detection of cobalt at a statistically significant level (SSL) exceeding the GPS in monitoring wells MW-305 and MW-306. Assessment monitoring continued during the ACM and will continue during the selection of remedy and implementation of the corrective action program.

In accordance with the Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities (U.S. Environmental Protection Agency [U.S. EPA], 2009), the comparison of assessment monitoring results to the GPS was based on the lower confidence limit (LCL) for the arithmetic mean. Prior to 2023, cobalt was the only parameter that had been detected at a concentration exceeding the GPS in a compliance well installed at the waste boundary. In April 2023, thallium was detected at a concentration exceeding the GPS in the sample from MW-302. To evaluate whether cobalt or thallium was present at an SSL above the GPS at any compliance monitoring well, LCLs were calculated with Sanitas™ groundwater statistical software using historical concentrations measured since assessment monitoring began in April 2018.

The LCL evaluations completed for the October 2022 and April 2023 monitoring events are provided in **Appendix E**.

Based on the LCL evaluation, SSLs above the GPS were identified for the following parameters and compliance wells:

- Cobalt: MW-305 (October 2022 and April 2023)

Thallium was not determined to be at an SSL above the GPS. The April 2023 result for MW-302 was the first detection of thallium above the GPS at any OGS monitoring well, and the first detection above the laboratory's limit of quantitation at MW-302 out of 20 sampling events to date. Based on similar isolated detections of thallium at other sites, it appears likely that the detected thallium may be a false positive due to carryover in the analytical equipment, but this has not been confirmed through reanalysis of the sample. The sample from MW-302 was the first sample in the analysis batch and therefore the most likely to be affected by carryover.

In addition to the cobalt results above the GPS in the Ash Pond monitoring well samples, cobalt has historically been detected above the GPS in samples from MW-307, which is part of the ZLDP CCR Unit monitoring network. Cobalt was determined to be at an SSL above the GPS at MW-307 on June 1, 2021, following statistical evaluation of the February 2021 monitoring event for the ZLDP. Alternative source demonstrations (ASDs) completed on August 30, 2021, and May 9, 2022, for the ZLDP CCR Unit concluded that the Ash Pond was the most likely source of cobalt concentrations at an SSL above the GPS at MW-307. MW-307 is located downgradient of both the Ash Pond and the ZLDP. The conclusion that the Ash Pond was the most likely source of cobalt was based on groundwater flow directions, distribution of cobalt in groundwater, and the historical use of the ponds. Cobalt concentrations at MW-307 will be addressed in the selection of remedy process for the Ash Pond. Complete information on the ZLDP monitoring in 2023 will be included in the 2023 Annual Groundwater Monitoring and Corrective Action Report for the ZLDP.

The comparison to background was based on a prediction limit or tolerance limit approach, comparing the results to interwell upper prediction limits (UPLs) or upper tolerance limits (UTLs) based on background monitoring results from the upgradient well MW-301. In July 2022, the interwell UPLs for Appendix III parameters were updated and interwell UTLs for Appendix IV parameters were calculated using background data collected through April 2022. The Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (U.S. EPA, 2009; Section 5.3.1) recommends periodic updating of background for both intrawell and interwell analyses. For semiannual monitoring, an update interval of 2 to 3 years is recommended. The UPL calculations for Appendix III and UTL calculations for Appendix IV parameters were included in the 2022 Annual Groundwater Monitoring and Corrective Action Report for the Ash Pond. The UPLs/UTLs calculated in April 2022 were applied to the evaluation of the October 2022 and April 2023 monitoring results.

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 2023 Annual Groundwater Monitoring and Corrective Action Report.

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

Summary of Key Actions Completed.

- Army Corps of Engineers initially authorized permits for installation of three delineation groundwater wells along the banks of the Des Moines River.
- The 2022 Annual Groundwater Monitoring and Corrective Action Report for the Ash Pond was completed.
- A statistical evaluation of October 2022 monitoring results was completed, and an October 2022 Groundwater Results Report was completed.
- A Financial Assurance Post-Closure Cost Estimate for the CCR impoundment was prepared.
- Two Semiannual Progress Reports for the Selection of Remedy were completed.
- Monitoring well installation activities for MW-312 and MW-313 were finished, and additional downgradient delineation monitoring wells were installed and tested for MW-316, MW-316A, and MW-317. Staff gauges were installed on the Middle Avery Creek (SG-2 and SG-3). A Monitoring Well Construction Report was prepared for the new wells and staff gauges.
- Two semiannual assessment monitoring events were completed in April and October.
- A statistical evaluation of April 2023 monitoring results was completed, and an April 2023 Groundwater Results Report was completed.
- OGS Ash Pond Closure Related Key Actions:
 - The CCR materials were graded to cover exposed geogrid material.
 - Surface water dewatering of the OGS Ash Pond was conducted in the spring of 2023. The CCR materials within the OGS Ash Pond were graded and moisture conditioning using lime stabilizer and Portland cement was conducted.
 - The final cover compacted soil cover and topsoil and the geosynthetic cover (HydroTurf) system installed in the surface water drainage ditches was finalized. Final cover surface water conveyance piping installation was also finalized.

- The Outfall 001 outlet structure modifications for the OGS Ash Pond final stormwater drainage were completed.
- Restoration seeding of the OGS Ash Pond final cover area was completed.
- The OGS Ash Pond closure was certified for closure.

Description of Any Problems Encountered.

- There were no problems encountered during 2023 other than the potential false positive detection of thallium at MW-302 as discussed in **Section 3.4**.

Discussion of Actions to Resolve the Problems.

- Continued monitoring will indicate whether the increase in thallium at MW-302 represents a change in groundwater quality or a false positive due to sample carryover in the laboratory.

Projection of Key Activities for the Upcoming Year (2024):

- Complete statistical evaluation and determination of any SSLs exceeding the GPS and prepare groundwater results letter for the October 2023 monitoring event (February 2024).
- Complete statistical evaluation and determination of any SSLs exceeding the GPS and prepare groundwater results letter for the April 2024 monitoring event (August 2024).
- Prepare two semiannual progress reports for the Selection of Remedy process (March and September 2024).
- Complete two semiannual assessment monitoring events (April and October 2024).
- Installation of pump test wells and piezometers to support selection of remedy.
- Conduct pump test for selection of remedy.
- Finalize evaluation of remedial options and issue a final SOR Report per 40 CFR 257.97(a).

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. OGS is no longer in detection monitoring program.

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. OGS is no longer in the detection monitoring program.

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

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).

The October 2022 and April 2023 assessment monitoring results, background UPLs, and GPSs established for the Ash Pond are provided in **Table 5**. The laboratory reports are provided in **Appendix C**. Historical monitoring results are summarized in **Appendix D**.

Supplemental groundwater quality parameters were included in the monitoring program in 2023 to support the selection of remedy process, including the evaluation of MNA. The results for the supplemental parameters are included in **Table 5** and in the laboratory reports in **Appendix C**.

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 ASDs were submitted during the 2023 monitoring period.

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.

The ACM was initiated on April 15, 2019. The certification demonstrating the need for a 90-day deadline extension was completed on July 10, 2019, and was included in the 2019 annual groundwater monitoring and corrective action report. The ACM was completed on September 12, 2019. Addendum No. 1 to the ACM was completed on November 25, 2020. Addendum No. 2 to the ACM was completed on August 5, 2022.

3.6 §257.90(E)(6) OVERVIEW

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

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

4.0 REFERENCES

Coble, R.W., 1971, The Water Resources of Southeast Iowa, Iowa Geological Survey Water Atlas Number 4, 1971.

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

Tables

- 1 Groundwater Monitoring Well Network
- 2 CCR Rule Groundwater Samples Summary
- 3 Groundwater Elevations – CCR Rule Monitoring Well Networks
- 4A Horizontal Gradients and Flow Velocity
- 4B Vertical Gradients
- 5 Groundwater Analytical Results Summary – Assessment Monitoring
- 6 Groundwater Field Parameters

**Table 1. Groundwater Monitoring Well Network
Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25223072.00**

Monitoring Well	Location in Monitoring Network	Role in Monitoring Network
MW-301	Upgradient	Background
MW-302	Downgradient	Compliance
MW-303	Downgradient	Compliance
MW-304	Downgradient	Compliance
MW-305	Downgradient	Compliance
MW-305A	Downgradient, deeper	Delineation
MW-306	Downgradient	Compliance
MW-310	Downgradient	Delineation
MW-310A	Downgradient, deeper	Delineation
MW-311	Downgradient	Delineation
MW-311A	Downgradient, deeper	Delineation
MW-312	Downgradient	Delineation
MW-313	Downgradient	Delineation
MW-316	Downgradient	Delineation
MW-316A	Downgradient, deeper	Delineation
MW-317	Downgradient	Delineation

Note:

1. Monitoring wells MW-302WT, MW-304WT, MW-306WT, MW-314, and MW-314WT were installed to monitor water levels for the 2022-2023 closure project, but are not part of the CCR Rule groundwater monitoring network.

Created by: MDB
 Last revision by: NLB
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 Date: 1/16/2024
 Date: 1/16/2024

**Table 2. CCR Rule Groundwater Samples Summary
Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25223072.00**

Sample Dates	Background Well	Compliance Wells				Delineation Well	Compliance Well	Delineation Wells								
	MW-301	MW-302	MW-303	MW-304	MW-305	MW-305A	MW-306	MW-310	MW-310A	MW-311	MW-311A	MW-312	MW-313	MW-316	MW-316A	MW-317
4/4-4/6/2023	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE
10/10-13/2023	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE
Total Samples	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Abbreviations:

A = Assessment Monitoring Program

A-NE = Assessment Monitoring for nature and extent, wells sampled for cobalt and selection-of-remedy parameters

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 Last revision by: NLB Date: 1/16/2024
 Checked by: RM Date: 1/16/2024

**Table 3. Groundwater Elevations - CCR Rule Monitoring Well Networks
IPL - Othumwa Generating Station / SCS Engineers Project #25223072.00**

Well Number	Groundwater or Surface Water Elevation in feet above mean sea level (amsl)											
	MW-301	MW-302	MW-302WT	MW-303	MW-304	MW-304WT	MW-305	MW-305A	MW-306	MW-306WT	MW-307	MW-308
Top of Well Casing Elevation / Surface Water Reference Elevation (feet amsl)	686.47	673.90	674.53	661.07	682.84	682.20	683.91	684.03	683.47	684.05	657.56	655.39
Screen Length (ft)	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	5.0	10.0	5.0	5.0
Total Depth (ft from top of casing)	17.0	25.8	19.23	17.5	52.3	37.7	51.5	81.91	36.6	24.05	28.0	25.0
Top of Well Screen Elevation (ft)	679.47	653.10	665.3	648.57	635.54	654.5	637.41	607.12	651.87	670.0	634.56	635.39
Measurement Date												
April 26, 2016	682.80	655.63	NI	652.42	655.37	NI	661.67	NI	670.86	NI	NI	NI
June 23, 2016	682.58	655.65	NI	652.89	656.53	NI	662.36	NI	670.64	NI	NI	NI
August 9, 2016	682.27	655.52	NI	651.76	653.79	NI	660.78	NI	670.35	NI	NI	NI
October 26-27, 2016	682.04	655.67	NI	652.17	655.03	NI	661.37	NI	670.21	NI	NI	NI
January 18-19, 2017	681.67	655.46	NI	651.74	654.50	NI	660.87	NI	669.89	NI	648.81	647.42
April 19-20, 2017	682.15	656.35	NI	654.57	657.48	NI	663.27	NI	670.69	NI	653.62	651.09
June 20-21, 2017	681.91	655.65	NI	652.42	654.75	NI	661.26	NI	669.94	NI	649.85	648.26
August 21-23, 2017	681.28	655.13	NI	650.58	652.39	NI	659.00	NI	668.77	NI	645.78	643.12
November 8, 2017	681.54	655.40	NI	651.34	653.03	NI	659.76	NI	669.04	NI	647.37	644.99
April 18, 2018	681.53	655.71	NI	652.47	655.55	NI	660.99	NI	668.92	NI	649.66	647.91
May 30, 2018	NM	NM	NI	NM	NM	NI	NM	NI	NM	NI	652.45	651.05
June 28, 2018	NM	NM	NI	NM	NM	NI	NM	NI	NM	NI	652.87	651.43
July 18, 2018	NM	NM	NI	NM	NM	NI	NM	NI	NM	NI	652.27	650.67
August 14-15, 2018	680.91	656.05	NI	652.57	656.35	NI	661.56	NI	668.66	NI	NM	NM
August 29, 2018	681.09	655.89	NI	655.07	657.82	NI	NM	NI	NM	NI	NM	NM
October 16, 2018	682.50	656.91	NI	656.17	658.20	NI	663.37	NI	670.24	NI	654.13	NM
January 8, 2019	682.22	656.03	NI	654.65	656.28	NI	662.13	NI	669.84	NI	NM	NM
April 8, 2019	682.69	657.23	NI	655.55	659.33	NI	664.01	NI	670.96	NI	654.90	653.70
August 28, 2019	NM	NM	NI	NM	NM	NI	NM	NI	NM	NI	NM	NM
October 23-24, 2019	683.07	660.14	NI	653.86	657.71	NI	663.21	NI	671.28	NI	651.89	651.31
December 11, 2019	NM	NM	NI	NM	NM	NI	NM	NI	NM	NI	649.59	647.39
February 5, 2020	683.30	NM	NI	NM	NM	NI	NM	NI	NM	NI	649.88	650.12
March 12-13, 2020	682.82	NM	NI	NM	NM	NI	661.41	651.64	NM	NI	NM	NM
April 1, 2020	683.27	657.00	NI	655.89	658.57	NI	660.59	655.05	671.13	NI	653.76	651.88
April 13-14, 2020	683.25	656.45	NI	654.08	656.42	NI	662.44	653.69	670.71	NI	650.66	650.09
May 4, 2020	NM	NM	NI	NM	NM	NI	NM	NM	NM	NI	NM	NM
June 30, 2020	NM	NM	NI	NM	NM	NI	NM	NM	NM	NI	NM	NM
October 5-12, 2020	682.34	655.80	NI	650.37	652.95	NI	659.81	648.01	670.18	NI	646.18	642.85
February 23, 2021	NM	NM	NI	NM	NM	NI	NM	NM	669.86	NI	646.80	NM
April 12 - 16, 2021	682.94	656.05	NI	653.82	654.34	NI	661.15	651.16	670.27	NI	649.53	647.66
July 6, 2021	NM	NM	NI	NM	NM	NI	NM	NM	661.87	NI	647.03	NM
October 6-8, 2021	681.95	654.86	NI	649.80	649.53	NI	654.83	645.57	662.27	NI	644.49	641.81
January 11-12, 2022	681.58	NM	NI	NM	NM	NI	656.55	NM	NM	NI	646.24	NM
January 31, 2022	681.56	654.56	NI	650.07	650.51	NI	656.67	647.01	664.14	NI	646.05	643.44
February 14-15, 2022	681.43	654.42	NI	650.03	650.42	NI	656.35	646.84	663.66	NI	645.82	643.25
April 11-14, 2022	682.08	654.77	NI	652.95	652.14	NI	657.62	649.24	664.61	NI	648.40	645.75
May 3, 2022	682.27	654.51	<655.3	652.14	653.51	645.38	657.70	650.04	663.60	<660	649.14	647.41
May 5, 2022	682.07	654.78	654.03	652.48	654.46	645.80	658.07	650.47	663.77	<660	649.86	648.16
May 10, 2022	NM	654.70	655.71	NM	654.09	646.85	NM	NM	663.71	<660	NM	NM
May 17, 2022	681.75	654.56	655.69	652.47	653.40	648.16	657.78	650.77	663.45	<660	649.70	648.06
May 20, 2022	NM	654.63	655.66	NM	653.50	648.68	NM	NM	663.49	<660	NM	NM
May 23, 2022	NM	NM	NM	NM	652.66	648.40	NM	NM	NM	<660	NM	NM
June 2, 2022	681.69	654.22	655.68	651.53	652.37	650.38	656.18	649.53	661.42	<660	648.33	646.68
June 9, 2022	681.80	654.24	655.70	651.44	654.18	650.89	656.34	649.80	661.25	<660	648.90	647.05
June 10, 2022	NM	NM	NM	NM	652.97	650.97	NM	NM	NM	NM	NM	NM
June 21, 2022	681.60	654.29	655.69	651.35	652.89	651.48	656.25	650.52	660.87	<660	649.54	648.47
June 27, 2022	681.60	654.06	655.68	651.14	652.16	651.55	656.15	649.70	661.41	<660	648.61	647.13
July 5, 2022	681.47	653.92	655.68	650.70	651.03	651.73	655.33	648.51	660.86	<660	647.34	645.41
July 12, 2022	681.46	653.78	655.66	651.39	650.62	651.68	655.03	647.95	660.62	660.77	646.83	644.85
July 27, 2022	681.19	653.60	655.66	649.74	649.56	651.48	654.03	646.85	660.76	662.38	645.67	643.58
August 25, 2022	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	644.25	NM
October 26-28, 2022	680.68	652.95	655.65	648.22	647.26	650.81	651.48	644.38	657.11	672.92	643.46	641.13
February 2, 2023	NM	NM	655.72	NM	NM	651.25	NM	NM	NM	670.66	NM	NM
April 4-6, 2023	681.89	653.30	655.39	652.57	650.29	647.77	655.02	647.70	659.12	662.18	647.28	645.16
October 10-13, 2023	680.20	652.32	DRY	648.07	646.02	648.68	650.21	643.60	655.40	673.91	642.85	640.79
Bottom of Well Elevation (ft)	669.5	648.1	655.3	643.6	630.5	644.5	632.4	602.1	646.9	660.0	629.6	630.4

Notes: Created by: NDK _____ Date: 1/15/2018
 NM = not measured Last rev. by: NLB _____ Date: 10/25/2023
 NI = not installed Checked by: RM _____ Date: 10/25/2023
 ND = Not surveyed Proj Mgr QA/QC: TK _____ Date: 1/13/2024

Table 3. Groundwater Elevations - CCR Rule Monitoring Well Networks
IPL - Ottumwa Generating Station / SCS Engineers Project #25223072.00

Well Number	Groundwater or Surface Water Elevation in feet above mean sea level (amsl)													Surface Water Elevations (ft amsl)		
	MW-309	MW-310	MW-310A	MW-311	MW-311A	MW-312	MW-313	MW-314	MW-314WT	MW-315	MW-316	MW-316A	MW-317	SG-1	SG-2	SG-3
Top of Well Casing Elevation / Surface Water Reference Elevation (feet amsl)	654.94	658.63	657.93	654.18	653.54	655.36	655.84	684.71	684.61	655.65	657.30	657.74	656.33	656.31	642.84	643.50
Screen Length (ft)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0	NA	NA	NA
Total Depth (ft from top of casing)	27.5	25.9	55.55	17.9	47.68	29.87	23.82	33.24	24.81	26.6	24.94	54.81	27.91	NA	NA	NA
Top of Well Screen Elevation (ft)	632.44	637.76	607.38	641.24	610.86	NS	NS	656.47	669.8	634.1	642.4	607.9	638.4	NA	NA	NA
Measurement Date																
April 26, 2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
June 23, 2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
August 9, 2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
October 26-27, 2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
January 18-19, 2017	646.66	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
April 19-20, 2017	650.16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
June 20-21, 2017	647.60	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
August 21-23, 2017	641.82	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
November 8, 2017	644.20	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
April 18, 2018	647.65	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
May 30, 2018	650.98	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
June 28, 2018	651.47	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
July 18, 2018	650.69	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
August 14-15, 2018	NM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
August 29, 2018	NM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
October 16, 2018	651.61	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
January 8, 2019	NM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
April 8, 2019	653.55	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
August 28, 2019	NM	640.98	NI	642.10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
October 23-24, 2019	651.28	649.31	NI	647.80	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
December 11, 2019	647.24	NM	NI	NM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
February 5, 2020	648.34	644.71	NI	645.00	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
March 12-13, 2020	NM	645.45	617.84	644.18	624.11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
April 1, 2020	651.23	651.09	649.16	649.35	648.27	NI	NI	NI	NI	NI	NI	NI	NI	649.71	NI	NI
April 13-14, 2020	649.19	645.91	647.50	646.79	648.42	NI	NI	NI	NI	NI	NI	NI	NI	645.71	NI	NI
May 4, 2020	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
June 30, 2020	NM	NM	NM	NM	647.73	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
October 5-12, 2020	641.50	638.46	640.20	638.73	641.09	NI	NI	NI	NI	NI	NI	NI	NI	638.16	NI	NI
February 23, 2021	NM	638.77	NM	NM	641.16	NI	NI	NI	NI	NI	NI	NI	NI	NM	NI	NI
April 12 - 16, 2021	646.46	642.70	644.88	643.02	644.16	NI	NI	NI	NI	NI	NI	NI	NI	640.91	NI	NI
July 6, 2021	NM	639.32	NM	NM	642.38	NI	NI	NI	NI	NI	NI	NI	NI	NM	NI	NI
October 6-8, 2021	640.71	638.19	639.57	Dry	640.58	NI	NI	NI	NI	NI	NI	NI	NI	NM	NI	NI
January 11-12, 2022	NM	NM	NM	NM	NM	642.17	641.22	NI	NI	NI	NI	NI	NI	NM	NI	NI
January 31, 2022	642.42	639.69	640.63	639.47	641.79	641.67	640.39	NI	NI	NI	NI	NI	NI	642.96	NI	NI
February 14-15, 2022	642.32	639.64	640.68	Below pump	641.50	641.86	640.58	NI	NI	NI	NI	NI	NI	642.01	NI	NI
April 11-14, 2022	644.32	640.79	640.83	641.44	643.23	644.62	642.06	NI	NI	NI	NI	NI	NI	643.21	NI	NI
May 3, 2022	647.07	644.83	645.24	642.98	643.94	647.34	645.83	647.41	647.58	NI	NI	NI	NI	647.16	NI	NI
May 5, 2022	648.46	648.11	646.51	644.02	644.13	648.77	648.24	647.57	647.50	NI	NI	NI	NI	NM	NI	NI
May 10, 2022	NM	NM	NM	NM	NM	NM	NM	647.01	647.05	NI	NI	NI	NI	NM	NI	NI
May 17, 2022	647.45	644.67	650.07	644.22	645.13	647.57	646.08	647.07	647.19	NI	NI	NI	NI	NM	NI	NI
May 20, 2022	NM	NM	NM	NM	NM	NM	NM	647.44	647.46	NI	NI	NI	NI	NM	NI	NI
May 23, 2022	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NM	NI	NI
June 2, 2022	646.38	644.61	645.23	643.36	644.93	646.43	645.48	646.15	646.21	NI	NI	NI	NI	NM	NI	NI
June 9, 2022	647.32	648.23	646.20	644.14	644.61	647.78	648.65	645.82	645.91	NI	NI	NI	NI	NM	NI	NI
June 10, 2022	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NM	NI	NI
June 21, 2022	648.34	646.29	647.63	644.88	645.60	647.87	647.17	645.61	645.68	NI	NI	NI	NI	NM	NI	NI
June 27, 2022	646.34	643.87	644.85	643.64	645.37	646.42	644.80	645.14	645.27	NI	NI	NI	NI	NM	NI	NI
July 4, 2022	644.14	641.58	642.91	644.16	644.30	644.50	642.44	645.14	645.24	NI	NI	NI	NI	NM	NI	NI
July 12, 2022	644.17	641.75	642.89	644.26	641.00	644.17	642.65	644.69	644.85	NI	NI	NI	NI	NM	NI	NI
July 27, 2022	642.46	639.61	641.24	638.41	642.41	643.14	640.83	643.93	644.07	NI	NI	NI	NI	639.23	NI	NI
August 25, 2022	NM	NM	NM	NM	NM	640.80	639.38	NM	NM	NI	NI	NI	NI	NM	NI	NI
October 26-28, 2022	640.43	638.55	639.49	638.46	640.27	639.64	639.16	641.58	641.64	NI	NI	NI	NI	638.41	NI	NI
February 2, 2023	NM	NM	NM	NM	NM	NM	NM	642.71	642.79	NI	NI	NI	NI	NM	NI	NI
April 4-6, 2023	644.41	641.71	643.11	641.88	643.59	644.08	642.02	643.84	644.37	645.12	642.78	643.49	642.84	643.06	640.89	642.99
October 10-13, 2023	640.18	638.32	640.13	638.31	639.84	639.45	639.04	640.35	640.40	641.10	639.15	639.79	639.08	DRY	NM	NM
Bottom of Well Elevation (ft)	627.4	632.8	602.4	636.2	605.9	625.5	632.0	651.5	659.8	629.1	632.4	602.9	628.4	--	--	--

Notes:
 NM = not measured
 NI = not installed
 ND = Not surveyed

Table 4A. Horizontal Gradients and Flow Velocity
Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25223072.00
January - December 2023

Northeast Flow Path - Shallow					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
April 4-6, 2023	655.00	645.00	471	0.021	0.42
April 4-6, 2023	655.00	645.00	573	0.017	
October 10-13, 2023	655.40	645.00	342	0.030	0.40
October 10-13, 2023	646.02	640.00	386	0.016	
October 10-13, 2023	650.00	640.00	1152	0.009	

Northeast Flow Path - Deep					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
April 4-6, 2023	647.00	643.11	550	0.007	0.000182
October 10-13, 2023	643.00	640.13	553	0.005	0.000134

	Well	K Values (cm/sec)	K Values (ft/d)	
Upgradient Well	MW-301	4.6E-03	13	Assumed Unconsolidated Porosity, n 0.40
Shallow Wells	MW-302	3.2E-03	9.1	
	MW-303	1.2E-04	0.35	
	MW-304	3.5E-04	0.98	
	MW-305	2.5E-03	7.1	
	MW-306	2.8E-03	8.1	
	MW-310	2.9E-03	8.2	
	MW-311	2.3E-02	64	
	MW-316	4.2E-02	119	
	MW-317	9.1E-03	26	
	Geometric Mean	3.1E-03	8.7	Assumed Dolomite Porosity, n 0.25
Deep Wells	MW-305A	5.6E-06	0.02	
	MW-310A	4.2E-07	0.001	
	MW-311A	5.4E-07	0.002	
	MW-316A	2.1E-05	0.060	
	Geometric Mean	2.3E-06	6.4E-03	

Note: Geometric mean calculations do not include upgradient well MW-301

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

ft = feet

ft/d = feet per day

K = hydraulic conductivity

n = effective porosity

V = groundwater flow velocity

h1, h2 = point interpreted groundwater elevation

Δl = distance between location 1 and 2

Δh/Δl = hydraulic gradient

Note:

1. See Figures 3, 4, 5, and 6 for velocity calculation flow path locations.

Created by: RM _____
 Last revision by: RM _____
 Checked by: NLB _____

Date: 12/29/2020 _____
 Date: 1/25/2024 _____
 Date: 1/25/2024 _____

Table 4B. Vertical Gradients
IPL - Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25223072.00

Vertical Hydraulic Gradients	MW-305/MW-305A		MW-310/MW-310A		MW-311/MW-311A		MW-316/MW-316A	
	Shallow Well Screen midpoint (feet amsl)	MW-305 634.91		MW-310 635.26		MW-311 638.74		MW-316 637.36
Deep Well Screen midpoint (feet amsl)	MW-305A 604.62		MW-310A 604.88		MW-311A 608.36		MW-316A 605.43	
Measurement Date	Distance between midpoints (ft)	Vertical Gradient (ft/ft)	Distance between midpoints (ft)	Vertical Gradient (ft/ft)	Distance between midpoints (ft)	Vertical Gradient (ft/ft)	Distance between midpoints (ft)	Vertical Gradient (ft/ft)
April 4-6, 2023	30.3	-0.242	30.4	0.046	30.4	0.056	31.9	0.022
October 10-13, 2023	30.3	-0.218	30.4	0.060	30.4	0.050	31.9	0.020

Notes:

1: A positive vertical gradient indicates upward groundwater flow. A negative gradient indicates downward flow.

amsl = above mean sea level

NM = Not Measured

NI = Not Installed

Created by: NLB
 Last rev. by: RM
 Checked by: NLB
 Proj Mgr QA/QC: TK

Date: 12/5/2023
 Date: 1/25/2024
 Date: 1/25/2024
 Date: 1/30/2024

**Table 5. Groundwater Analytical Results Summary - October 2022 and April 2023
Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25223072.00**

Parameter Name	UPL Method	UPL	GPS	Background Well		Compliance Wells									
				MW-301		MW-302		MW-303		MW-304		MW-305		MW-306	
				10/26/2022	4/6/2023	10/26/2022	4/5/2023	10/26/2022	4/5/2023	10/26/2022	4/6/2023	10/25/2022	4/4/2023	10/25/2022	4/6/2023
Groundwater Elevation (ft amsl)				680.68	682.05	652.95	653.30	648.22	652.57	647.26	650.29	651.48	655.02	657.11	659.12
Appendix III															
Boron, ug/L	P	839		780	530	1,700	1,800	--	430	750	930	640	830	540	780
Calcium, mg/L	P	103		110	76	220	200 B	--	210 B	110	110 B	99	120 B	93	100 B
Chloride, mg/L	P	210		160	120	200	160	--	22	270	260	220	220	300	310
Fluoride, mg/L	P	0.381		<0.22	<0.22	<0.22	<0.22	--	<0.22	1.1	0.93	<0.22	0.39	J	<0.22
Field pH, Std. Units	P	6.74		6.29	6.25	6.56	6.62	--	6.65	6.77	6.70	6.76	6.70	6.53	6.61
Sulfate, mg/L	P	208		180	160	920	820	--	260	280	270	190	250	86	78
Total Dissolved Solids, mg/L	P	697		690	580	1,600	1,400	--	880	1,200	1,200	1,000	1,100	1,100	1,000
Appendix IV															
Antimony, ug/L	NP	1.10	6	<0.69	<1.0	<0.69	<1.0	--	<1.0	<0.69	<1.0	<0.69	<1.0	<0.69	<1.0
Arsenic, ug/L	NP	0.88	10	<0.75	<0.53	<0.75	<0.53	--	<0.53	0.96	J	0.63	J	<0.75	<0.53
Barium, ug/L	P	71.0	2,000	44	31	21	21	--	48	85	75	120	120	95	85
Beryllium, ug/L	NP	0.270	4	<0.27	<0.33	<0.27	<0.33	--	<0.33	<0.27	<0.33	<0.27	<0.33	<0.27	<0.33
Cadmium, ug/L	P	0.149	5	0.055	J	<0.10	0.28	0.17	J	0.11	J	0.15	<0.10	<0.055	<0.10
Chromium, ug/L	NP	1.10	100	1.2	J	<1.1	8.8	1.6	J	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Cobalt, ug/L	P	5.26	6	0.29	J	0.21	J	1.8	0.82	0.41	J	0.47	J	0.37	J
Fluoride, mg/L	P	0.417	4	<0.22	<0.22	<0.22	<0.22	--	<0.22	1.1	0.93	<0.22	0.39	J	<0.22
Lead, ug/L	NP	0.270	15	<0.24	<0.24	<0.24	<0.24	--	<0.24	0.38	J	<0.24	<0.24	<0.24	<0.24
Lithium, ug/L	P	31.8	40	30	J	17	11	--	4.9	J	3.3	J	3.5	J	<2.5
Mercury, ug/L	DQ	DQ	2	<0.11	<0.14	<0.11	<0.14	--	<0.14	<0.11	<0.14	<0.11	<0.14	<0.11	<0.14
Molybdenum, ug/L	NP	1.30	100	<8.4	<0.91	4.9	3.0	--	2.0	1.9	J	1.8	J	7.4	12
Selenium, ug/L	P	9.01	50	6.9	4.7	J	<0.96	<1.4	--	15	1.1	J	<1.4	<0.96	<1.4
Thallium, ug/L	NP	0.500	2	<0.26	<0.26	<0.26	3.2	--	0.42	J	<0.26	<0.26	0.44	J	0.39
Radium 226/228 Combined, pCi/L	P	1.71	5	0.973	0.0491	0.627	0.178	--	0.145	2.66	2.10	0.910	0.706	1.03	0.455
Additional Parameters Collected for Selection of Remedy															
Cobalt, dissolved, ug/L				--	--	--	--	--	--	--	--	21	--	8.2	8.6
Lithium, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--	--	--
Iron, dissolved, ug/L				<36	--	49	J	<36	--	--	--	5,500	--	66	J
Iron, ug/L				<36	--	58	J	80	J	--	--	64	J	4,700	5,400
Magnesium, ug/L				28,000	--	43,000	--	--	--	34,000	--	40,000	--	76	J
Manganese, dissolved, ug/L				7.9	J	--	90	--	--	4,100	--	3,800	--	30,000	--
Manganese, ug/L				8.0	J	--	91	--	--	3,600	--	3,200	--	27,000	--
Potassium, ug/L				980	--	1,500	--	--	--	6,700	--	6,800	--	4,900	--
Sodium, ug/L				73,000	--	210,000	--	--	--	180,000	--	150,000	--	150,000	--
Bicarbonate Alkalinity, mg/L				250	--	87	--	--	--	390	--	440	--	370	--
Carbonate Alkalinity, mg/L				<4.6	--	<4.6	--	--	--	<4.6	--	<4.6	--	<4.6	--
Total Alkalinity, mg/L				250	--	87	--	--	--	390	--	440	--	370	--

4.4 Blue highlighted cell indicates the compliance or delineation well result exceeds the UPL (background), UTL, and the LOQ.

30.8 Yellow highlighted cell indicates the compliance or delineation well result exceeds the GPS.

17 Grayscale indicates Additional Parameters sampled for selection of remedy and evaluation of Monitored Natural Attenuation.

Abbreviations:

UPL = Upper Prediction Limit
 NA = Not Analyzed
 GPS = Groundwater Protection Standard
 MNA = Monitored Natural Attenuation
 amsl = above mean sea level

LOD = Limit of Detection
 LOQ = Limit of Quantitation
 -- = Not Analyzed
 mg/L = milligrams per liter
 ug/L = micrograms per liter

DQ = Double Quantification Rule (not detected in background)
 NP = Nonparametric UPL (highest background value)
 P = Parametric UPL with 1-of-2 retesting
 UTL = Upper Tolerance Limits

Lab Notes:

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
 B = Compound was found in the blank and sample.

Notes:

- An individual result above the UPL or GPS does not constitute an SSI above background or statistically significant level above the GPS. See the accompanying text for identification of statistically significant results
- GPS is the United States Environmental Protection Agency (USEPA) Maximum Contamination Level (MCLs), if established; otherwise, the values from 40 CFR 257.95(h)(2).
- Interwell UPLs and UTLs are calculated based on results from background well MW-301. UPLs and UTLs were updated in April 2022.
- Compliance wells represent the groundwater monitoring network at the boundary of the CCR unit. The delineation wells were installed during the selection of remedy process to evaluate an extension of the downgradient groundwater monitoring network.

**Table 5. Groundwater Analytical Results Summary - October 2022 and April 2023
Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25223072.00**

Parameter Name	UPL Method	UPL	GPS	Delineation Wells																
				MW-305A		MW-310		MW-310A		MW-311		MW-311A		MW-312		MW-313		MW-316	MW-316A	MW-317
				10/26/2022	4/6/2023	10/25/2022	4/4/2023	10/26/2022	4/5/2023	10/26/2022	4/4/2023	10/26/2022	4/6/2023	10/25/2022	4/5/2023	10/25/2022	4/5/2023	4/6/2023	4/6/2023	4/6/2023
Groundwater Elevation (ft amsl)				644.38	647.70	638.55	641.71	639.49	643.11	638.46	641.88	640.27	643.59	639.64	644.08	639.16	642.02	642.78	643.49	642.84
Appendix III																				
Boron, ug/L	P	839		140	--	340	--	1,500	--	75	J	--	1,400	--	580	--	540	--	--	--
Calcium, mg/L	P	103		150	--	150	--	69	--	130	--	46	--	160	170	170	220	210	74	200
Chloride, mg/L	P	210		170	150	140	48	120	130	17	18	140	140	170	130	170	<2.3	140	54	240
Fluoride, mg/L	P	0.381		<0.22	--	0.80	--	2.0	--	<0.22	--	4.3	--	0.38	J	--	<0.22	--	--	--
Field pH, Std. Units	P	6.74		7.11	6.74	6.70	6.91	7.64	7.46	6.61	6.56	7.80	7.54	7.10	7.11	6.95	6.93	6.70	7.40	6.57
Sulfate, mg/L	P	208		160	140	480	180	1,200	1,200	76	66	1,200	1,200	610	510	580	650	480	730	130
Total Dissolved Solids, mg/L	P	697		690	770	1,200	650	2,200	2,300	550	630	2,300	2,400	1,300	1,200	1,300	1,400	1,200	1,500	1,200
Appendix IV																				
Antimony, ug/L	NP	1.10	6	<0.69	--	<0.69	--	<0.69	--	<0.69	--	0.83	J	--	<0.69	--	<0.69	--	--	--
Arsenic, ug/L	NP	0.88	10	<0.75	--	<0.75	--	<0.75	--	<0.75	--	<0.75	--	2.8	--	1.1	J	--	--	--
Barium, ug/L	P	71.0	2,000	93	--	78	--	13	--	200	--	12	--	45	--	53	--	--	--	--
Beryllium, ug/L	NP	0.270	4	<0.27	--	<0.27	--	<0.27	--	<0.27	--	<0.27	--	<0.27	--	<0.27	--	--	--	--
Cadmium, ug/L	P	0.149	5	<0.055	--	0.24	--	<0.055	--	<0.055	--	<0.055	--	<0.055	--	<0.055	--	--	--	--
Chromium, ug/L	NP	1.10	100	<1.1	--	<1.1	--	<1.1	--	<1.1	--	<1.1	--	<1.1	--	<1.1	--	--	--	--
Cobalt, ug/L	P	5.26	6	1.7	1.4	0.75	0.24	J	0.56	0.51	<0.19	0.38	J	0.40	0.66	11	11	3.8	5.5	2.1
Fluoride, mg/L	P	0.417	4	<0.22	--	0.80	--	2.0	--	<0.22	--	4.3	--	0.38	J	--	<0.22	--	--	--
Lead, ug/L	NP	0.270	15	0.32	J	<0.24	--	<0.24	--	<0.24	--	<0.24	--	<0.24	--	<0.24	--	--	--	--
Lithium, ug/L	P	31.8	40	13	--	36	--	250	--	4.4	J	--	250	--	35	--	30	--	--	--
Mercury, ug/L	DQ	DQ	2	<0.11	--	<0.11	--	<0.11	--	<0.11	--	<0.11	--	<0.11	--	<0.11	--	<0.11	--	--
Molybdenum, ug/L	NP	1.30	100	3.7	--	24	--	1.4	J	--	1.2	--	2.2	--	1.4	J	--	5.8	--	--
Selenium, ug/L	P	9.01	50	<0.96	--	2.6	J	<0.96	--	1.3	J	--	<0.96	--	<0.96	--	<0.96	--	--	--
Thallium, ug/L	NP	0.500	2	<0.26	--	<0.26	--	<0.26	--	<0.26	--	<0.26	--	<0.26	--	<0.26	--	--	--	--
Radium 226/228 Combined, pCi/L	P	1.71	5	3.70	--	0.827	--	4.40	--	--	--	4.21	--	1.29	--	1.56	--	--	--	--
Additional Parameters Collected for Selection of Remedy																				
Cobalt, dissolved, ug/L				--	--	45	--	--	--	--	--	--	--	--	--	32	--	--	--	--
Lithium, dissolved, ug/L				<36	--	<36	--	52	J	--	<36	--	280	--	41	--	32	--	--	--
Iron, dissolved, ug/L				42	J	<36	<36	96	J	69	J	<36	<36	250	150	950	520	<36	<36	1,400
Iron, ug/L				24,000	--	57,000	--	32,000	--	27,000	--	18,000	--	52,000	59,000	49,000	72,000	69,000	30,000	44,000
Manganese, dissolved, ug/L				140	--	1,300	--	43	--	8.7	J	--	7.0	J	--	1,000	930	2,600	3600	1,200
Manganese, ug/L				120	--	1,100	--	24	--	7.4	J	--	9.4	J	--	1,200	960	3,100	3600	210
Potassium, ug/L				3,400	--	12,000	--	8,600	--	740	--	7800	--	4,800	5,700	4,300	6100	1900	8000	3,400
Sodium, ug/L				42,000	--	93,000	--	620,000	--	4,800	--	720,000	--	130,000	140,000	100,000	150,000	110,000	430,000	130,000
Bicarbonate Alkalinity, mg/L				300	--	250	--	350	--	490	--	380	--	230	250	290	270	340	430	5,401
Carbonate Alkalinity, mg/L				<4.6	--	<4.6	--	<4.6	--	<4.6	--	<4.6	--	<4.6	<2.5	<4.6	<2.5	<2.5	<2.5	<2.5
Total Alkalinity, mg/L				300	--	250	--	350	--	490	--	380	--	230	250	290	270	340	430	540

4.4 Blue highlighted cell indicates the compliance or delineation well result exceeds the UPL (background), UTL, and the LOQ.
 30.8 Yellow highlighted cell indicates the compliance or delineation well result exceeds the GPS.
 17 Grayscale indicates Additional Parameters sampled for selection of remedy and evaluation of Monitored Natural Attenuation.

Abbreviations:
 UPL = Upper Prediction Limit
 NA = Not Analyzed
 GPS = Groundwater Protection Standard
 MNA = Monitored Natural Attenuation
 amsl = above mean sea level
 DQ = Double Quantification Rule (not detected in background)
 NP = Nonparametric UPL (highest background value)
 P = Parametric UPL with 1-of-2 retesting
 UTL = Upper Tolerance Limits

Lab Notes:
 J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
 B = Compound was found in the blank and sample.

Notes:
 1. An individual result above the UPL or GPS does not constitute an SSI above background or statistically significant level above the GPS. See the accompanying text for identification of statistically significant results
 2. GPS is the United States Environmental Protection Agency (USEPA) Maximum Contamination Level (MCL), if established; otherwise, the values from 40 CFR 257.95(h)(2).
 3. Interwell UPLs and UTLs are calculated based on results from background well MW-301. UPLs and UTLs were updated in April 2022.
 4. Compliance wells represent the groundwater monitoring network at the boundary of the CCR unit. The delineation wells were installed during the selection of remedy process to evaluate an extension of the downgradient groundwater monitoring network.

Created by: NDK
 Last revision by: RM
 Checked by: NLB
 Sci./PM QA/QC: TK
 Date: 5/1/2018
 Date: 1/25/2024
 Date: 1/24/2024
 Date: 1/30/2024

**Table 6. Groundwater Field Parameters
Ottumwa Generating Station - Ash Pond / SCS Project # 25223072.00**

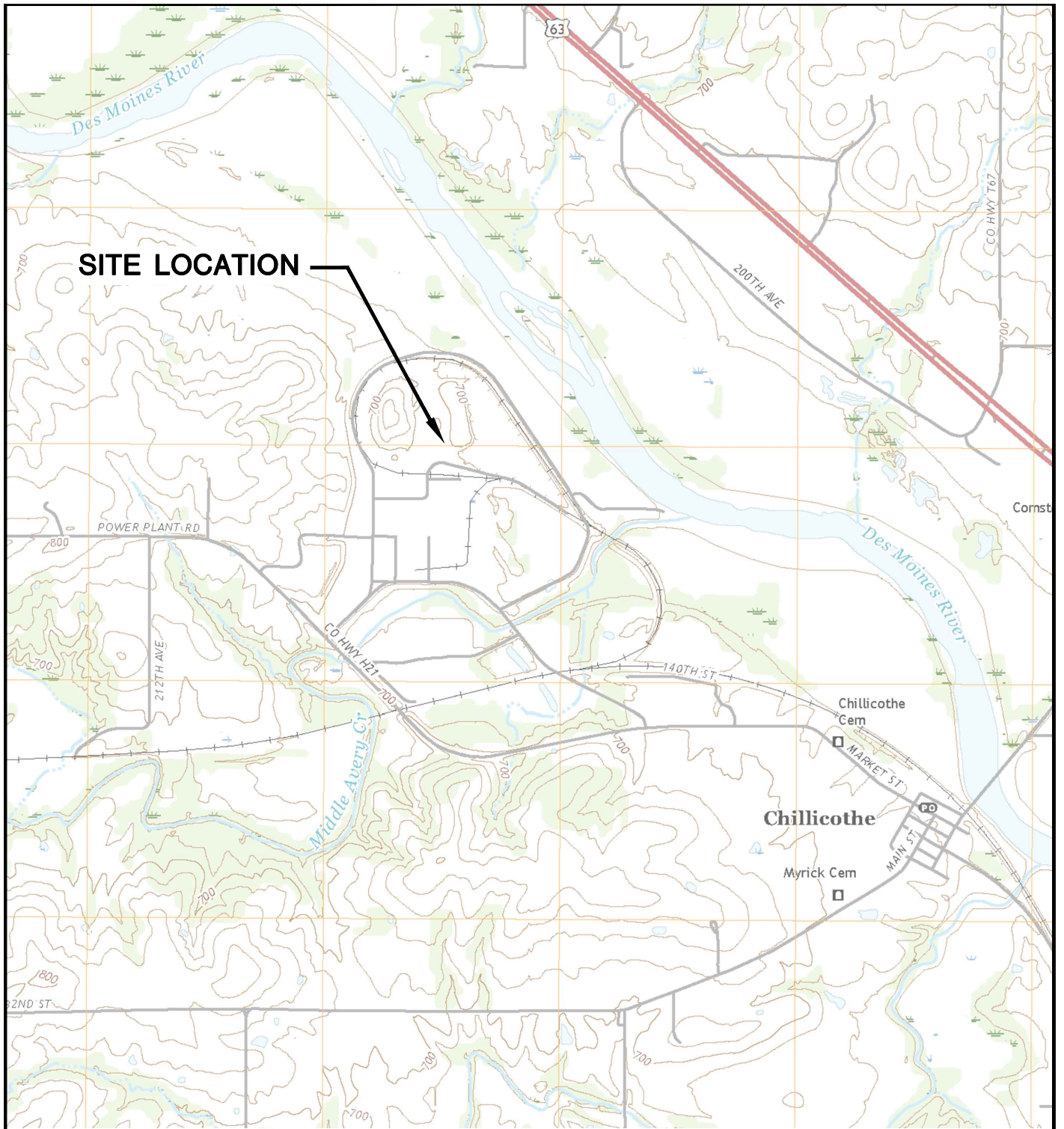
Well	Sample Date	Groundwater Elevation (feet)	Field Temperature (deg C)	Field pH (Std. Units)	Oxygen, Dissolved (mg/L)	Field Specific Conductance (umhos/cm)	Field Oxidation Potential (mV)	Turbidity (NTU)
MW-301	10/26/2022	680.68	14.6	6.29	4.74	1036	26.9	0.62
	4/6/2023	682.05	7.1	6.25	5.05	832	125	2.37
MW-302	10/26/2022	652.95	12.8	6.56	2.13	2,051	-27.1	8.02
	4/5/2023	653.30	11.2	6.62	1.86	1,953	97	2.03
MW-303	10/26/2022	648.22	15.9	6.70	0.65	1,660	-40.9	574
	4/5/2023	652.57	8.3	6.65	1.70	1,215	62.9	3.54
MW-304	10/26/2022	647.26	13.5	6.77	0.00	1,828	-86.3	3.60
	4/6/2023	650.29	13.1	6.70	0.00	1,888	-93.7	0.02
MW-305	10/25/2022	651.48	13.2	6.76	0.35	1633	-33.0	2.59
	4/4/2023	655.02	13.6	6.70	0.63	1,896	166	0.02
MW-305A	10/26/2022	644.38	13.7	7.11	4.75	1,127	-14.4	2.43
	4/6/2023	647.07	11.1	6.74	0.12	1,224	198	0.02
MW-306	10/25/2022	657.11	13.5	6.53	0.39	1,597	-37.7	0.00
	4/6/2023	659.12	13.4	6.61	0.12	1,583	103	3.09
MW-310	10/25/2022	638.55	13.3	6.70	0.03	1,856	114	0.73
	4/4/2023	641.71	11.8	6.91	4.34	852	253	0.02
MW-310A	10/26/2022	639.49	14.2	7.64	4.24	2,964	81.2	3.85
	4/5/2023	643.11	12.1	7.46	0.49	3,045	-15.5	1.97
MW-311	10/26/2022	638.46	14.6	6.61	0.68	846	52.8	0.84
	4/4/2023	641.88	10.5	6.56	0.00	932	257	0.02
MW-311A	10/26/2022	640.27	14.1	7.80	4.68	3,022	-21.6	5.88
	4/6/2023	643.59	11.5	7.54	2.47	3,037	47.7	0.02
MW-312	10/25/2022	639.64	13.1	7.10	0.00	1,985	11.3	1.68
	4/5/2023	644.08	12.0	7.11	0.28	1,576	0.5	1.32
MW-313	10/25/2022	639.16	14.0	6.95	0.22	1937	-18.4	2.75
	4/5/2023	642.02	11.5	6.93	0.09	1,878	-14.5	5.09
MW-316	4/6/2023	642.78	10.6	6.70	0.00	1,694	104	0.02
MW-316A	4/6/2023	643.49	11.2	7.40	3.29	1,976	99.6	4.77
MW-317	4/6/2023	642.84	11.5	6.57	0.12	1,561	-24.0	3.89

Created: NDK
 Updated: BLR
 QC Checked: RM

Date: 10/5/2022
 Date: 12/8/2023
 Date: 12/15/2023

Figures

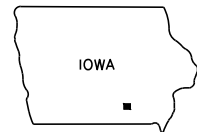
- 1 Site Location Map
- 2 Site Plan and Monitoring Well Locations—Ash Pond
- 3 Shallow Potentiometric Surface, April 4-6, 2023
- 4 Deep Potentiometric Surface, April 4-6, 2023
- 5 Shallow Potentiometric Surface, October 25-26, 2023
- 6 Deep Potentiometric Surface, October 25-26, 2023



SITE LOCATION

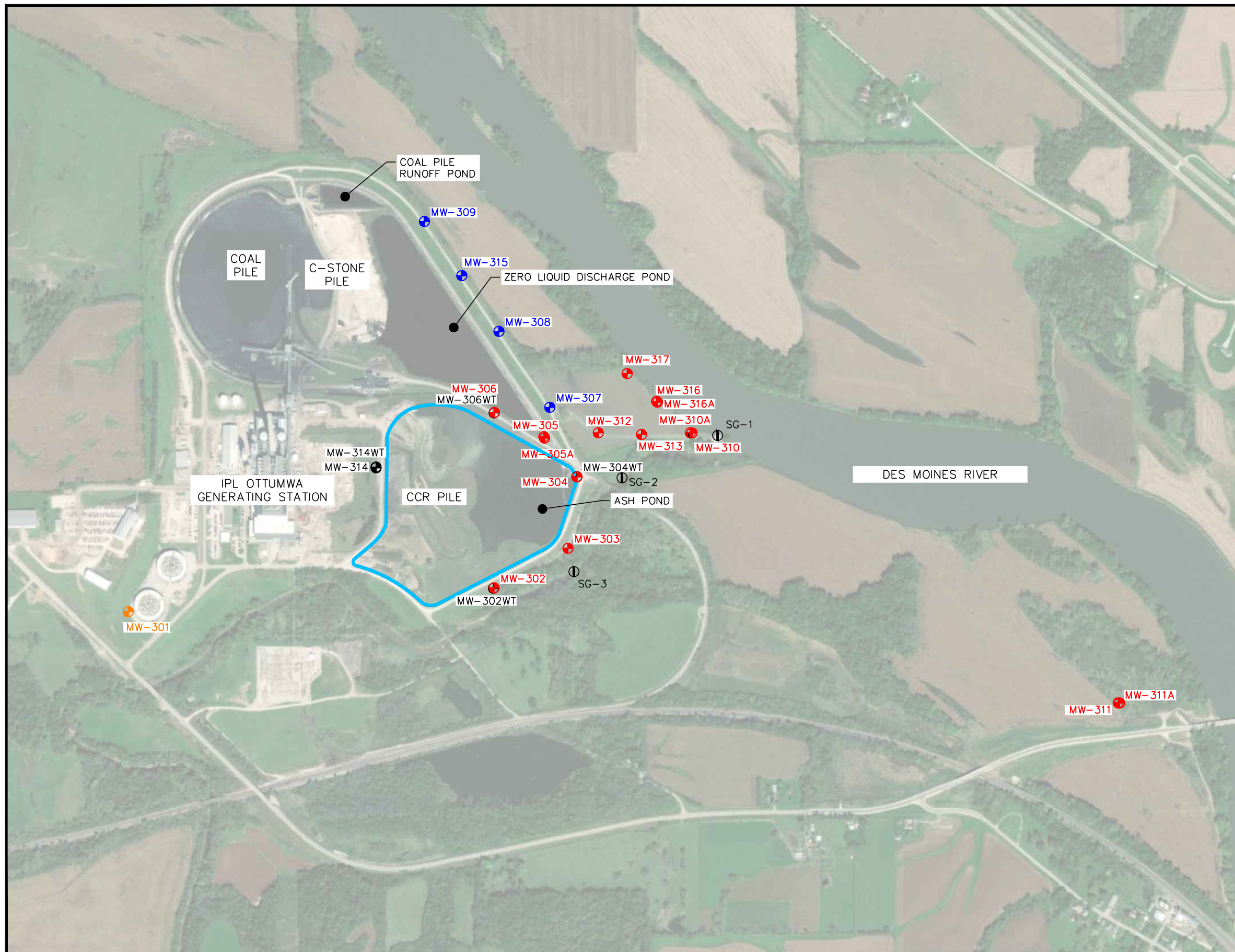


CHILLICOTHE QUADRANGLE
 IOWA—WAPELLO CO.
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'

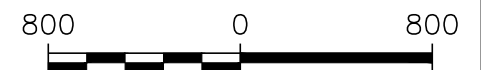


CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501		SITE	ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA		ENGINEER	SITE LOCATION MAP	
	PROJECT NO.	25219072.00		DRAWN BY:	BSS		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
DRAWN:	11/15/2019	CHECKED BY:	MDB	APPROVED BY:	TK 01/30/2020			
REVISED:	01/10/2020							

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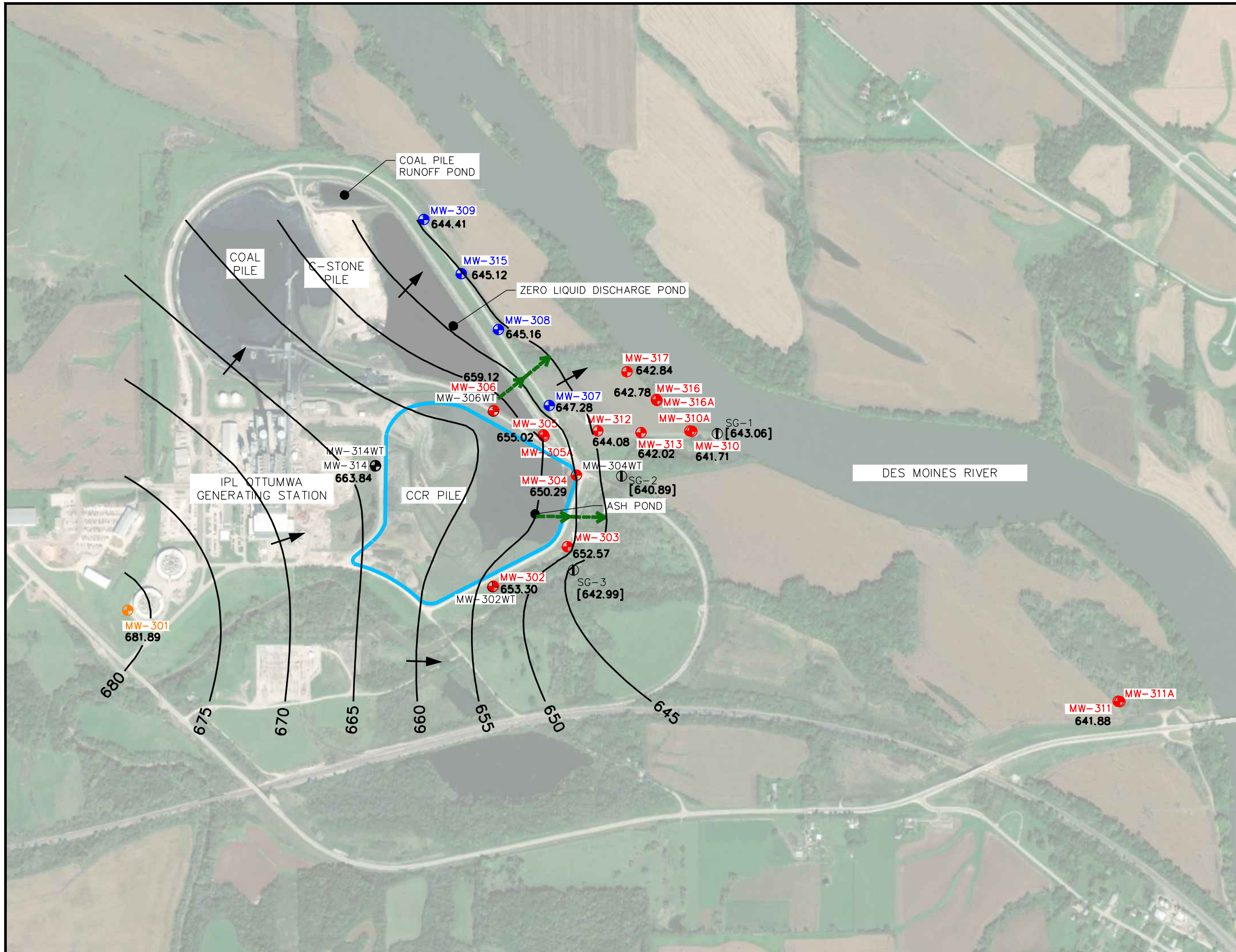
LEGEND	
	CCR UNIT
	CCR ZLDP MONITORING WELL
	CCR ASH POND MONITORING WELL
	CCR BACKGROUND MONITORING WELL
	WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
	SURFACE WATER MEASUREMENT LOCATION



SCALE: 1" = 800'

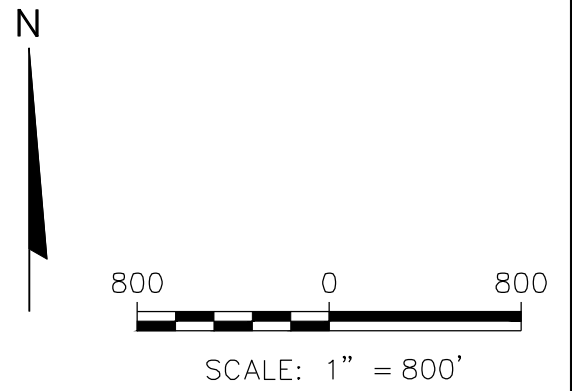
PROJECT NO. 25223072.00	DRAWN BY: KP	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA	FIGURE 2
DRAWN: 12/05/2023	CHECKED BY: NLB				
REVISD: 12/21/2023	APPROVED BY: TK 1/17/2024				

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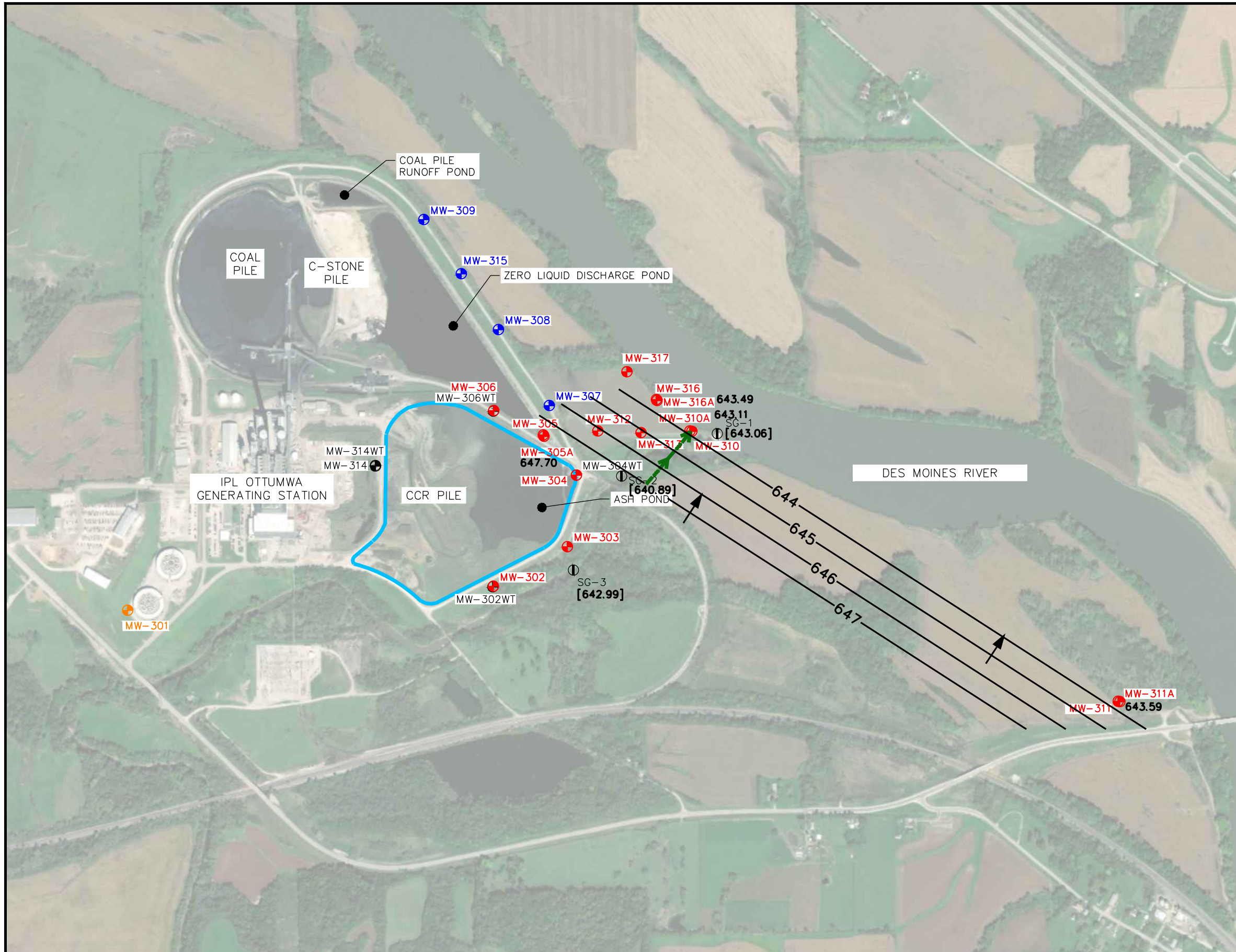
LEGEND	
	CCR UNIT
	CCR ZLDP MONITORING WELL
	CCR ASH POND MONITORING WELL
	CCR BACKGROUND MONITORING WELL
	WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
	SURFACE WATER ELEVATION MEASUREMENT LOCATION
[638.41]	SURFACE WATER ELEVATION (APRIL 4, 2023)
651.09	POTENTIOMETRIC ELEVATION AT WELL (APRIL 4-6, 2023)
	POTENTIOMETRIC SURFACE CONTOUR
	FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4A)
	APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTE:
 1. THE BACKGROUND MONITORING WELL FOR THE OGS ASH POND IS MW-301.



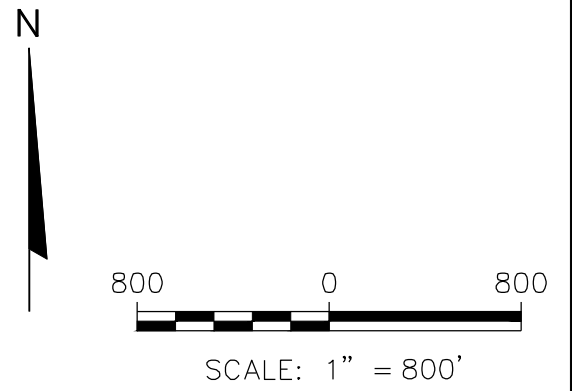
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DRAWN: 05/05/2023	CHECKED BY: NLB					3
REVISED: 01/29/2024	APPROVED BY: TK 01/29/2024					

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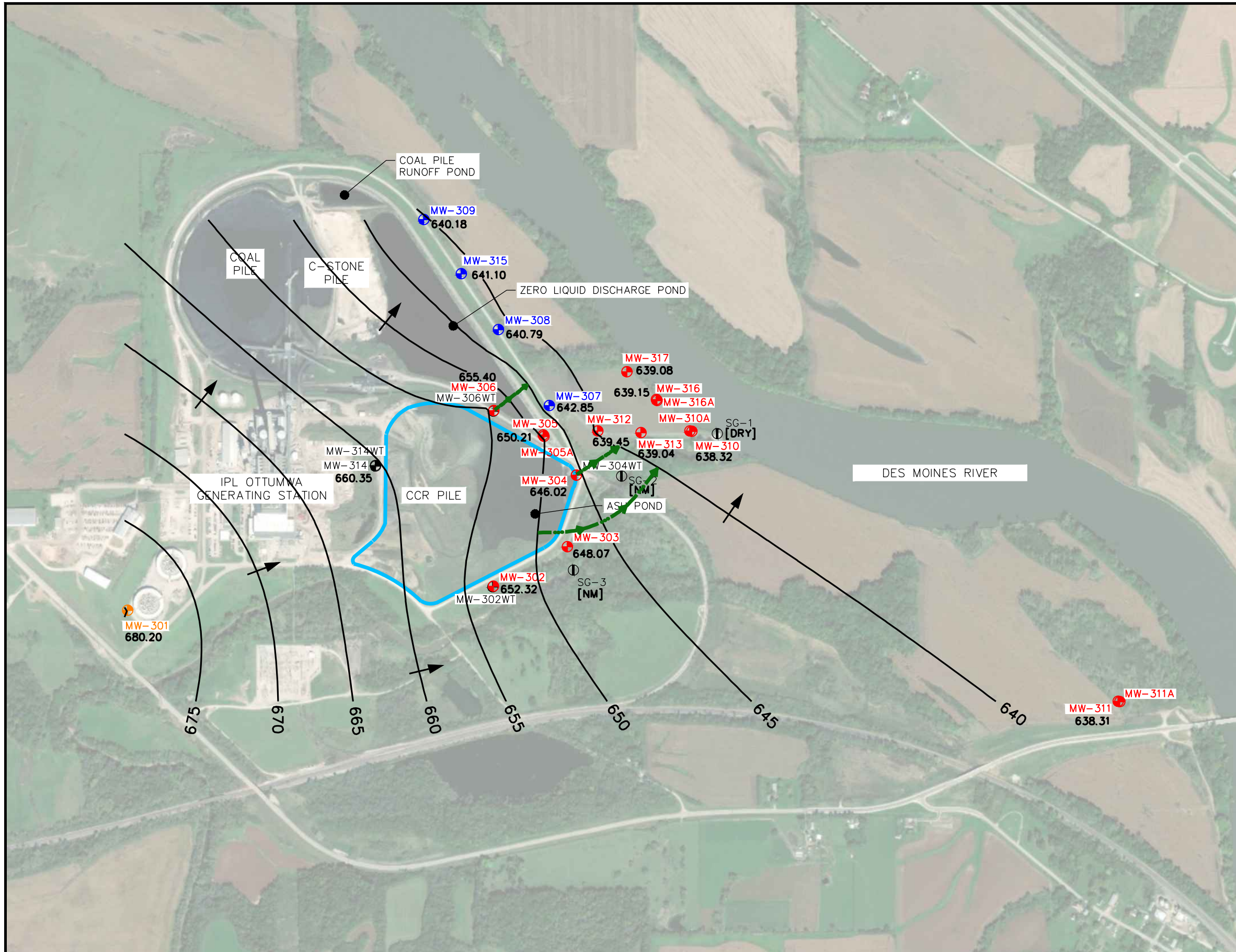
- LEGEND
- CCR UNIT
 - CCR ZLDP MONITORING WELL
 - CCR ASH POND MONITORING WELL
 - CCR BACKGROUND MONITORING WELL
 - WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
 - ⊕ SURFACE WATER ELEVATION MEASUREMENT LOCATION
 - [638.41]** SURFACE WATER ELEVATION (APRIL 4, 2023)
 - 651.09** POTENTIOMETRIC ELEVATION AT WELL (APRIL 4-6, 2023)
 - POTENTIOMETRIC SURFACE CONTOUR
 - FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4A)
 - APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTE:
 1. THE BACKGROUND MONITORING WELL FOR THE OGS ASH POND IS MW-301.



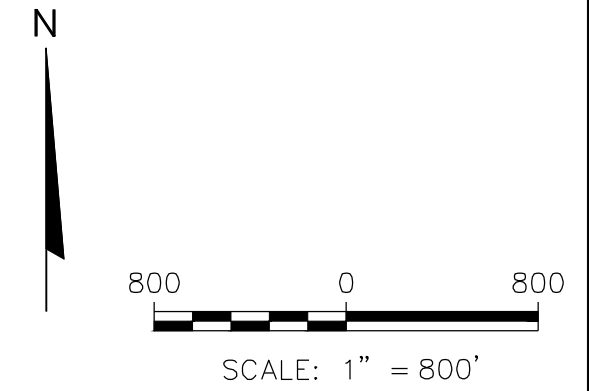
PROJECT NO. 25223072.00	DRAWN BY: KP	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA	DEEP POTENTIOMETRIC SURFACE APRIL 2023	FIGURE
DRAWN: 05/05/2023	CHECKED BY: NLB					4
REVISED: 01/29/2024	APPROVED BY: TK 01/29/2024					

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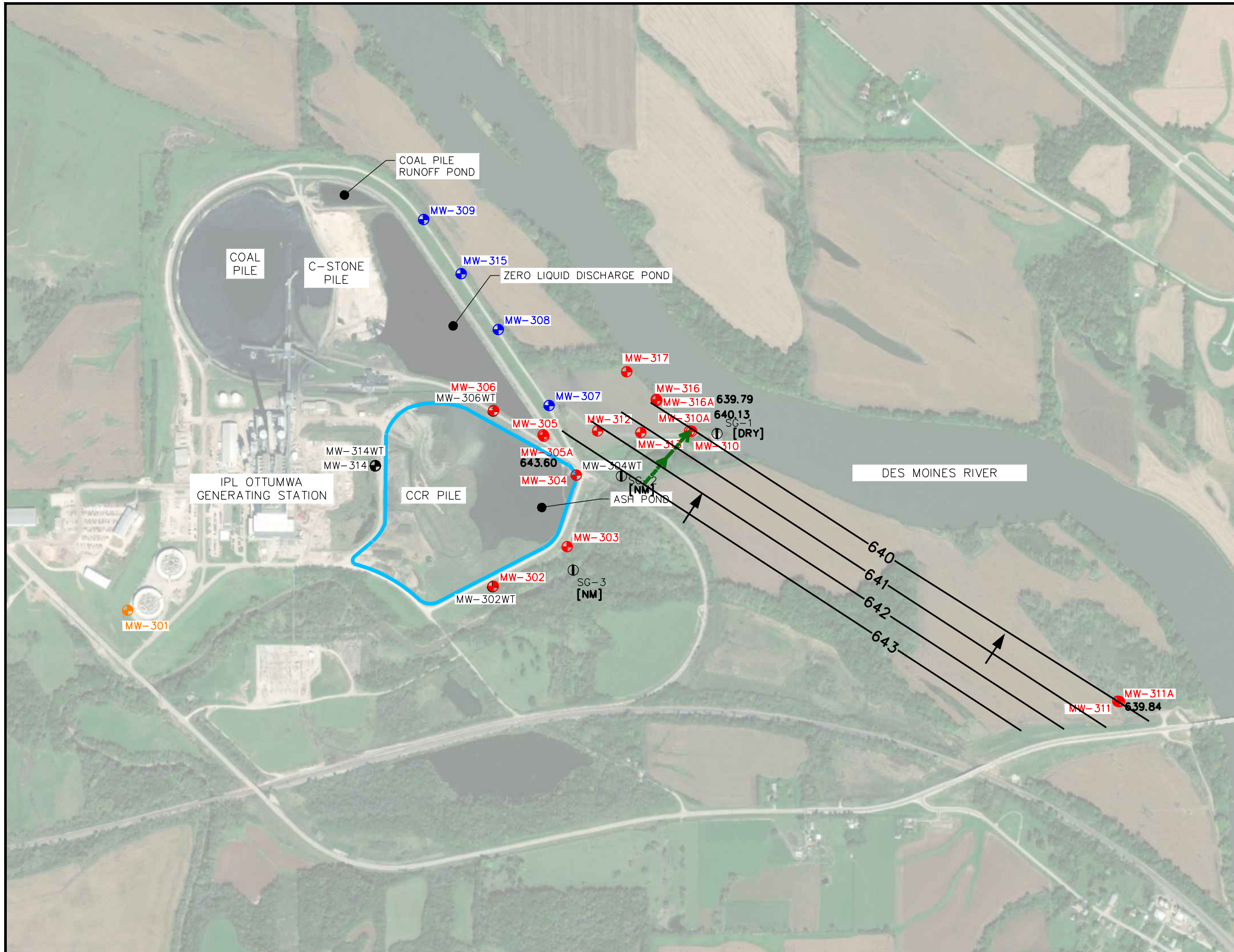
LEGEND	
	CCR UNIT
	CCR ZLDP MONITORING WELL
	CCR ASH POND MONITORING WELL
	CCR BACKGROUND MONITORING WELL
	WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
	SURFACE WATER ELEVATION MEASUREMENT LOCATION
[638.41]	SURFACE WATER ELEVATION (OCTOBER 10-13, 2023)
651.09	POTENTIOMETRIC ELEVATION AT WELL (OCTOBER 10-13, 2023)
NM	NOT MEASURED
	POTENTIOMETRIC SURFACE CONTOUR
	FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4A)
	APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTE:
 1. THE BACKGROUND MONITORING WELL FOR THE OGS ASH POND IS MW-301.



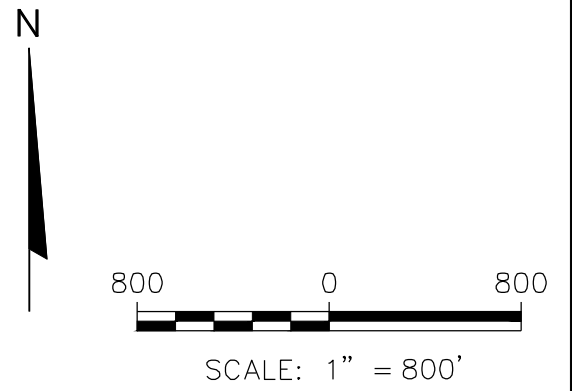
PROJECT NO. 25223072.00	DRAWN BY: KP	 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA	SHALLOW POTENTIOMETRIC SURFACE OCTOBER 2023	FIGURE
DRAWN: 12/05/2023	CHECKED BY: NLB					5
REVISED: 01/29/2024	APPROVED BY: TK 01/29/2024					

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- LEGEND
- CCR UNIT
 - CCR ZLDP MONITORING WELL
 - CCR ASH POND MONITORING WELL
 - CCR BACKGROUND MONITORING WELL
 - WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
 - ⊕ SURFACE WATER ELEVATION MEASUREMENT LOCATION
 - [638.41]** SURFACE WATER ELEVATION (OCTOBER 10-13, 2023)
 - 651.09** POTENTIOMETRIC ELEVATION AT WELL (OCTOBER 10-13, 2023)
 - NM** NOT MEASURED
 - POTENTIOMETRIC SURFACE CONTOUR
 - FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4A)
 - APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTE:
 1. THE BACKGROUND MONITORING WELL FOR THE OGS ASH POND IS MW-301.



PROJECT NO. 25223072.00	DRAWN BY: KP	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	FIGURE 6
DRAWN: 12/05/2023	CHECKED BY: NLB				
REVISED: 01/29/2024	APPROVED BY: TK 01/29/2024				

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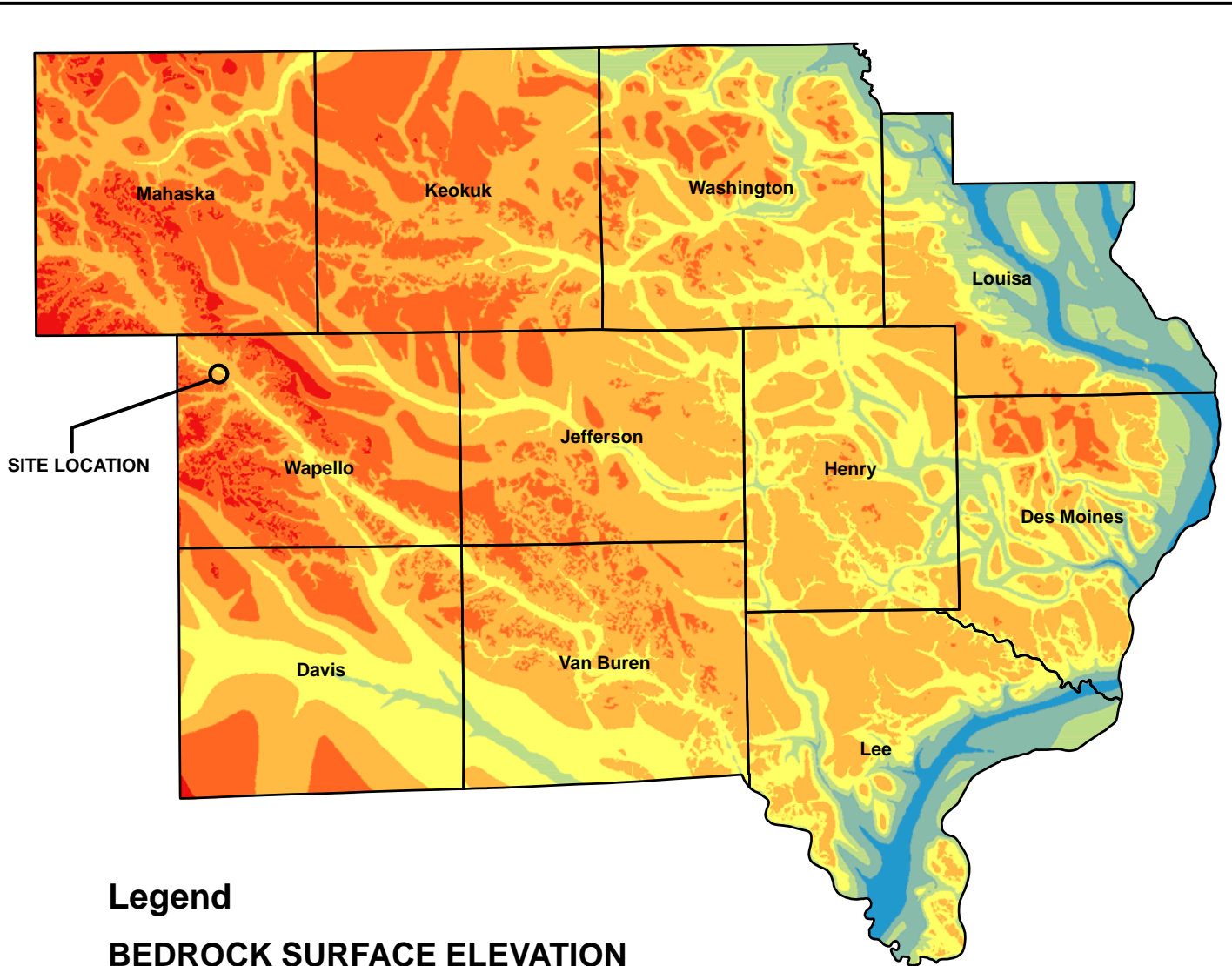
Appendix A
Regional Hydrogeologic Information

**Table OGS-2. Regional Hydrogeologic Stratigraphy
Ottumwa Midland Landfill / SCS Engineers Project #25215053.01**

Age of Rocks	Hydrogeologic Unit	General Thickness (feet)	Name of Rock Unit*	Type of Rock
Quaternary (0-1 million years old)	Surficial Aquifers • Alluvial • Buried-Channel • Drift	0 to 320	Undifferentiated	<ul style="list-style-type: none"> • Sand, gravel, silt, and clay • Sand, gravel, silt, and clay • Till (sandy, pebbly clay), sand, and silt
Pennsylvanian (180 to 310 million years old)	Aquiclude	0 to 370	Undifferentiated	<ul style="list-style-type: none"> • Shale, sandstone, limestone, and coal
Mississippian (310 to 345 million years old)	Mississippian Aquifer • Upper	0 to 600	St. Louis Spergen	<ul style="list-style-type: none"> • Limestone and sandstone • Limestone
	• Lower		Warsaw Keokuk Burlington Hampton Starrs Cave	<ul style="list-style-type: none"> • Shale and dolomite • Dolomite, limestone, and shale • Dolomite and limestone • Limestone and dolomite • Limestone
	Aquiclude	0 to 425	Prospect Hill McCraney	<ul style="list-style-type: none"> • Siltstone • Limestone
Devonian (345 to 400 million years old)	Aquiclude	110 to 420	Yellow Spring Lime Creek	<ul style="list-style-type: none"> • Shale, dolomite, and siltstone • Dolomite and shale
	Devonian Aquifer		Cedar Valley Wapsipinicon	<ul style="list-style-type: none"> • Limestone and dolomite • Dolomite, limestone, shale, and gypsum
Silurian (400 to 425 million years old)		0 to 105	Undifferentiated	<ul style="list-style-type: none"> • Dolomite
Ordovician (425 to 500 million years old)	Aquiclude	150 to 600	Maquoketa Galena Decorah Platteville	<ul style="list-style-type: none"> • Dolomite and shale • Dolomite and chert • Limestone and shale • Limestone, shale, and sandstone
	Cambrian-Ordovician aquifer	750 to 1,110	St. Peter Prairie du Chien	<ul style="list-style-type: none"> • Sandstone • Dolomite and sandstone
Cambrian (500 to 600 million years old)		450 to 750+	Jordan St. Lawrence	<ul style="list-style-type: none"> • Sandstone • Dolomite
	Not considered an aquifer in southeast Iowa		Franconia Galesville Eau Claire Mt. Simon	<ul style="list-style-type: none"> • Shale, siltstone, and sandstone • Sandstone • Sandstone, shale, and dolomite • Sandstone
Precambrian (600 million to 2 billion + years old)				<ul style="list-style-type: none"> • Sandstone, igneous rocks, and metamorphic rocks

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

Source: "Water Resources of Southeast Iowa," Iowa Geologic Survey Water Atlas No. 4.

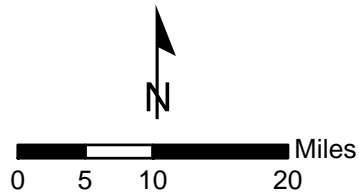


Legend

BEDROCK SURFACE ELEVATION

ELEVATION ABOVE MEAN SEA LEVEL IN FEET

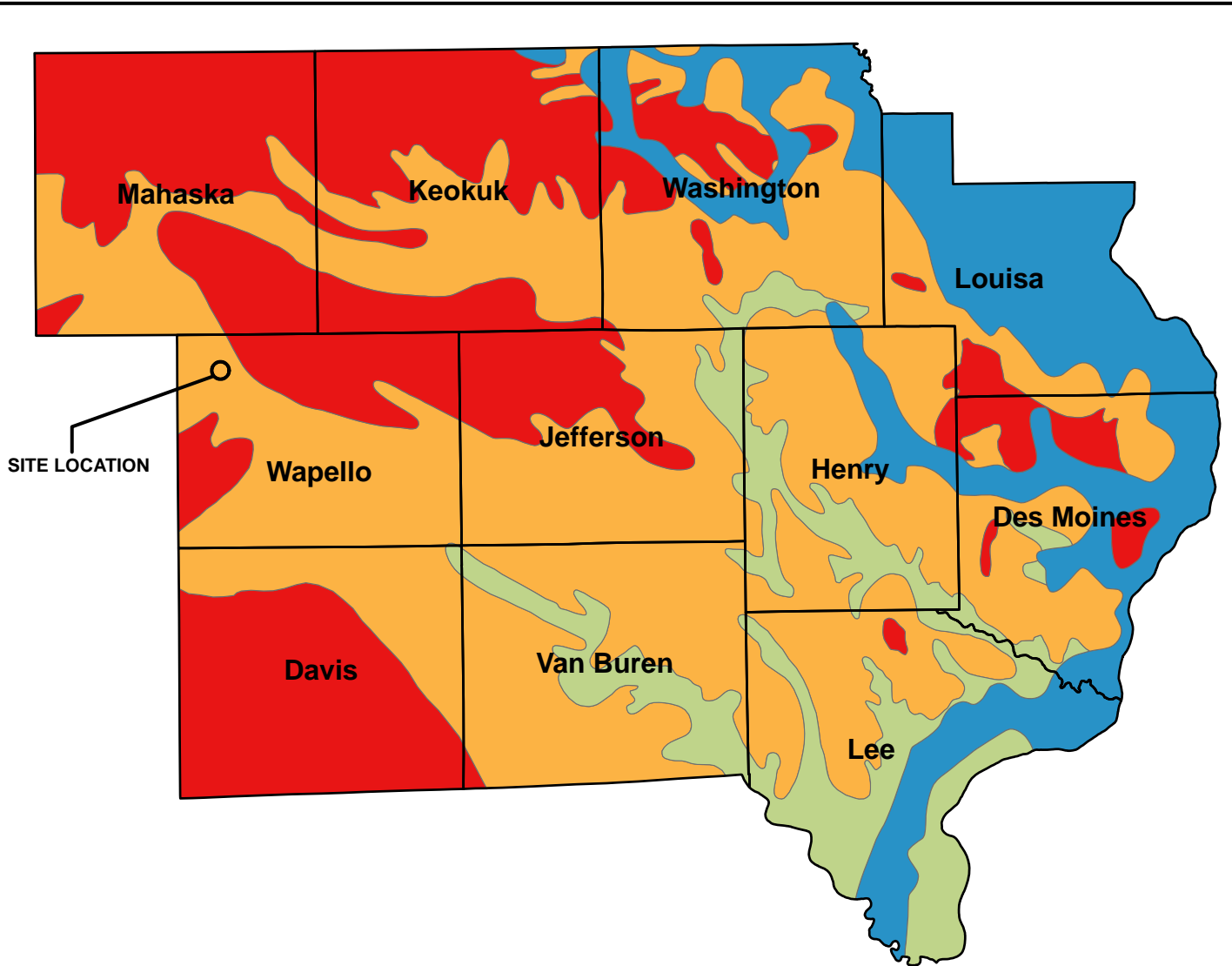
- BELOW 300
- 300 TO 400
- 400 TO 500
- 500 TO 600
- 600 TO 700
- 700 TO 800
- 800 TO 900



MAP DATA DERIVED FROM IOWA GEOLOGICAL AND WATER SURVEY
 IOWA BEDROCK SURFACE ELEVATION AS OBTAINED
 FROM IOWA NATURAL RESOURCES
 GEOGRAPHIC INFORMATION SYSTEMS LIBRARY

CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE	OTTUMWA GENERATING STATION OTTUMWA, IOWA	SE IOWA REGIONAL BEDROCK SURFACE ELEVATION
PROJECT NO. 25215053.03	DRAWN BY: JB	ENGINEER	SCS ENGINEERS	
DRAWN: 07/29/13	CHECKED BY: MDB		2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830 FAX: (608) 224-2839	
REVISED: 05/29/15	APPROVED BY:		FIGURE	

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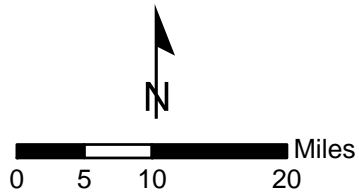


Legend

MISSISSIPPIAN AQUIFER POTENTIOMETRIC SURFACE

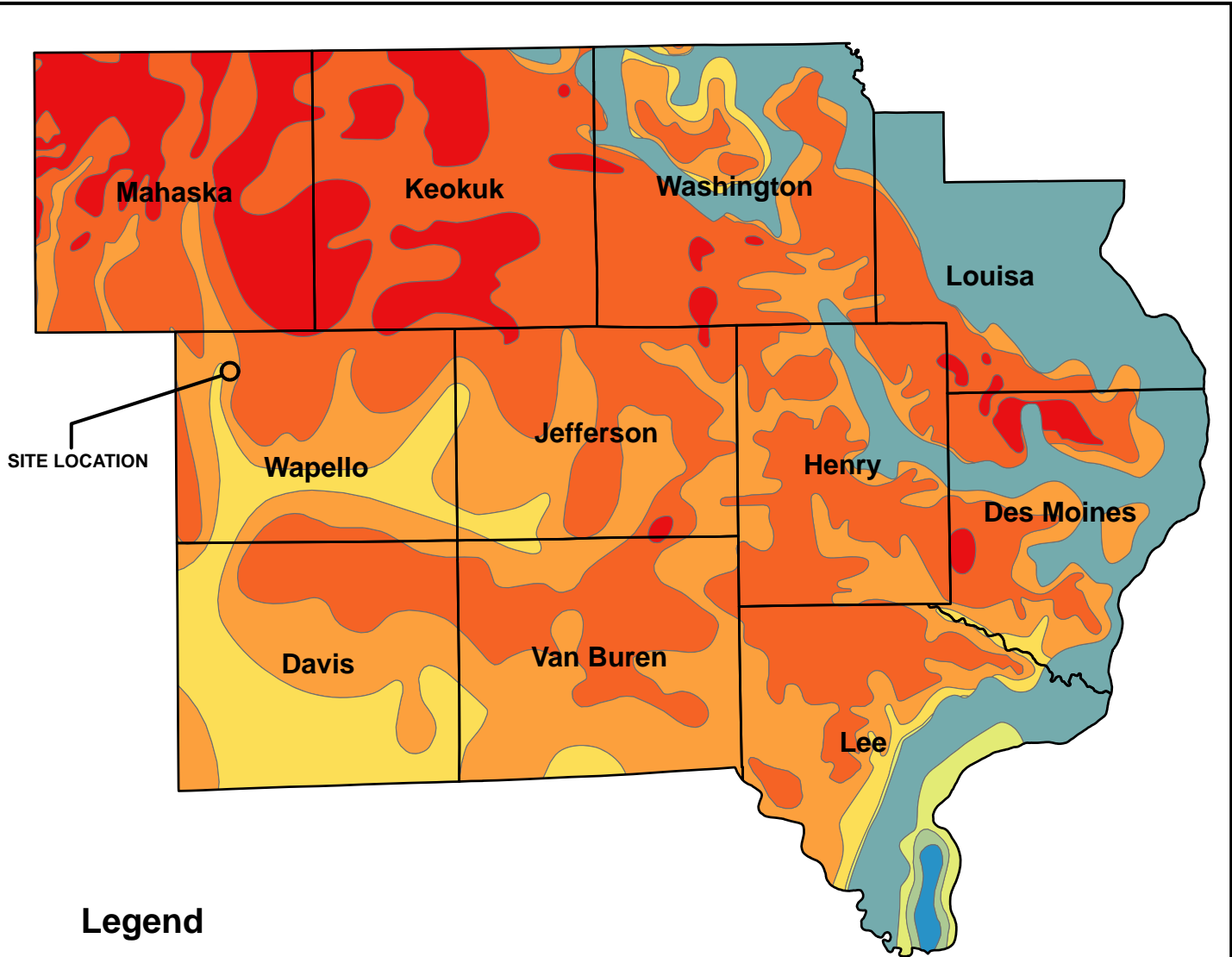
ELEVATION ABOVE MEAN SEA LEVEL IN FEET

- MISSISSIPPIAN NOT PRESENT
- 550
- 650
- 750



MAP DATA DERIVED FROM IOWA GEOLOGICAL AND WATER SURVEY
 MISSISSIPPIAN AQUIFER POTENTIOMETRIC SURFACE ELEVATION AS OBTAINED
 FROM IOWA NATURAL RESOURCES
 GEOGRAPHIC INFORMATION SYSTEMS LIBRARY

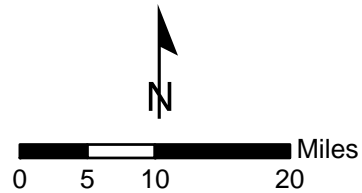
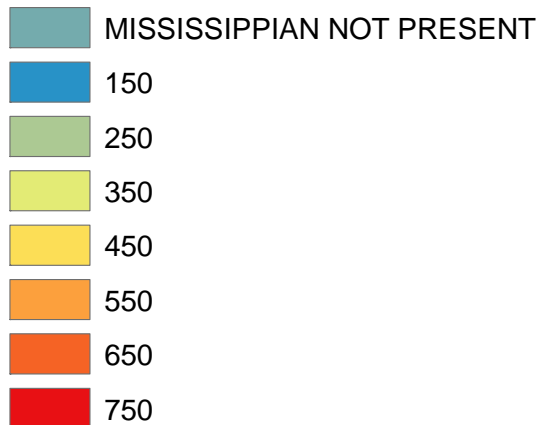
CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE	OTTUMWA GENERATING STATION OTTUMWA, IOWA	SE IOWA REGIONAL MISSISSIPPIAN AQUIFER POTENTIOMETRIC SURFACE ELEVATION		
	PROJECT NO. 25215053.03		DRAWN BY: JB	ENGINEER	SCS ENGINEERS	FIGURE
	DRAWN: 07/29/13		CHECKED BY: MDB			
REVISD: 05/29/15	APPROVED BY:					



Legend


MISSISSIPPIAN AQUIFER ELEVATION

ELEVATION ABOVE MEAN SEA LEVEL IN FEET



MAP DATA DERIVED FROM IOWA GEOLOGICAL AND WATER SURVEY
 MISSISSIPPIAN AQUIFER SURFACE ELEVATION AS OBTAINED
 FROM IOWA NATURAL RESOURCES
 GEOGRAPHIC INFORMATION SYSTEMS LIBRARY

CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE	OTTUMWA GENERATING STATION OTTUMWA, IOWA	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830 FAX: (608) 224-2839	FIGURE
	PROJECT NO. 25215053.03		DRAWN BY: JB			
	DRAWN: 07/29/13		CHECKED BY: MDB			
	REVISED: 05/29/15		APPROVED BY:			



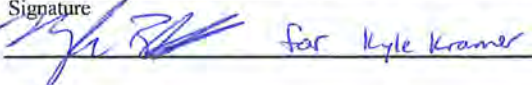
Appendix B
Boring Logs and Well Construction Documentation

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

Facility/Project Name IPL- Ottumwa Generating Station SCS#: 25215135.40		License/Permit/Monitoring Number		Boring Number MW-301	
Boring Drilled By: Name of crew chief (first, last) and Firm Todd Schmalfeld Cascade Drilling		Date Drilling Started 11/10/2015		Date Drilling Completed 11/10/2015	
Unique Well No.		DNR Well ID No.		Common Well Name MW-301	
Final Static Water Level Feet		Surface Elevation 684.3 Feet		Borehole Diameter 8.5 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 400,077 N, 1,899,709 E S/C/N		Lat ° ' "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
NW 1/4 of SW 1/4 of Section 26, T 73 N, R 15 W		Long ° ' "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	TOPSOIL.	TOPSOIL										
S1	10	woh 1 39	2-6	SANDY SILT WITH GRAVEL, gray (7.5YR 6/1), gravel is fine.	ML						W				
S2	13	24 50	8	WEATHERED SANDSTONE, very weak, light gray matrix (10YR 7/1), secondary color very dark gray 910YR 3/1), massive.							W				
S3	5	50	11		SANDSTONE						W				
S4	6	50	13								W				
S5	4	50	15	Endo of Boring at 15 feet bgs.							W				

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

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: (608) 224-2830 Fax:
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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name IPL- Ottumwa Generating Station SCS#: 25215135.40		License/Permit/Monitoring Number		Boring Number MW-302	
Boring Drilled By: Name of crew chief (first, last) and Firm Todd Schmalfeld Cascade Drilling		Date Drilling Started 11/10/2015		Date Drilling Completed 11/10/2015	
Unique Well No.		DNR Well ID No.		Common Well Name MW-302	
Final Static Water Level Feet		Surface Elevation 671.6 Feet		Borehole Diameter 8.5 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 400,267 N, 1,902,625 E S/C/N		Lat ° ' "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
NE 1/4 of SE 1/4 of Section 26, T 73 N, R 15 W		Long ° ' "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	TOPSOIL.	TOPSOIL										
			2	LEAN CLAY WITH SAND, dark gray (10YR 4/1).											
			3												
			4												
			5												
			6												
			7												
			8		CL										
			9												
			10												
S1	19	14 57	11								M				
			12												
S2	19	24 711	13								M				
			14	LEAN CLAY WITH SAND, very dark gray (5Y 3/1).											
			15		CL										
			16												

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

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: (608) 224-2830 Fax:
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Boring Number MW-302

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	24	23 99	17	POORLY GRADED SAND, olive yellow (2.5Y 6/6).	SP				M					
			18	LEAN CLAY, dark grayish brown (10YR 4/2).	CL									
S4	24	44 44	19	POORLY GRADED GRAVEL, fine.	GP				W				saturation @ 18 ft bgs.	
			20	LEAN CLAY, brownish yellow (10YR 6/8).	CL									
S5	15	23 36	21	POORLY GRADED GRAVEL WITH CLAY, gray (10YR 5/1), fine.					W					
			22		GP-GC									
S6	24	34 89	23						W					
			24	POORLY GRADED SAND, gray (10YR 5/1), medium grained.										
S7	24	43 68	25		SP				W					
			26											
			27											
S8	24	78 119	28	Same as above, but brown (10YR 5/3).					W					
			29	POORLY GRADED SAND, gray (10YR 5/1), fine grained, (weathered bedrock?).										
			30	Medium grained.										
S9	23	514 3350/4	31		SP				W					
			32											
S10	12	250/3	33						W					
			34	POORLY GRADED SAND, olive yellow (2.5Y 7/1), fine grained, (weathered bedrock?).										
			35											
S11	3	50/3	36		SP				W					
			37	End of Boring at 37 feet bgs.										

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

Facility/Project Name IPL- Ottumwa Generating Station SCS#: 25215135.40		License/Permit/Monitoring Number		Boring Number MW-303	
Boring Drilled By: Name of crew chief (first, last) and Firm Todd Schmalfeld Cascade Drilling		Date Drilling Started 12/8/2015		Date Drilling Completed 12/8/2015	
Unique Well No.		DNR Well ID No.	Common Well Name MW-303	Final Static Water Level Feet	Surface Elevation 659.0 Feet
					Borehole Diameter 8.5 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 400,583 N, 1,903,215 E S/C/N				Local Grid Location	
NE 1/4 of SE 1/4 of Section 26, T 73 N, R 15 W				Lat _____ " <input type="checkbox"/> N <input type="checkbox"/> E Long _____ " <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	FILL, boring location was cleared to 9' bgs by hydrovac, then back filled.										
			2											
			3											
			4											
			5											
			6											
			7											
			8											
			9											
S1	I	50	10	WEATHERED SANDSTONE, medium grained, brown (10YR 5/4).										
S2	NR		11	SANDSTONE										
			12											
			13											
			14											
				End of Boring at 14.5 ft bgs.										

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

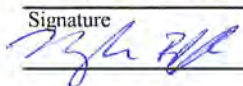
Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: (608) 224-2830 Fax:
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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name IPL- Ottumwa Generating Station SCS#: 25215135.40		License/Permit/Monitoring Number		Boring Number MW-304	
Boring Drilled By: Name of crew chief (first, last) and Firm Todd Schmalfeld Cascade Drilling		Date Drilling Started 11/11/2015		Date Drilling Completed 11/11/2015	
Unique Well No.		DNR Well ID No.		Common Well Name MW-304	
Final Static Water Level Feet		Surface Elevation 680.1 Feet		Borehole Diameter 8.5 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 401,152 N, 1,903,287 E S/C/N		Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SE 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W		Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	TOPSOIL.	TOPSOIL									
			2	FAT CLAY, black (10YR 2/1).										
			3											
			4											
			5											
			6											
			7		CH									
			8											
			9											
			10											
S1	23	4 5 4 5	11								M			
			12											
			13	FAT CLAY, yellowish brown (10YR 5/4).										
S2	19.5	4 4 5 5	14		CH						M			
			15	FAT CLAY, yellowish brown (10YR 3/4).	CH									
			16											

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

Signature  for Kyle Kramer

Firm **SCS Engineers**
2830 Dairy Drive Madison, WI 53718

Tel: (608) 224-2830
Fax:

Boring Number MW-304

Page 2 of 3

Sample		Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)							Blow Counts	Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	
S3	12	33 45	FAT CLAY, yellowish brown (10YR 3/4). (continued)					M					
		17											
S4	22	43 712						M					
		18											
S5	23	27 89						M					
		20											
S6	23	34 86						M					
		23											
S7	23	511 1511		CH				M					
		25											
S8	15	44 56						M					
		26											
S9	18	46 99						M					
		27											
S10	24	46 76						M					
		28											
S11	16	22 46	FAT CLAY, DARK OLIVE BROWN (2.5Y 3/3).					M					
		29											
S12	24	43 55		CH				M					
		30											
S13	18	23 33						M					
		31											
		32											
		33											
		34											
		35											
		36											
		37											
		38											
		39											
		40											
		41											
		42											

Boring Number MW-304

Page 3 of 3

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S14	24	3 4	43	FAT CLAY, DARK OLIVE BROWN (2.5Y 3/3). <i>(continued)</i>	CH									
		9 14	44	SANDY SILT, very dark gray.	ML					W				
S16	15	30 50/4	45	POORLY GRADED SAND, medium grained, gray (5Y 6/1), (weathered bedrock).	SP									
		46												
S17	5	33 50/2	47											
		48								W				
S18		50/4	49											
		51								W				
			52	End of Boring at 52 feet bgs.										

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

Facility/Project Name IPL- Ottumwa Generating Station SCS#: 25215135.40		License/Permit/Monitoring Number		Boring Number MW-305	
Boring Drilled By: Name of crew chief (first, last) and Firm Todd Schmalfeld Cascade Drilling			Date Drilling Started 12/7/2015		Date Drilling Completed 12/8/2015
Unique Well No.	DNR Well ID No.	Common Well Name MW-305	Final Static Water Level Feet		Surface Elevation 681.5 Feet
					Borehole Diameter 8.5 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 401,473 N, 1,903,023 E S/C/N			Lat <input type="checkbox"/> ° <input type="checkbox"/> ' <input type="checkbox"/> "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
SE 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W			Long <input type="checkbox"/> ° <input type="checkbox"/> ' <input type="checkbox"/> "		Feet <input type="checkbox"/> S <input type="checkbox"/> W
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	


Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments		
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200			
			0	TOPSOIL	TOPSOIL											
			1	GRAVEL	GP											
			2	FAT CLAY												
			3													
			4													
			5													
			6													
			7													
			8													
			9		CH											
			10													
			11	FAT CLAY, very dark grayish brown (10YR 3/2).												
S1	18	3 6 9 11	11													
			12													
			13	same as above except, brown (10YR 4/3).												
S2	22	3 7 14 22	14													
			15													
			16													

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

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: (608) 224-2830 Fax:
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Boring Number MW-305

Page 2 of 3

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	22	5 15 14 15	17	FAT CLAY (continued)										
S4	20	3 5 13 15	18 19		CH									
S5	24	4 5 7 11	20 21 22	FAT CLAY WITH SILT, dark gray (10YR 4/1).					M					
S6	20	7 11 15 20	23 24	same as above except, very dark brown (10YR 2/2).					M					
S7	24	4 8 11 12	25 26 27	same as above except, very dark gray (10YR 3/1).	CH				M					
S8	24	8 12 16 21	28 29						M					
S9	13	4 4 7 12	30 31 32						M					
S10	24	5 6 9	33 34	LEAN CLAY, very dark brown (10YR 2/2).					W					
S11	24	4 4 5 7	35 36 37		CL				W					
S12	22	2 2 3 5	38 39	same as above except, very dark grayish brown (10YR 3/2).					W					
S13	6	3 9 11	40 41 42	POORLY GRADED SANDY GRAVEL, fine, brown (10YR 4/3).	GPS				W				water @ 41.0 ft bgs.	

Boring Number MW-305

Page 3 of 3

Sample			Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
Number and Type	Length Att. & Recovered (in)	Blow Counts							Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S14	22	23 50	43	POORLY GRADED SAND, medium grained, yellowish brown (10YR 5/4), (weathered bedrock). <i>(continued)</i>	SP										
			44												
			45												
S15	6	5 10 50	46		SP										
			47												
			48												
S16	6	50	49												
			50												
				End of Boring at 50 ft bgs.											

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

Facility/Project Name IPL- Ottumwa Generating Station SCS#: 25215135.40		License/Permit/Monitoring Number		Boring Number MW-306	
Boring Drilled By: Name of crew chief (first, last) and Firm Todd Schmalfeld Cascade Drilling		Date Drilling Started 11/12/2015		Date Drilling Completed 11/12/2015	
Unique Well No.		DNR Well ID No.		Common Well Name MW-306	
Final Static Water Level Feet		Surface Elevation 681.1 Feet		Borehole Diameter 8.5 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		State Plane 401,666 N, 1,902,629 E S/C/N		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SE 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W		Lat _____ ° _____ ' _____ "		Long _____ ° _____ ' _____ "	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	TOPSOIL.	TOPSOIL									
			2	FAT CLAY, dark olive brown (2.5Y 3/3).										
			3											
			4											
			5											
			6											
			7		CH									
			8											
			9											
			10											
S1	18	36 9 11	11								M			
			12											
S2	22	56 7 9	13	FAT CLAY, gray (10YR 5/1).	CH						M			
			14											
			15											
			16											

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

Signature <i>Kyle Kramer</i>	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: (608) 224-2830 Fax:
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Boring Number MW-306

Page 2 of 2


Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S3	22	5 10 10 14	17	FAT CLAY, gray (10YR 5/1). <i>(continued)</i> FAT CLAY, gray (10YR 5/1).	CH				M					
S4	13	5 8 14 17	18	FAT CLAY, dark olive brown (2.5Y 3/3).					M					
S5	15	5 6 13 16	21		CH				W					
S6	15	3 5 7 9	23						W					
S7	22	2 5 7 11	26	POORLY GRADED SAND, very dark grayish brown (10YR 3/2), medium to coarse grained, (weathered bedrock?).					W					
S8	NR	7 3 4 3	28						W					
S9	18	1 1 2 2	31		SP				W					
S10	13	WOR	33						W					
			34	End of Boring at 34.5 feet bgs.										

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

Facility/Project Name IPL - Ottumwa Generating Station SCS#: 25219028.00		License/Permit/Monitoring Number		Boring Number MW-310	
Boring Drilled By: Name of crew chief (first, last) and Firm Eric Wetzel Roberts Environmental Drilling, Inc.			Date Drilling Started 8/27/2019		Date Drilling Completed 8/27/2019
Drilling Method 4 1/4 hollow stem auger	WI Unique Well No.	DNR Well ID No.	Common Well Name MW-310		Final Static Water Level Feet MSL
Surface Elevation 655.76 Feet MSL	Borehole Diameter 8.5 in.	Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>	State Plane 401,502 N, 1,904,206 E S/C/N	Local Grid Location	
1/4 of	1/4 of Section	T	N, R	Lat	Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
Long	Facility ID	County Wapello	County Code	Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FTD	Soil Properties					ROD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	Hydrovac through clay for utility clearances											
			2												
			3												
			4												
			5												
			6												
			7												
			8	LEAN CLAY, brown, massive											
S1	11	WOR 10 10	9	Some reddish brown and grey mottling, some silt.							M				
S2	15	22 32	11								M				
S3	20	11 19	13								M/W				
			14	SILT, brown, with clay											
			15												

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

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: 608-224-2830 Fax
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.


Boring Number		MW-310		Use only as an attachment to Form 4400-122						Page 2 of 2				
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S4	24	WOR	16		ML				M/W					
S5	18	13 23	17	POORLY GRADED SAND, fine to medium, 1/2" coarse sand seam at 17.75'					W					
S6	14	WOR WOR 23	19						W					
S7	10	WOR 2 42	21		SP				W					
			22	Trace small rounded gravel										
S8	24	66 1120	23						W					
			24	End of boring at 24'										

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

Facility/Project Name IPL - Ottumwa Generating Station SCS#: 25219028.00		License/Permit/Monitoring Number		Boring Number MW-311	
Boring Drilled By: Name of crew chief (first, last) and Firm Eric Wetzel Roberts Environmental Drilling, Inc.			Date Drilling Started 8/27/2019	Date Drilling Completed 8/27/2019	Drilling Method 4 1/4 hollow stem auger
WI Unique Well No.	DNR Well ID No.	Common Well Name MW-311	Final Static Water Level Feet MSL	Surface Elevation 651.24 Feet MSL	Borehole Diameter 8.5 in.
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 399,350 N, 1,907,603 E S/C/N 1/4 of 1/4 of Section T N. R.			Local Grid Location Lat _____ " Feet <input type="checkbox"/> N <input type="checkbox"/> E Long _____ " <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID		County Wapello	County Code	Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments			
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200				
S1	14	23 4.6	1	LEAN CLAY, brown, massive, trace fine to medium sand, roots, 1" sand seam at 1.5'	CL												
S2	14	33 4.6	4		CL												
S3	6	23 4.6	6	SILT, brown, massive.	ML												
S4	20	23 4.5	8	LEAN CLAY, brown, massive.	CL												
S5	12	23 4.5	10	POORLY GRADED SAND, fine to medium, brown massive.													
S6	14	12 4.2	12	2" clay seam at 10.5'													
S7	14	12 3.3	14		SM												

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

Signature:  Firm: SCS Engineers
2830 Dairy Drive Madison, WI 53718 Tel: 608-224-2830 Fax

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

SOIL BORING LOG INFORMATION SUPPLEMENT
 Form 4400-122A

Boring Number **MW-311** Use only as an attachment to Form 4400-122. Page **2** of **2**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	End of boring at 16'	SI									

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220056.00		License/Permit/Monitoring Number		Boring Number MW-305A	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Crank Roberts Environmental Services			Date Drilling Started 2/25/2020	Date Drilling Completed 2/27/2020	Drilling Method 6 1/4" HSA and air/mud rotary
DNR Well ID No.	Common Well Name MW-305A	Final Static Water Level 32.7 Feet	Surface Elevation 681.76 Feet		Borehole Diameter 10" and 6" in.
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 401,461 N, 1,903,028 E S/C/N SE 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W			Lat _____ ° _____ ' _____ "	Local Grid Location Feet <input type="checkbox"/> N Feet <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello	County Code	Civil Town/City/ or Village Ottumwa	

Sample		Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)							Blow Counts	Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	
		1	Hydrovaced to 9.5 feet for utility clearance.			1						Drilled using hollow stem augers to 55 feet	
		2											
		3											
		4											
		5											
		6											
		7											
		8											
		9											
		10											
		11											
		12											
		13											
		14											
		15											
		10	Blind drilled to 46 feet. See boring log MW-305 for lithology.			10							

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

Signature 	Firm scs engineers	Tel: Fax:
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Boring Number **MW-305A** Use only as an attachment to Form 4400-122. Page **2** of **4**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			16												
			17												
			18												
			19												
			20												
			21												
			22												
			23												
			24												
			25												
			26												
			27												
			28												
			29												
			30												
			31												
			32												
			33												
			34												
			35												
			36												
			37												
			38												
			39												
			40												

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments				
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200					
			41														Bagged auger samples to ~40 feet	
			42															
			43															
			44															
			45															
S1	5	50/5	46	POORLY GRADED SAND, fine, light brown, (weathered sandstone bedrock).							W							Switched to mud rotary drilling at 45 feet
			47															
			48															
			49															
			50															
			51															
			52															
			53		SP													
			54															
			55	Same as above but very fine, light brown to light gray, with pieces of rock.														
			56															
			57															
			58															
			59															
			60	SANDSTONE, fine to medium, light brown, trace gravel and light gray to gray limestone, (bedrock).														
			61															
			62															
			63															
			64															
			65															

Boring Number **MW-305A** Use only as an attachment to Form 4400-122. Page **4** of **4**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	LIMESTONE, light gray, with fine, light brown sandstone, (bedrock).										
				LIMESTONE, gray, with dark brownish gray shale, (bedrock).										
				SANDSTONE, fine, light grayish white, with gray limestone, (bedrock).										
				End of boring at 80 feet below ground surface.										At 68 feet, driller noted a fracture in the bedrock.

Facility/Project Name IPL-Ottumwa Generating Station		SCS#: 25220056.00		License/Permit/Monitoring Number		Boring Number MW-310A	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Crank Roberts Environmental Services				Date Drilling Started 2/27/2020		Date Drilling Completed 3/2/2020	
DNR Well ID No.		Common Well Name MW-310A		Final Static Water Level 12.0 Feet		Surface Elevation 655.26 Feet	
						Borehole Diameter 10" and 6" in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 401,504 N, 1,904,191 E S/C/N SW 1/4 of NW 1/4 of Section 25, T 73 N, R 15 W				Lat _____ ° _____ ' _____ "		Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		County Code		Civil Town/City/ or Village Ottumwa	










Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Hydrovaced to 8 feet for utility clearance.										Drilled using hollow stem augers to 40 feet
				Blind drilled to 24 feet. See boring log MW-310 for lithology.										

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

Signature	Firm scs engineers	Tel: Fax:
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Boring Number **MW-310A** Use only as an attachment to Form 4400-122. Page **2** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16											
			17											
			18											
			19											
			20											
			21											
			22											
			23											
			24											
S1	14	7 20 23 21	25	POORLY GRADED SAND, fine to coarse, brown, trace gravel and lenses of lean clay.	SP									
			26	POORLY GRADED SAND, fine, light gray, trace lean clay, (weathered sandstone bedrock).										
S2	17	9 11 12 13	27	Same as above but brown with small gravel.										
S3	13	14 36 50/5	29	Same as above but fine to medium and brown to light gray.										
S4	5	50/5	31	Same as above but fine and light gray.										
S5	5	50/5	33		SP									
S6	5	50/5	35											
S7	5	50/5	37											
S8	4	50/4	39	Same as above but much more competent.										
			40											

Began collecting split spoon samples at 24 feet

Auger refusal at 39 feet

Boring Number **MW-310A** Use only as an attachment to Form 4400-122. Page **3** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments											
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200												
S9			41	LIMESTONE, light brownish gray, with fine to medium light gray sandstone, (bedrock).	SP																				
			42																						
			43	Same as above but with gravel and very little sand.																					
			44																						
			45																						
			46																						
			47																						
			48																						
			49																						
			50																						
			51																						
			52																						
			53																						
			54	End of boring at 54 feet below ground surface.																					

Switching to air rotary drilling at 40 feet
 Intermittent gravel between 43 to 54 feet

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220056.00		License/Permit/Monitoring Number		Boring Number MW-311A	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Crank Roberts Environmental Services			Date Drilling Started 3/2/2020		Date Drilling Completed 3/3/2020
DNR Well ID No.		Common Well Name MW-311A	Final Static Water Level 8.9 Feet		Surface Elevation 651.16 Feet
Borehole Diameter 10" and 6" in.					
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 399,349 N, 1,907,615 E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location
SW 1/4 of SE 1/4 of Section 25, T 73 N, R 15 W			Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> N Feet <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
Facility ID		County Wapello	County Code	Civil Town/City/ or Village Ottumwa	

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Blind drilled to 16 feet. See boring log MW-311 for lithology.									Drilled using hollow stem augers to 28 feet	

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

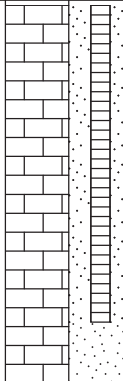
Signature 	Firm scs engineers	Tel: Fax:
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **MW-311A** Use only as an attachment to Form 4400-122. Page **2** of **3**

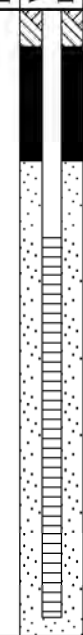
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	POORLY GRADED SAND, fine to coarse, brown, with trace gravel and silt.										
S1	2		17							W				Began collecting split spoon samples at 16 feet
S2	11	4 5 6 7	19							W				
S3	12	5 5 6 7	21		SP					W				
S4		7 8 9 8	23							W				No return
S5		3 3 5 10	25							W				No return
S6	14	5 9 50/5	27							W				Driller noted bedrock at 27.5 feet
			28	POORLY GRADED SAND, very fine, white, with pieces of competent rock, (weatherd sandstone bedrock).	SP									Switched to air rotary drilling at 28 feet
			29	LIMESTONE, gray with fine, light gray to white sandstone, (bedrock).										
			31	POORLY GRADED SAND, fine to medium, brown, with trace brown limestone, (bedrock).										
			32											
			34		SP									
			37	LIMESTONE, gray, with fine to medium brownish gray sandstone, (bedrock).										
			38											
			39											
			40											

Boring Number **MW-311A** Use only as an attachment to Form 4400-122. Page **3** of **3**

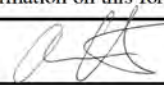
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			41 42 43 44 45 46											
			46	End of boring at 46 feet below ground surface.										

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

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220083.00		License/Permit/Monitoring Number		Boring Number MW-302WT	
Boring Drilled By: Name of crew chief (first, last) and Firm Brian Kinzer Direct Push Analytical			Date Drilling Started 4/27/2022	Date Drilling Completed 4/27/2022	Drilling Method hollow stem auger
Unique Well No.	DNR Well ID No.	Common Well Name MW-302WT	Final Static Water Level Feet MSL	Surface Elevation 671.54 Feet MSL	Borehole Diameter 8.25 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 400,264 N, 1,902,620 E S/C/N			Lat 41° 5' 40.9"	Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
NE 1/4 of SE 1/4 of Section 26, T 73 N, R 16 W			Long -92° 32' 55.2"		
Facility ID		County Wapello	Civil Town/City/ or Village Ottumwa		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			2 4 6 8 10 12 14 16	Hydrovaced to 8 feet below ground surface (bgs) and blind drilled to 16.5 feet bgs. See boring log MW-302 for lithology.										
				End of boring at 16.5 feet below ground surface.										

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

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 608-224-2830	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220083.00		License/Permit/Monitoring Number		Boring Number MW-304WT	
Boring Drilled By: Name of crew chief (first, last) and Firm Brian Kinzer Direct Push Analytical		Date Drilling Started 4/27/2022		Date Drilling Completed 4/27/2022	
Unique Well No.		DNR Well ID No.		Common Well Name MW-304WT	
Final Static Water Level 645.38 Feet MSL		Surface Elevation 679.69 Feet MSL		Borehole Diameter 8.25 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 401,154 N, 1,903,286 E S/C/N		Lat 41° 5' 49.6"		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SE 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W		Long -92° 32' 46.4"		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

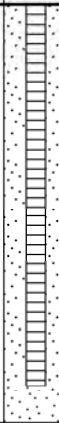
Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			0-24	Hydrovaced to 8 feet below ground surface (bgs) and blind drilled to 36 feet bgs. See boring log MW-304 for lithology.										

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

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

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			26 28 30 32 34 36											
			36	End of boring at 36 feet below ground surface.										

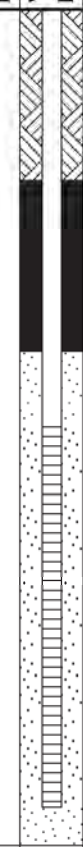
SCS ENGINEERS

Environmental Consultants and Contractors


SOIL BORING LOG INFORMATION

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

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220083.00		License/Permit/Monitoring Number		Boring Number MW-306WT	
Boring Drilled By: Name of crew chief (first, last) and Firm Brian Kinzer Direct Push Analytical		Date Drilling Started 4/27/2022		Date Drilling Completed 4/27/2022	
Unique Well No.		DNR Well ID No.	Common Well Name MW-306WT	Final Static Water Level 655.25 Feet MSL	Surface Elevation 681.34 Feet MSL
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		State Plane 401,662 N, 1,902,626 E S/C/N		Local Grid Location	
SE 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W		Lat 41° 5' 54.7"		<input type="checkbox"/> N <input type="checkbox"/> E	
		Long -92° 32' 55.0"		<input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			2 4 6 8 10 12 14 16 18 20 22	Hydrovaced to 8 feet below ground surface (bgs) and blind drilled to 22 feet bgs. See boring log MW-306 for lithology.										
			22	End of boring at 22 feet below ground surface.										

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


Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 608-224-2830	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220083.00		License/Permit/Monitoring Number		Boring Number MW-314	
Boring Drilled By: Name of crew chief (first, last) and Firm Brian Kinzer Direct Push Analytical		Date Drilling Started 4/28/2022		Date Drilling Completed 4/28/2022	
Unique Well No.		DNR Well ID No.		Common Well Name MW-314	
Final Static Water Level 667.67 Feet MSL		Surface Elevation 681.89 Feet MSL		Borehole Diameter 8.25 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 401,224 N, 1,901,685 E S/C/N		Lat 41° 5' 50.5"		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NE 1/4 of Section 26, T 73 N, R 15 W		Long -92° 33' 7.3"		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	


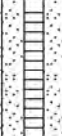


Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			0-2	Hydrovaced to 8 feet below ground surface (bgs).											
S1	20		6-8	LEAN CLAY, gray to dark gray with orange mottling, trace sand (backfill), medium stiff.						M					Hydrovaced hole collapsed in from 6 to 8 feet bgs
S2	44		10-12	Same as above but gray to brownish gray with trace organics, medium stiff.						M					
S3	33		14-16	Same as above but soft to medium stiff.	CL					M					
S4	48		18-20	Same as above but stiff to very stiff.						M					
S5	48		22-24	Same as above but stiff to very stiff.						M/W					
			24	POORLY GRADED SAND, fine to coarse grained, brown to orangish brown, with trace clay.	SP										

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

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 608-224-2830	Tel: Fax:
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Boring Number MW-314

Page 2 of 2

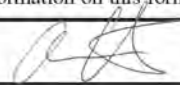
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S6	29		26	Same as above but with trace fine gravel.	SP					W				
S7	24		28											
			30	SANDY LEAN CLAY, fine to coarse grained, brown to orangish brown, brownish gray, and trace white, with trace gravel and organics. White clay appears to be thixotropic in composition.	CL					W				
				End of boring at 31 feet below ground surface.										

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

Facility/Project Name IPL-Ottumwa Generating Station SCS#: 25220083.00		License/Permit/Monitoring Number		Boring Number MW-314WT	
Boring Drilled By: Name of crew chief (first, last) and Firm Brian Kinzer Direct Push Analytical		Date Drilling Started 4/28/2022		Date Drilling Completed 4/28/2022	
Unique Well No.		DNR Well ID No.	Common Well Name MW-314WT	Final Static Water Level 667.85 Feet MSL	Surface Elevation 681.74 Feet MSL
				Borehole Diameter 8.25 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		State Plane 401,232 N, 1,901,685 E S/C/N		Local Grid Location	
SW 1/4 of NE 1/4 of Section 76, T 73 N, R 15 W		Lat 41° 5' 50.6"		<input type="checkbox"/> N <input type="checkbox"/> E	
		Long -92° 33' 7.3"		<input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Wapello		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			2 4 6 8 10 12 14 16 18 20 22	Hydrovaced to 8 feet below ground surface (bgs) and blind drilled to 22.5 feet bgs. See boring log MW-314 for lithology.											
				End of boring at 22.5 feet below ground surface.											

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

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 608-224-2830	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name Ottumwa Generating Station SCS#: 25221162.00		License/Permit/Monitoring Number		Boring Number MW-312	
Boring Drilled By: Name of crew chief (first, last) and Firm Mike Mueller Cascade Drilling			Date Drilling Started 12/14/2021		Date Drilling Completed 12/14/2021
Unique Well No.	DNR Well ID No.	Common Well Name MW-312	Final Static Water Level 642.2 Feet		Surface Elevation 655.4 Feet
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>	State Plane 401,504 N, 1,903,457 E <input checked="" type="checkbox"/> C/N		Lat 41° 5' 53.1"		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E
SE 1/4 of NE 1/4 of Section 26, T 72 N, R 15 W	Long -92° 32' 44.1"	Feet <input type="checkbox"/> S	Feet <input type="checkbox"/> W	Borehole Diameter 6.0 in	
Facility ID		County Wapello, Iowa		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1-7	Hydrovacued to 8' below ground surface through clay.											
S1	21		8-10	LEAN CLAY, dark grayish brown (10YR 4/2) with trace roots, medium stiff.					1.0	M					
S2	46		10-15	Same as above but stiff to medium stiff with brown and black mottling.	CL				0.75-1.25	M/W					Water is at 11.5' bgs.

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

Signature	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718 608-224-2830	Tel: Fax:
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Boring Number MW-312

Page 2 of 2


Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			16	Same as above but dark gray.	CL									
S3	60		17	SILT, dark grayish brown (10YR 4/2) to gray - dark gray (2.5Y 3/1), soft to medium stiff.	ML			0.5/0.25-0.5W						
			18											
			19											
			20	POORLY GRADED SAND, fine to coarse grained, orange brown to white with trace gravel.										
			21	Same as above but fine grained, white to light gray (5Y 7/1) with pieces of rock and trace cobbles (Weathered Bedrock).										
S4	60		22		SP					M				Hard drilling from 20-27.5' bgs.
			23											
			24											
			25	Same as above										
S5	28		26							M				Sampled S4 and S5.
			27											
				End of boring at 27.5' below ground surface.										

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

Facility/Project Name Ottumwa Generating Station SCS#: 25221162.00		License/Permit/Monitoring Number		Boring Number MW-313	
Boring Drilled By: Name of crew chief (first, last) and Firm Mike Mueller Cascade Drilling			Date Drilling Started 12/14/2021		Date Drilling Completed 12/14/2021
Unique Well No.	DNR Well ID No.	Common Well Name MW-313	Final Static Water Level 641.2 Feet		Surface Elevation 655.8 Feet
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>	State Plane 401,491 N, 1,903,802 E <input checked="" type="checkbox"/> C/N		Lat 41° 5' 52.9"		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E
SW 1/4 of NW 1/4 of Section 25 , T 73 N, R 15 W	Long -92° 32' 39.6"	Feet <input type="checkbox"/> S	Feet <input type="checkbox"/> W	Borehole Diameter 6.0 in	
Facility ID		County Wapello, Iowa		Civil Town/City/ or Village Ottumwa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	Hydrovacced to 8' below ground surface through clay.											
			2												
			3												
			4		CL										
			5												
			6												
			7												
S1	12		8	LEAN CLAY, dark grayish brown (10YR 4/2) with trace roots, stiff.	CL					1.25	M				
			9												
			10		CL										
			11												
S2	55		12	SILT, dark grayish brown (10YR 4/2), with trace sand, soft.	ML					0.75/0.25	W				
			13												
			14												
			15	POORLY GRADED SAND, fine to coarse grained, brown (10YR 4/2) with trace fine gravel.	SP										Water at 13' bgs.

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

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718 608-224-2830	Tel: Fax:
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Boring Number MW-313

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S3	85		16	Same as above but ranging from dark grayish brown to red brown, gray, and tan.	SP										
			17												
			18	Same as above but with layer of cobbles at 21' bgs.	SP										
			19												
			20	Trace silt at bottom of sample.	SP										
			21												
			22	End of boring at 22.5' below ground surface.											



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

Disposal Site Name: IPL - Ottumwa Generating Station Permit No.: _____

Well or Piezometer No: MW-301

Dates Started: 11/10/15 Date Completed: 11/10/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____ Specify corner of site: <u>SE of Parcel 003052640340000</u> Distance & direction along boundary: <u>106' W</u> Distance & direction from boundary to wall: <u>306' N</u> Elevations (± 0.01 ft MSL): _____ Ground Surface: <u>684.28</u> Top of protective casing: <u>687.12</u> Top of well casing: _____ <u>686.63</u> Benchmark elevation: _____ Benchmark description: _____	Name & Address of Construction Company: <u>Cascade Drilling, LP</u> <u>301 Alderson St</u> <u>Schofield, WI 54476</u> Name of Driller: <u>Todd Schmalfeld</u> Drilling Method: <u>HSA</u> Drilling Fluid: <u>NA</u> Bore Hole Diameter: <u>8 inch</u> Soil Sampling Method: <u>Spoon</u> Depth of Boring: <u>15 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC sch 40</u> Length of casing: <u>4 ft</u> Outside casing diameter: <u>2.38"</u> Inside casing diameter: <u>2"</u> Casing joint type: <u>threaded</u> Casing/screen joint type: <u>threaded</u> Screen material: <u>PVC</u> Screen opening size: <u>0.010"</u> Screen length: <u>10 ft</u> Depth of well: <u>14 ft</u> Filter Pack: _____ Material: <u>Red Flint</u> Grain size: <u>#40</u> Volume: <u>4 cu. ft.</u> Seal (minimum 3 ft length above filter pack): _____ Material: <u>3/8 inch bentonite chips</u>	Placement method: <u>Gravity</u> Volume: <u>8 cu. ft.</u> Backfill (if different from seal): _____ Material: _____ Placement method: _____ Volume: _____ Surface seal design: _____ Material of protective casing: <u>Steel 6 inch</u> Material of grout between protective casing and well casing: <u>sand</u> Protective cap: _____ Material: <u>Steel, vented</u> Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Well Cap: _____ Material: <u>PVC</u> Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>3.09 ft</u> Well development method: <u>Surged with block and pumped to reduce turbidity. 435 gallons pumped.</u> Average depth of frostline: <u>3.5'</u>	Stabilization Time: <u><5 minutes</u>

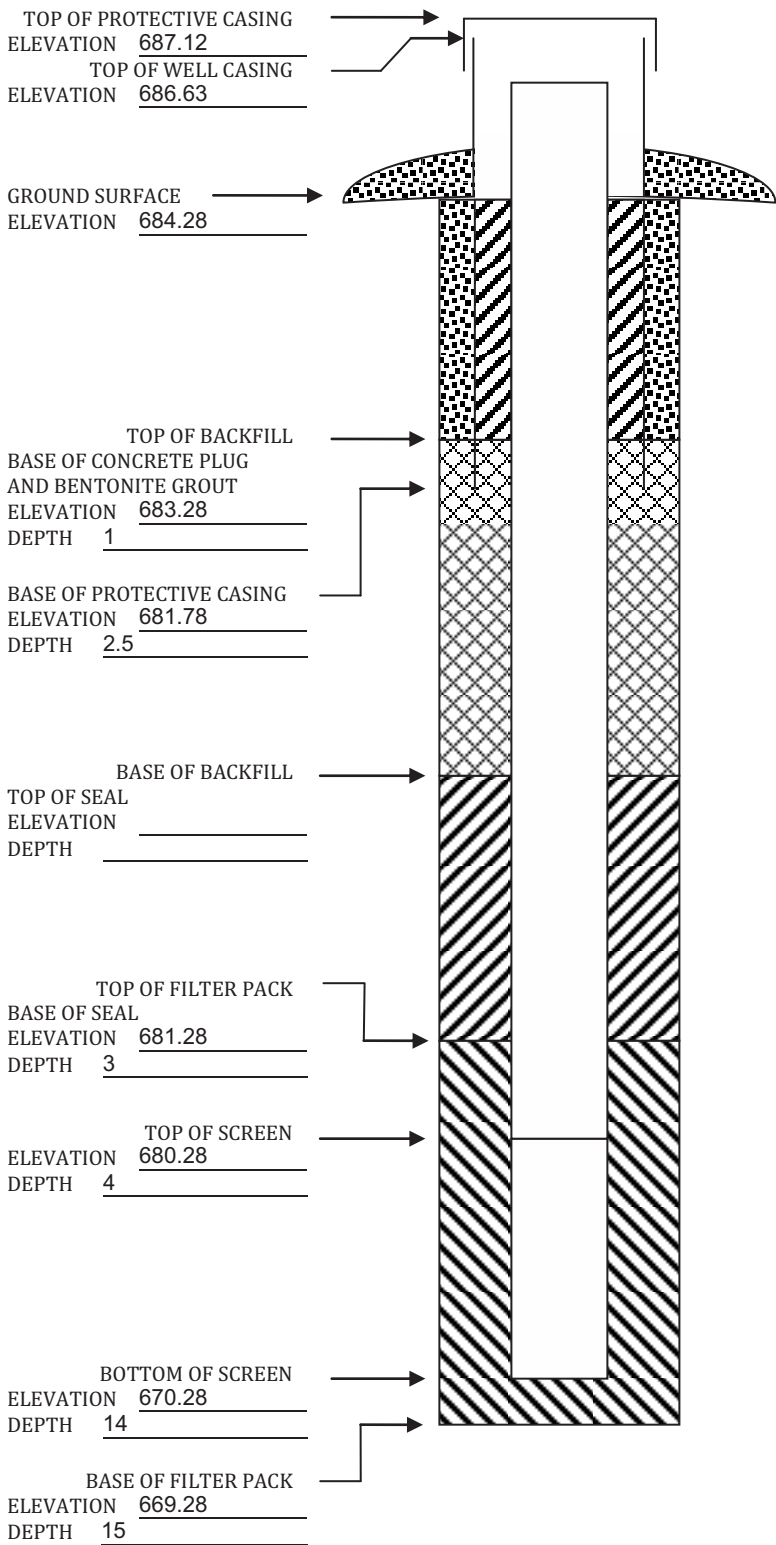
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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





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

Disposal Site Name: IPL - Ottumwa Generating Station Permit No.: _____

Well or Piezometer No: MW-302

Dates Started: 11/10/15 Date Completed: 11/11/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____ Specify corner of site: <u>NW of Parcel 003052630215000</u> Distance & direction along boundary: <u>844' NE</u> Distance & direction from boundary to wall: <u>4.5' S</u> Elevations (± 0.01 ft MSL): _____ Ground Surface: <u>671.55</u> Top of protective casing: <u>674.39</u> Top of well casing: _____ <u>673.90</u> Benchmark elevation: _____ Benchmark description: _____	Name & Address of Construction Company: _____ <u>Cascade Drilling, LP</u> <u>301 Alderson St</u> <u>Schofield, WI 54476</u> Name of Driller: <u>Todd Schmalfeld</u> Drilling Method: <u>HSA</u> Drilling Fluid: <u>NA</u> Bore Hole Diameter: <u>8 inch</u> Soil Sampling Method: <u>Spoon</u> Depth of Boring: <u>24 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: _____ <u>PVC sch 40</u> Length of casing: _____ <u>13 ft</u> Outside casing diameter: _____ <u>2.38"</u> Inside casing diameter: _____ <u>2"</u> Casing joint type: _____ <u>threaded</u> Casing/screen joint type: <u>threaded</u> Screen material: _____ <u>PVC</u> Screen opening size: <u>0.010</u> Screen length: _____ <u>10 ft</u> Depth of well: _____ <u>23 ft</u> Filter Pack: _____ Material: _____ <u>Red Flint</u> Grain size: _____ <u>#40</u> Volume: _____ <u>3.5 cu. ft</u> Seal (minimum 3 ft length above filter pack): _____ Material: <u>3/8" bentonite chips</u>	Placement method: <u>Gravity</u> Volume: <u>2.6 cu. ft</u> Backfill (if different from seal): _____ Material: <u>3/8" bentonite chips</u> Placement method: <u>Gravity</u> Volume: <u>1 cu. ft.</u> Surface seal design: _____ Material of protective casing: <u>Steel</u> Material of grout between protective casing and well casing: <u>sand</u> Protective cap: _____ Material: <u>Steel, vented</u> Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Well Cap: _____ Material: <u>PVC</u> Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>18.19</u> Well development method: <u>Surged with block and pumped to remove turbidity. 183 gallons purged</u> Average depth of frostline: <u>3.5'</u>	Stabilization Time: <u>< 5 min</u>

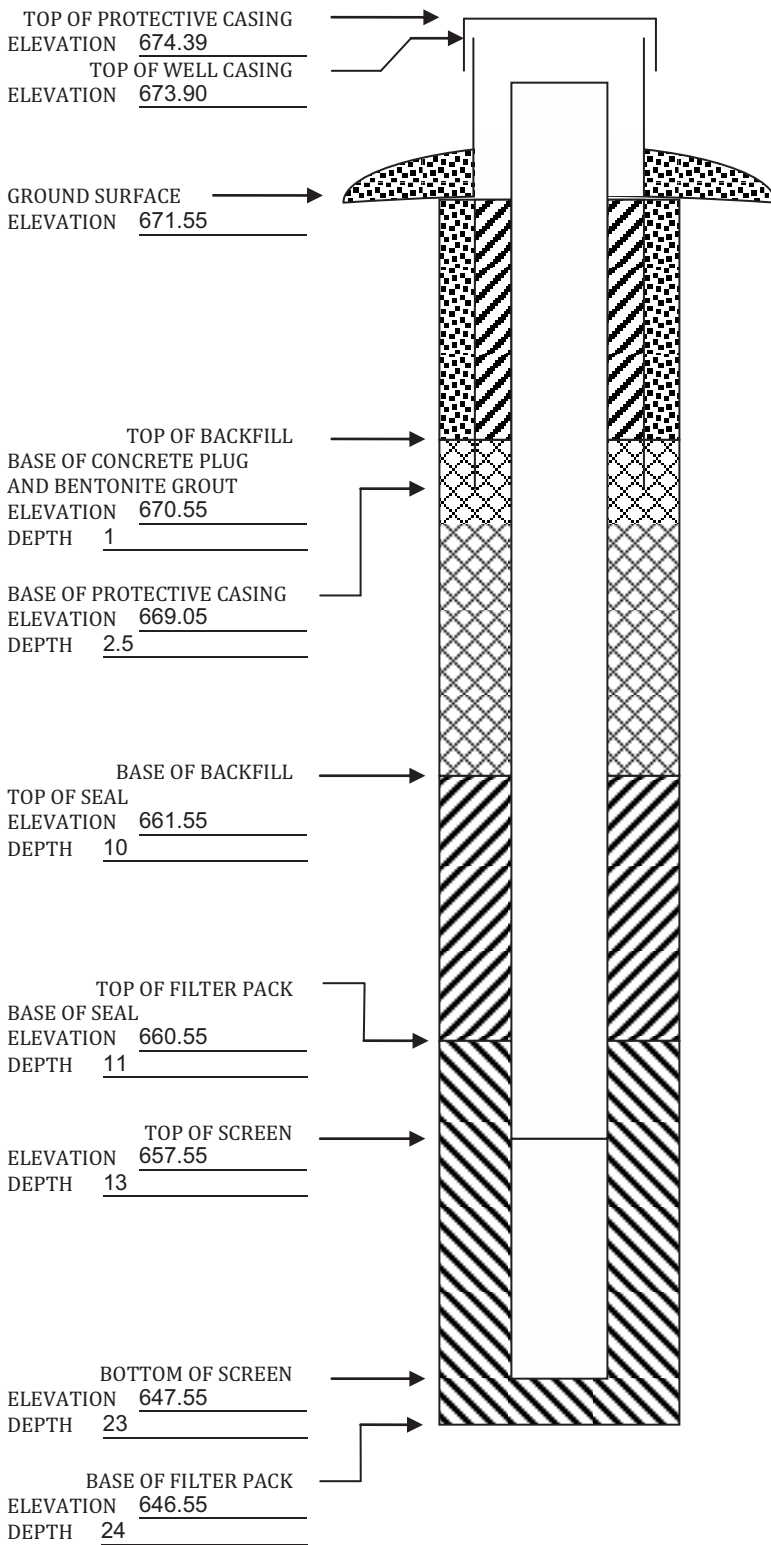
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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





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

Disposal Site Name: IPL - Ottumwa Generating Station Permit No.: _____

Well or Piezometer No: MW-303

Dates Started: 12/8/15 Date Completed: 12/8/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____ Specify corner of site: <u>SE of parcel 003052630207000</u> Distance & direction along boundary: <u>181' NW</u> Distance & direction from boundary to wall: <u>0</u> Elevations (± 0.01 ft MSL): _____ Ground Surface: <u>658.95</u> Top of protective casing: <u>661.67</u> Top of well casing: _____ <u>661.07</u> Benchmark elevation: _____ Benchmark description: _____	Name & Address of Construction Company: _____ <u>Cascade Drilling, LP</u> <u>301 Alderson St</u> <u>Schofield, WI 54476</u> Name of Driller: <u>Todd Schmalfeld</u> Drilling Method: <u>HSA</u> Drilling Fluid: <u>NA</u> Bore Hole Diameter: <u>8 inch</u> Soil Sampling Method: <u>Spoon</u> Depth of Boring: <u>14.5 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: _____ <u>PVC sch 80</u> Length of casing: _____ <u>3 ft</u> Outside casing diameter: _____ <u>2.38"</u> Inside casing diameter: _____ <u>2"</u> Casing joint type: _____ <u>threaded</u> Casing/screen joint type: <u>threaded</u> Screen material: _____ <u>PVC</u> Screen opening size: <u>0.010</u> Screen length: _____ <u>10 ft</u> Depth of well: _____ <u>14 ft</u> Filter Pack: _____ Material: _____ <u>Red Flint</u> Grain size: _____ <u>#40</u> Volume: _____ <u>7.5 cu. ft.</u> Seal (minimum 3 ft length above filter pack): _____ Material: <u>3/8" bentonite chips</u>	Placement method: <u>Gravity</u> Volume: <u>10 cu. ft.</u> Backfill (if different from seal): _____ Material: _____ Placement method: _____ Volume: _____ Surface seal design: _____ Material of protective casing: <u>Steel 6 inch</u> Material of grout between protective casing and well casing: <u>sand</u> Protective cap: _____ Material: <u>Steel, vented</u> Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Well Cap: _____ Material: <u>PVC</u> Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>7.71'</u> Well development method: <u>Bailed dry 3 times to reduce turbidity</u> Average depth of frostline: <u>3.5'</u>	Stabilization Time: <u>~ 1 day (bails dry)</u>

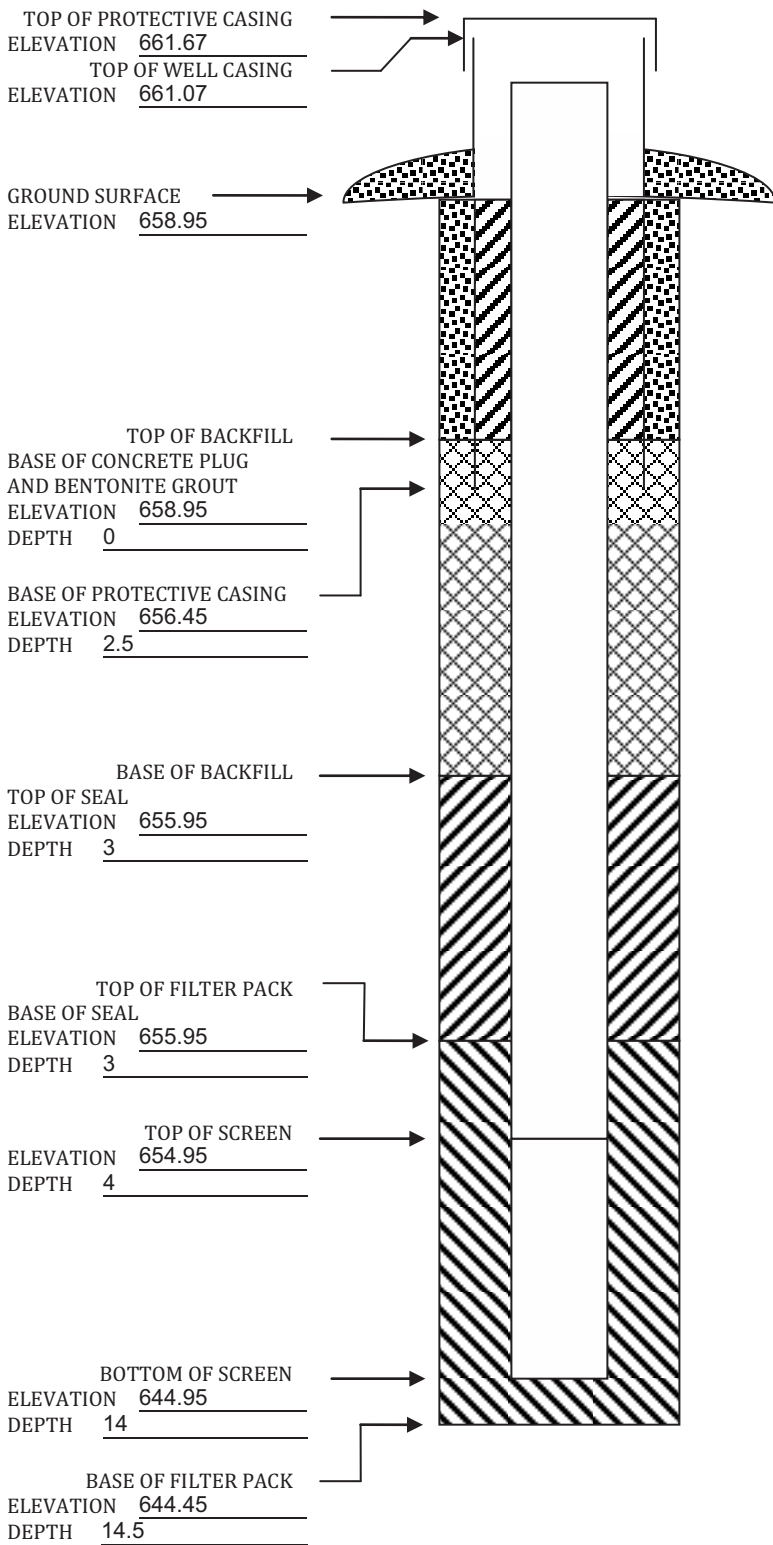
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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





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

Disposal Site Name: IPL - Ottumwa Generating Station Permit No.: _____

Well or Piezometer No: MW-304

Dates Started: 11/11/15 Date Completed: 11/12/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft):	Name & Address of Construction Company:
Specify corner of site: <u>SE of Parcel 003052620200000</u>	<u>Cascade Drilling, LP</u>
Distance & direction along boundary: <u>502' W</u>	<u>301 Alderson St</u>
Distance & direction from boundary to wall: <u>44' N</u>	<u>Schofield, WI 54476</u>
Elevations (± 0.01 ft MSL):	Name of Driller: <u>Todd Schmalfeld</u>
Ground Surface: <u>680.09</u>	Drilling Method: <u>HSA</u>
Top of protective casing: <u>683.36</u>	Drilling Fluid: <u>NA</u>
Top of well casing: _____ <u>682.84</u>	Bore Hole Diameter: <u>8 inch</u>
Benchmark elevation: _____	Soil Sampling Method: <u>Spoon</u>
Benchmark description: _____	Depth of Boring: <u>52 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC sch 40</u>	Placement method: <u>gravity</u>
Length of casing: <u>40 ft</u>	Volume: <u>.3 cu. ft.</u>
Outside casing diameter: <u>2.38"</u>	Backfill (if different from seal):
Inside casing diameter: <u>2"</u>	Material: <u>AquaGuard Grout</u>
Casing joint type: <u>threaded</u>	Placement method: <u>tremie</u>
Casing/screen joint type: <u>threaded</u>	Volume: <u>75 gallons</u>
Screen material: <u>PVC</u>	Surface seal design:
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel</u>
Screen length: <u>5 ft</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>50 ft</u>	Protective cap:
Filter Pack:	Material: <u>Steel, vented</u>
Material: <u>Red Flint</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>#40</u>	Well Cap:
Volume: <u>2 cu. ft.</u>	Material: <u>PVC</u>
Seal (minimum 3 ft length above filter pack):	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8" bentonite chips</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>24.5 ft</u>	Stabilization Time: <u>~1 day (bails dry)</u>
Well development method: <u>bailed dry 3 times to reduce turbidity</u>	
Average depth of frostline: <u>3.5'</u>	

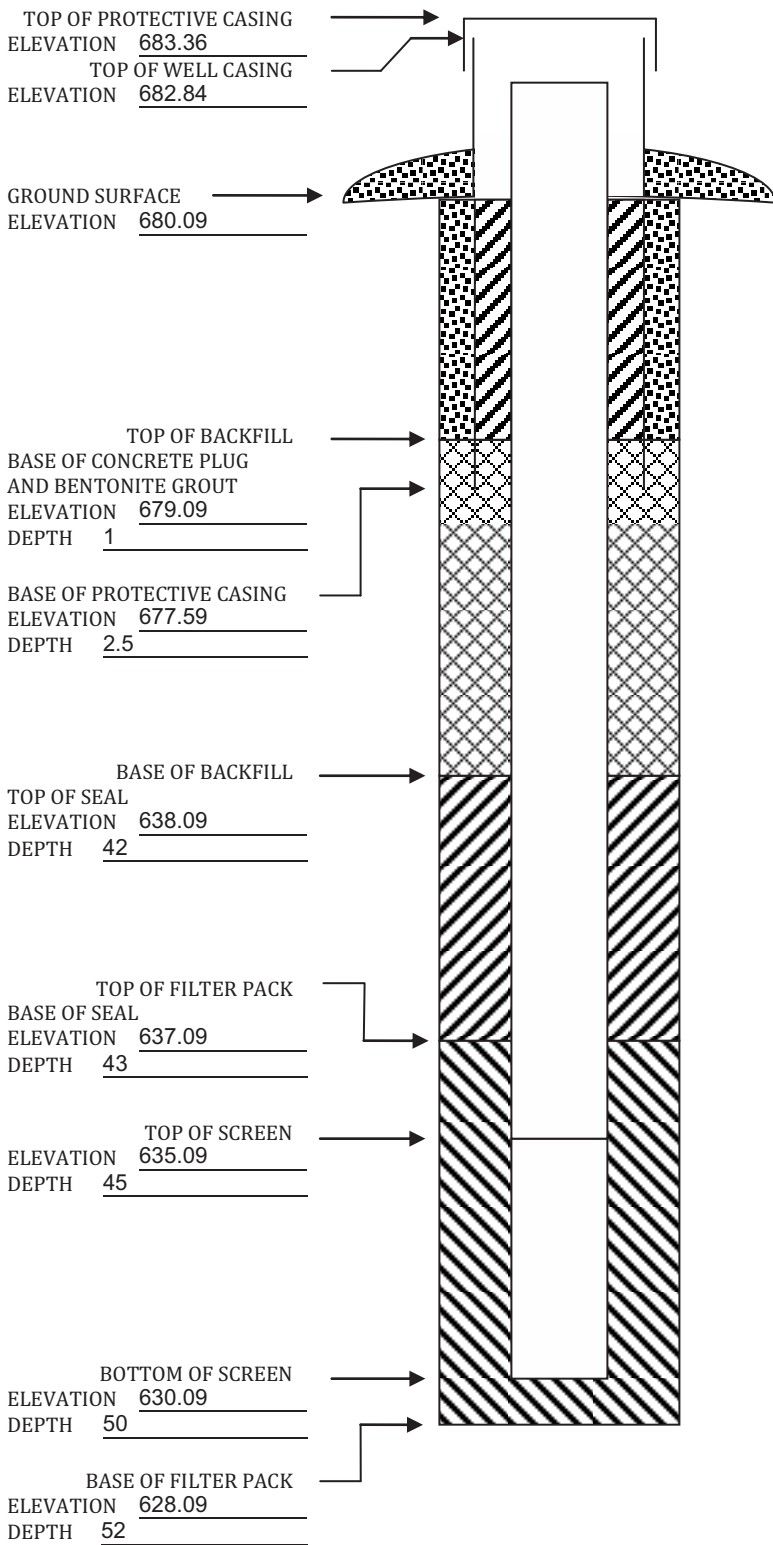
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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





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

Disposal Site Name: IPL - Ottumwa Generating Station Permit No.: _____

Well or Piezometer No: MW-305

Dates Started: 12/7/15 Date Completed: 12/8/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____ Specify corner of site: <u>SW of Parcel 003052620200000</u> Distance & direction along boundary: <u>539' E</u> Distance & direction from boundary to wall: <u>404' N</u> Elevations (± 0.01 ft MSL): _____ Ground Surface: <u>681.54</u> Top of protective casing: <u>684.53</u> Top of well casing: _____ <u>683.91</u> Benchmark elevation: _____ Benchmark description: _____	Name & Address of Construction Company: <u>Cascade Drilling, LP</u> <u>301 Alderson St</u> <u>Schofield, WI 54476</u> Name of Driller: <u>Todd Schmalfeld</u> Drilling Method: <u>HSA</u> Drilling Fluid: <u>NA</u> Bore Hole Diameter: <u>8 inch</u> Soil Sampling Method: <u>Spoon</u> Depth of Boring: <u>50 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: _____ <u>PVC sch 80</u> Length of casing: _____ <u>44 ft</u> Outside casing diameter: _____ <u>2.38"</u> Inside casing diameter: _____ <u>2"</u> Casing joint type: _____ <u>threaded</u> Casing/screen joint type: <u>threaded</u> Screen material: _____ <u>PVC</u> Screen opening size: <u>0.010</u> Screen length: _____ <u>5 ft</u> Depth of well: _____ <u>49 ft</u> Filter Pack: _____ Material: _____ <u>Red Flint</u> Grain size: _____ <u>#40</u> Volume: _____ <u>2 cu. ft.</u> Seal (minimum 3 ft length above filter pack): _____ Material: <u>3/8" bentonite chips</u>	Placement method: <u>gravity</u> Volume: <u>.3 cu. ft.</u> Backfill (if different from seal): _____ Material: <u>AquaGuard grou</u> Placement method: <u>tremie</u> Volume: <u>80 gallons</u> Surface seal design: _____ Material of protective casing: <u>Steel</u> Material of grout between protective casing and well casing: <u>sand</u> Protective cap: _____ Material: <u>Steel, vented</u> Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Well Cap: _____ Material: <u>PVC</u> Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>22.02</u> Well development method: <u>Surged with block and pumped to reduce turbidity</u> Average depth of frostline: <u>3.5'</u>	Stabilization Time: <u>< 5 min</u>

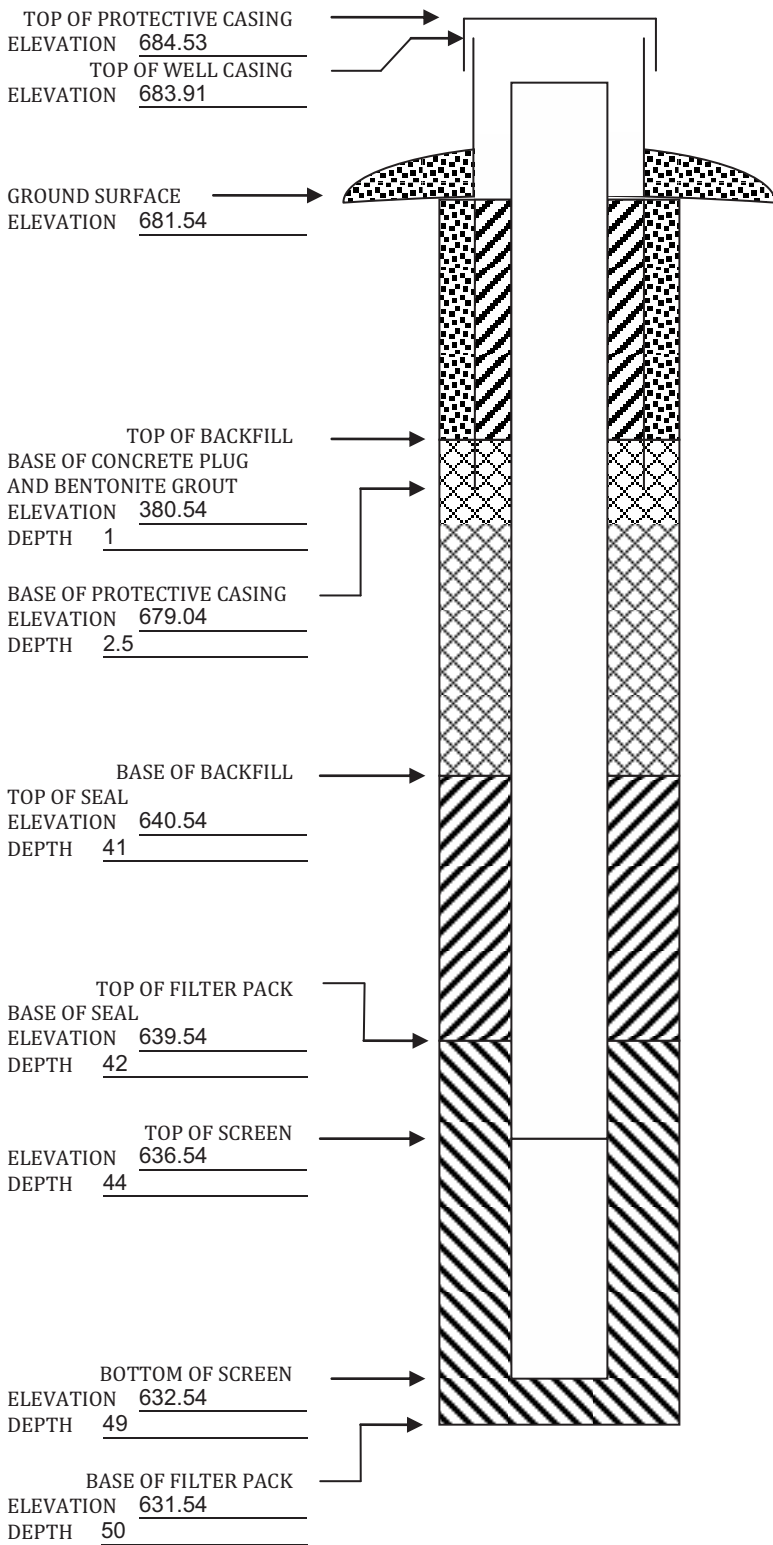
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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





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

Disposal Site Name: IPL - Ottumwa Generating Station Permit No.: _____

Well or Piezometer No: MW-306

Dates Started: 11/12/15 Date Completed: 11/12/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____	Name & Address of Construction Company: _____
Specify corner of site: <u>NW of Parcel 003052620200000</u>	<u>Cascade Drilling, LP</u>
Distance & direction along boundary: <u>137.5' E</u>	<u>301 Alderson St</u>
Distance & direction from boundary to wall: <u>321' S</u>	<u>Schofield, WI 54476</u>
Elevations (± 0.01 ft MSL): _____	Name of Driller: <u>Todd Schmalfeld</u>
Ground Surface: <u>681.05</u>	Drilling Method: <u>HSA</u>
Top of protective casing: <u>683.98</u>	Drilling Fluid: <u>NA</u>
Top of well casing: _____ <u>683.47</u>	Bore Hole Diameter: <u>8 inch</u>
Benchmark elevation: _____	Soil Sampling Method: <u>Spoon</u>
Benchmark description: _____	Depth of Boring: <u>34.5 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: _____ <u>PVC sch 80</u>	Placement method: <u>Gravity</u>
Length of casing: _____ <u>29 ft</u>	Volume: <u>10.5 cu. ft.</u>
Outside casing diameter: _____ <u>2.38"</u>	Backfill (if different from seal): _____
Inside casing diameter: _____ <u>2"</u>	Material: _____
Casing joint type: _____ <u>threaded</u>	Placement method: _____
Casing/screen joint type: <u>threaded</u>	Volume: _____
Screen material: _____ <u>PVC</u>	Surface seal design: _____
Screen opening size: <u>0.010"</u>	Material of protective casing: <u>Steel</u>
Screen length: _____ <u>5 ft</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: _____ <u>34 ft</u>	Protective cap: _____
Filter Pack: _____	Material: <u>Steel, vented</u>
Material: _____ <u>Red Flint</u>	Vented: <input type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: _____ <u>#40</u>	Well Cap: _____
Volume: _____ <u>2 cu. ft.</u>	Material: <u>PVC</u>
Seal (minimum 3 ft length above filter pack): _____	Vented: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Material: <u>3/8" bentonite chips</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>12.96'</u>	Stabilization Time: <u>< 5 min</u>
Well development method: <u>Surged with block and pumped. 193 gallons purged.</u>	
Average depth of frostline: <u>3.5'</u>	

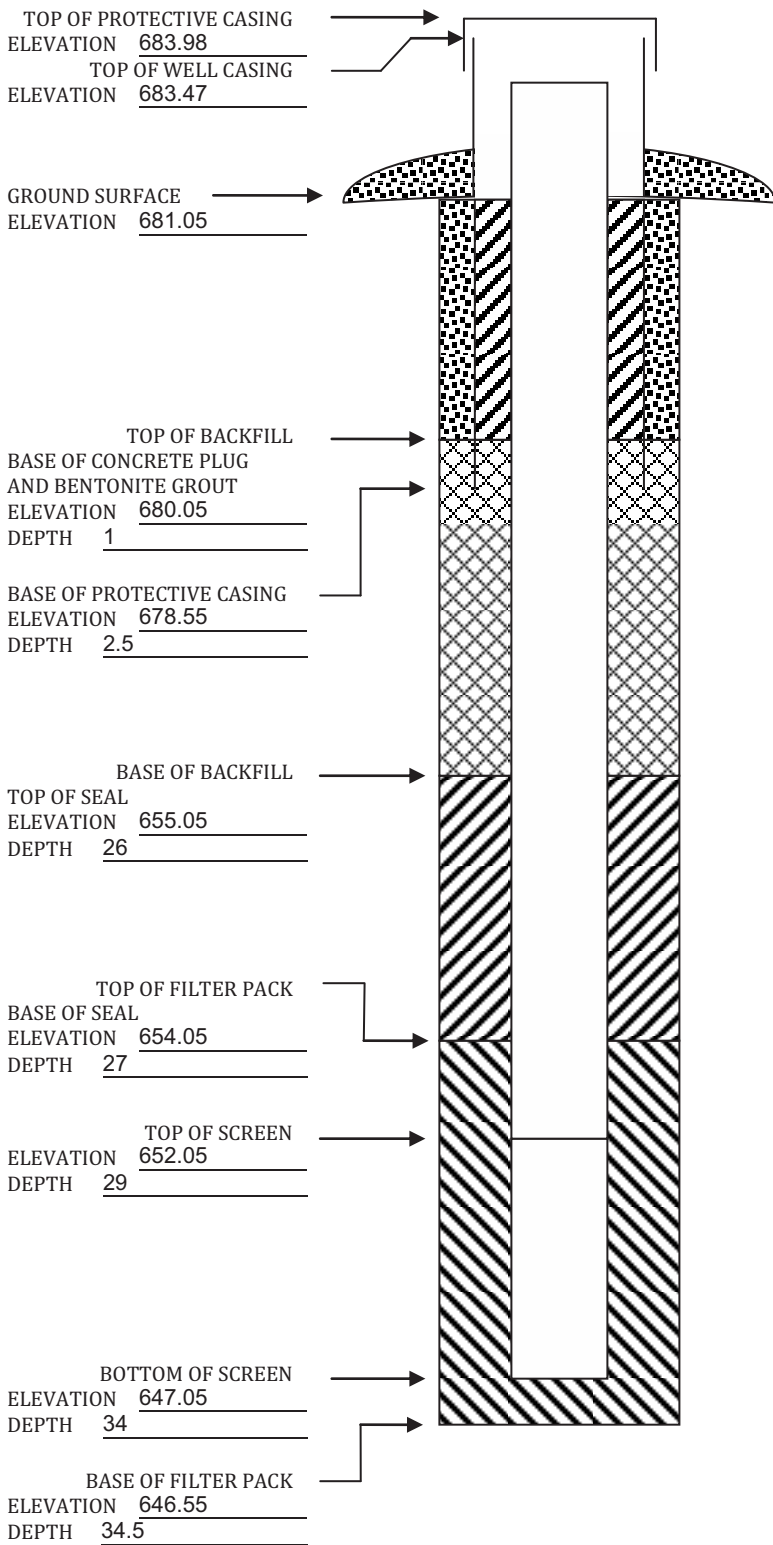
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL - Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-310 Dates Started 8/27/2019 Date Completed 8/27/2019

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

Specify corner of site Middle Avery Creek @ Distance and direction along boundary 340' NW
Des Moines River
Distance and direction from boundary to surface monitoring well 45' SW
Elevation (+0.01 ft. MSL) _____
Ground Surface 655.76 Top of protective casing 658.97
Top of well casing 658.63 Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Roberts Environmental Drilling Inc.
Address 1107 South Mulberry Street City, State, Zip Code Millstadt, IL, 62260
Name of driller Eric Wetzel
Drilling method 4 1/4" HSA Drilling fluid _____ Bore Hole diameter 8.5"
Soil sampling method Split Spoon Depth of boring 24'

C. MONITORING WELL INSTALLATION

Casing material PVC - Sch. 40 Placement method Gravity
Length of casing 20.87 Volume 4 cubic feet
Outside casing diameter 2.4" Backfill (if different from seal): _____
Inside casing diameter 2.0" Material _____
Casing joint type Threaded Placement method _____
Casing/screen joint type Threaded Volume _____
Screen material PVC - Sch. 40 Surface seal design: Concrete
Screen opening size 0.01' Material of protective casing: Steel
Material of grout between
Screen length 5' protective casing and well casing: Bentonite/Filter Sand
Depth of Well 23' Protective cap: _____
Filter Pack: Material Steel
Material Filter Sand Vented?: Y N Locking?: Y N
Grain Size #5 Well cap: _____
Volume 1.25 cubic feet Material Plastic
Seal (minimum 3 ft. length above filter pack): Vented?: Y N
Material 3/8" Bentonite Chips

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

Water level 16.67 Stabilization time 5 min
Well development method surge and purge with pump to remove turbidity
Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

Signature [Signature] Certification # 11509 Date 10.3.19

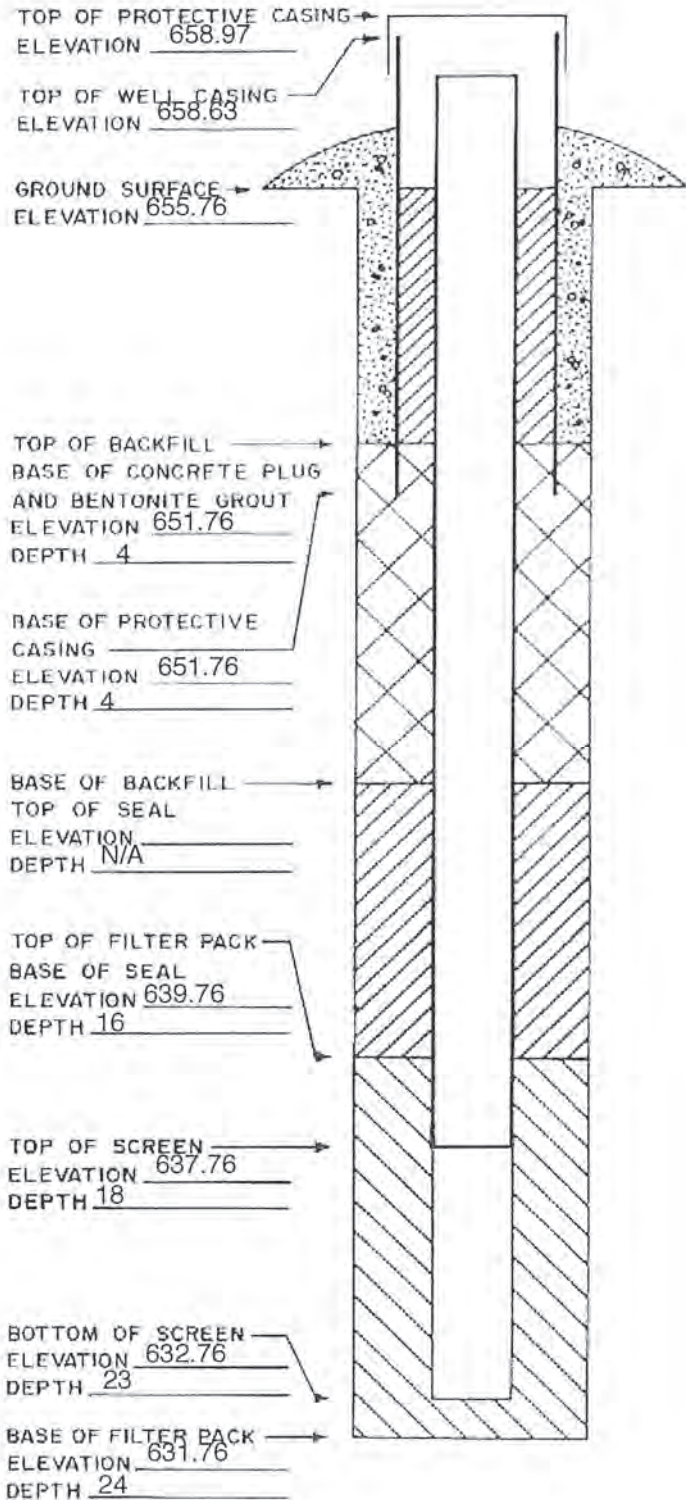
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

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

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

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

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL - Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-311 Dates Started 8/27/2019 Date Completed 8/27/2019

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

Specify corner of site SE Distance and direction along boundary 730' W
Distance and direction from boundary to surface monitoring well 160' N
Elevation (+0.01 ft. MSL) _____
Ground Surface 651.24 Top of protective casing 654.49
Top of well casing 654.18 Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Roberts Environmental Drilling Inc.
Address 1107 South Mulberry Street City, State, Zip Code Millstadt, IL, 62260
Name of driller Eric Wetzel
Drilling method 4 1/4" HSA Drilling fluid _____ Bore Hole diameter 8.5"
Soil sampling method Split Spoon Depth of boring 16'

C. MONITORING WELL INSTALLATION

Casing material <u>PVC - Sch. 40</u>	Placement method <u>Gravity</u>
Length of casing <u>12.94'</u>	Volume <u>2 cubic feet</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.0"</u>	Material _____
Casing joint type <u>Threaded</u>	Placement method _____
Casing/screen joint type <u>Threaded</u>	Volume _____
Screen material <u>PVC - Sch. 40</u>	Surface seal design: <u>Concrete</u>
Screen opening size <u>0.01'</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between
Depth of Well <u>15'</u>	protective casing and well casing: <u>Bentonite/Filter Sand</u>
Filter Pack: _____	Protective cap: _____
Material <u>Filter Sand</u>	Material <u>Steel</u>
Grain Size <u>#5</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Volume <u>1.5 cubic feet</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic</u>
Material <u>3/8" Bentonite Chips</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

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

Water level 12.04 Stabilization time 5 min
Well development method surge and purge with pump to remove turbidity
Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

Signature [Signature] Certification # 11509 Date 10.3.19

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

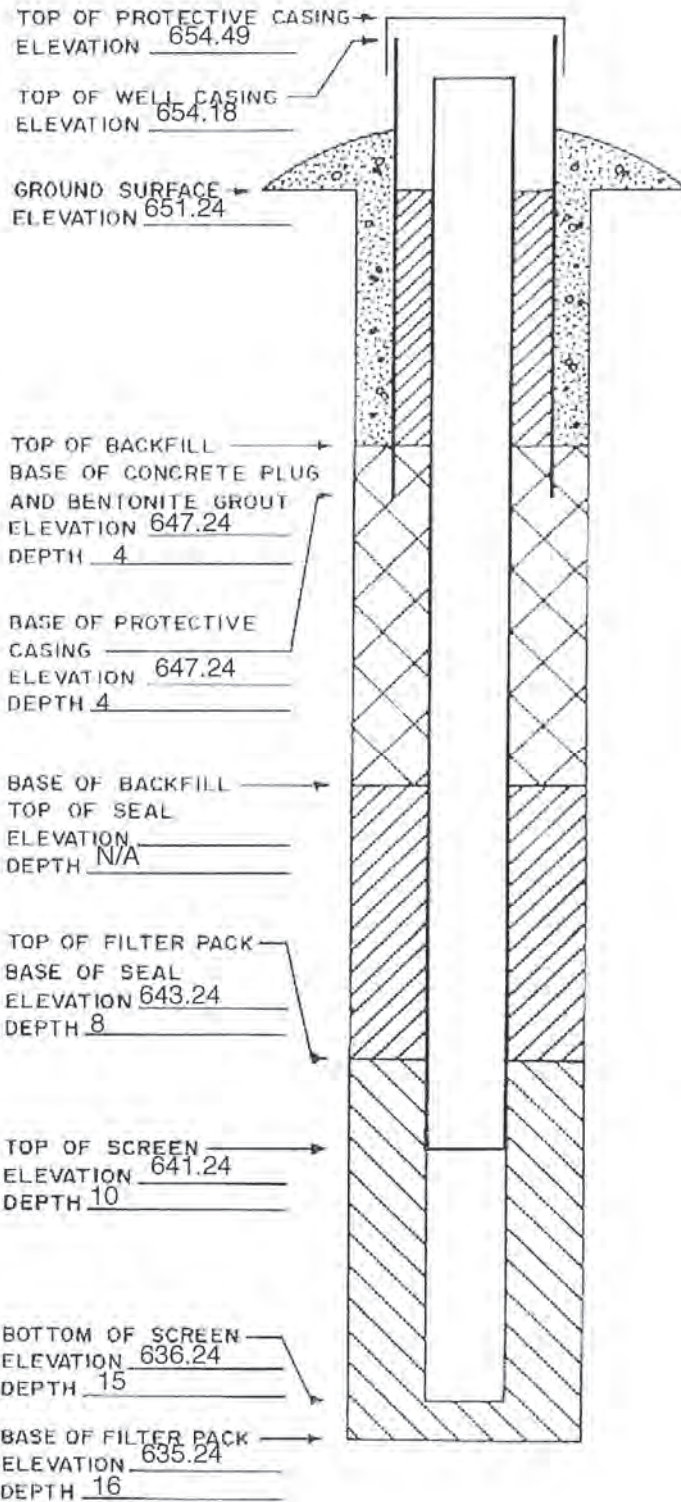
Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.

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

ELEVATIONS: ± 0.01 FT. MSL

DEPTHS: ± 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-305A Dates Started 2/25/2020 Date Completed 3/4/2020

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

Specify corner of site SW of Parcel 00305262020 Distance and direction along boundary 539' E
Distance and direction from boundary to surface monitoring well 404' N
Elevation (+0.01 ft. MSL) _____
Ground Surface 681.76' Top of protective casing 684.35'
Top of well casing 684.03' Benchmark elevation 654.48'
Benchmark description Intake Structure Mag-Nail

B. SOIL BORING INFORMATION

Construction Company Name Roberts Environmental Services
Address 1107 South Mulberry Street City, State, Zip Code Millstadt, IL 62260
Name of driller Jeff Crank
Drilling method 6 1/4" HSA,6" Air Rotary Drilling fluid _____ Bore Hole diameter 10"/6"
Soil sampling method Split spoon/Sample catch from augers Depth of boring 80'

C. MONITORING WELL INSTALLATION

Casing material PVC-Sch. 80 Placement method Gravity
Length of casing 82' Volume 2 cu. ft.
Outside casing diameter 2.4" Backfill (if different from seal): _____
Inside casing diameter 1.9 Material Bentonite grout
Casing joint type Threaded Placement method pumped
Casing/screen joint type Threaded Volume 300 gallons
Screen material PVC-Sch. 80 Surface seal design: _____
Screen opening size 0.01" Material of protective casing: Steel
Screen length 5' Material of grout between protective casing and well casing: Sand
Depth of Well 79' Protective cap: _____
Filter Pack: _____ Material Steel
Material Filter sand Vented?: Y N Locking?: Y N
Grain Size #18 Well cap: _____
Volume 3 bags (50 lbs bags, Sil filter sand) Material Plastic
Seal (minimum 3 ft. length above filter pack): _____ Vented?: Y N
Material 3/8" Bentonite chips

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

Water level 32.7' Stabilization time ~ 1 day
Well development method Pump and surge
Average depth of frost line 40"

DRILLER'S CERTIFICATION

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

Signature Jeff Crank Certification # 8515 Date 9-16-20

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

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

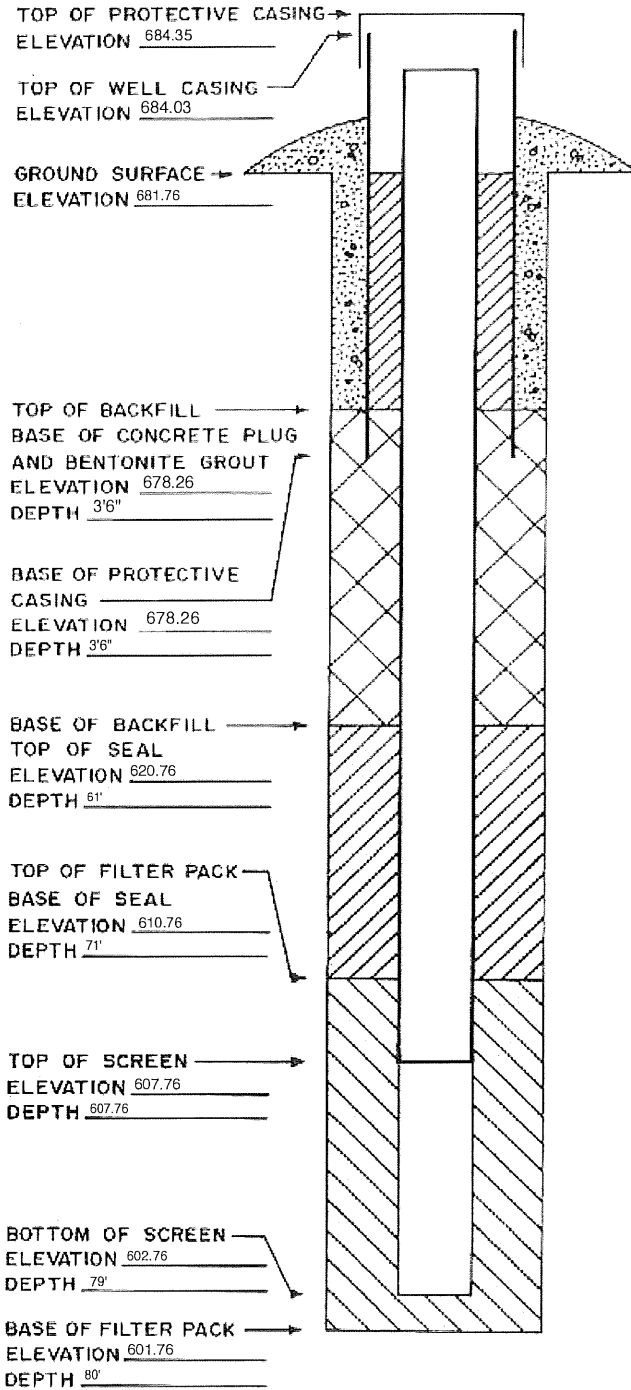
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

09/2017 cmc

DNR Form 542-1277

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

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-310A Dates Started 2/27/2020 Date Completed 3/4/2020

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

Specify corner of site _____ Distance and direction along boundary 340' NW
Distance and direction from boundary to surface monitoring well 45' SW
Elevation (+0.01 ft. MSL) _____
Ground Surface 655.26' Top of protective casing 658.25'
Top of well casing 657.93' Benchmark elevation 654.48'
Benchmark description Intake Structure Mag-Nail

B. SOIL BORING INFORMATION

Construction Company Name Roberts Environmental Services
Address 1107 South Mulberry Street City, State, Zip Code Millstadt, IL 62260
Name of driller Jeff Crank
Drilling method 6 1/4" HSA,6" Air Rotary Drilling fluid _____ Bore Hole diameter 10"/6"
Soil sampling method Split spoon/Sample catch from augers Depth of boring 54'

C. MONITORING WELL INSTALLATION

Casing material <u>PVC-Sch. 80</u>	Placement method <u>Gravity</u>
Length of casing <u>55.5'</u>	Volume <u>2 cu. ft.</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>1.9"</u>	Material <u>Bentonite grout</u>
Casing joint type <u>Threaded</u>	Placement method <u>pumped</u>
Casing/screen joint type <u>Threaded</u>	Volume <u>200 gallons</u>
Screen material <u>PVC-Sch. 80</u>	Surface seal design: _____
Screen opening size <u>0.1</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between protective casing and well casing: <u>Sand</u>
Depth of Well <u>53'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Steel</u>
Material <u>Filter sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#18</u>	Well cap: _____
Volume <u>3 bags (50 lbs bags, Sil filter sand)</u>	Material <u>Plastic</u>
Seal (minimum 3 ft. length above filter pack): _____	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Material <u>3/8" Bentonite chips</u>	

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

Water level 12' Stabilization time ~ 1 week
Well development method Pump and surge
Average depth of frost line 40"

DRILLER'S CERTIFICATION

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

Signature Jeff Crank Certification # 8515 Date 9-16-20

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

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

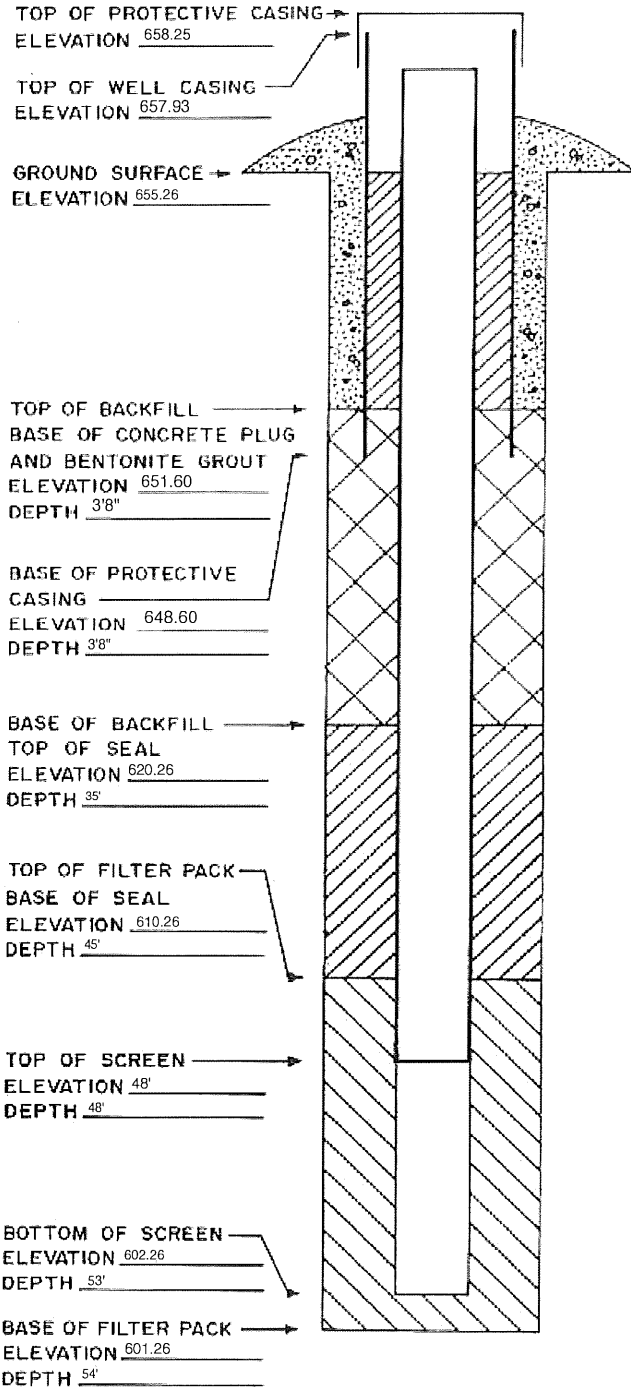
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

09/2017 cmc

DNR Form 542-1277

ELEVATIONS: \pm 0.01 FT. MSL
DEPTHS: \pm 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-311A Dates Started 3/2/2020 Date Completed 3/4/2020

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

Specify corner of site SE Distance and direction along boundary 730' W
Distance and direction from boundary to surface monitoring well 160' N
Elevation (+0.01 ft. MSL) _____
Ground Surface 651.16' Top of protective casing 653.88
Top of well casing 653.54' Benchmark elevation 654.48
Benchmark description Intake Structure Mag-Nail

B. SOIL BORING INFORMATION

Construction Company Name Roberts Environmental Services
Address 1107 South Mulberry Street City, State, Zip Code Millstadt, IL 62260
Name of driller Jeff Crank
Drilling method 6 1/4" HSA, 6" Air Rotary Drilling fluid _____ Bore Hole diameter 10"/6"
Soil sampling method Split spoon/Sample catch from augers Depth of boring 46'

C. MONITORING WELL INSTALLATION

Casing material <u>PVC-Sch. 40</u>	Placement method <u>Gravity</u>
Length of casing <u>47.68'</u>	Volume <u>2 cu. ft.</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.1"</u>	Material <u>Bentonite grout</u>
Casing joint type <u>Threaded</u>	Placement method <u>pumped</u>
Casing/screen joint type <u>Threaded</u>	Volume <u>200 gallons</u>
Screen material <u>PVC-Sch. 40</u>	Surface seal design: _____
Screen opening size <u>0.1</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between protective casing and well casing: <u>Sand</u>
Depth of Well <u>45'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Steel</u>
Material <u>Filter sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#18</u>	Well cap: _____
Volume <u>3 bags (50 lbs bags, Sil filter sand)</u>	Material <u>Plastic</u>
Seal (minimum 3 ft. length above filter pack): _____	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Material <u>3/8" Bentonite chips</u>	

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

Water level 8.89' Stabilization time ~ 1 week
Well development method Pump and surge
Average depth of frost line 40"

DRILLER'S CERTIFICATION

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

Signature *Jeff Crank* Certification # 8515 Date 9-16-20

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

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

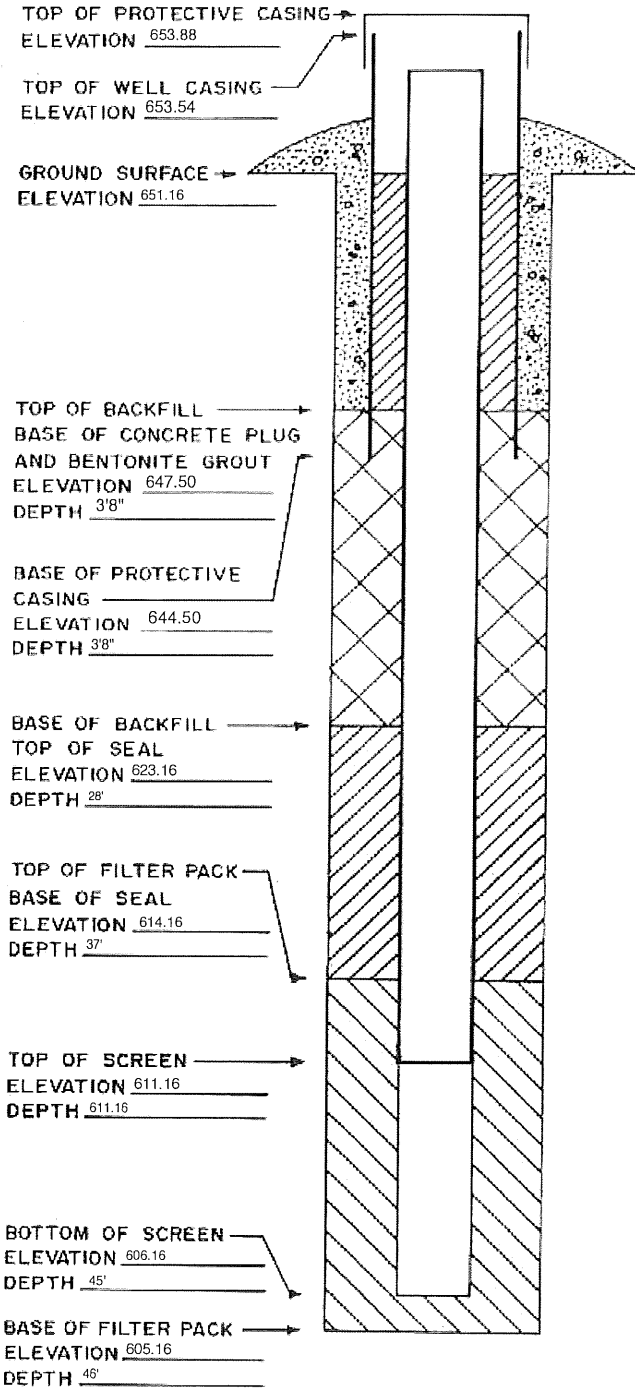
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

09/2017 cmc

DNR Form 542-1277

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

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-312 Dates Started 12/14/21 Date Completed 12/15/21

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

Specify corner of site NE of parcel 3052510081000 Distance and direction along boundary 340' S
Distance and direction from boundary to surface monitoring well 325' W
Elevation (+0.01 ft. MSL) _____
Ground Surface 652.87 Top of protective casing 655.97
Top of well casing 655.36 Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Cascade Drilling
Address 301 Alderson St. City, State, Zip Code Schofield, WI. 54476
Name of driller Mike Mueller
Drilling method Roto Sonic Drilling fluid water Bore Hole diameter 6"
Soil sampling method Bagged Depth of boring 27.5'

C. MONITORING WELL INSTALLATION


Casing material <u>Sch. 40 PVC</u>	Placement method <u>Poured</u>
Length of casing <u>~29.68'</u>	Volume <u>1 - 50 lbs bag</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.05"</u>	Material <u>Bentonite Grout</u>
Casing joint type <u>Threaded</u>	Placement method <u>Pumped</u>
Casing/screen joint type <u>Threaded</u>	Volume <u>2.5 ft^3</u>
Screen material <u>Sch. 40 PVC</u>	Surface seal design: _____
Screen opening size <u>0.001"</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between protective casing and well casing: <u>Bentonite and sand</u>
Depth of Well <u>27'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Aluminium</u>
Material <u>Red Flint Sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#40</u>	Well cap: _____
Volume <u>1ft^3</u>	Material <u>Plastice</u>
Seal (minimum 3 ft. length above filter pack): _____	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Material <u>Bentonite chips</u>	

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

Water level 12.65 Stabilization time 1.75 hours
Well development method Surge and purge with pump
Average depth of frost line 4.5'

DRILLER'S CERTIFICATION

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

Signature  Certification # 9362 Date 12-15-2021

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

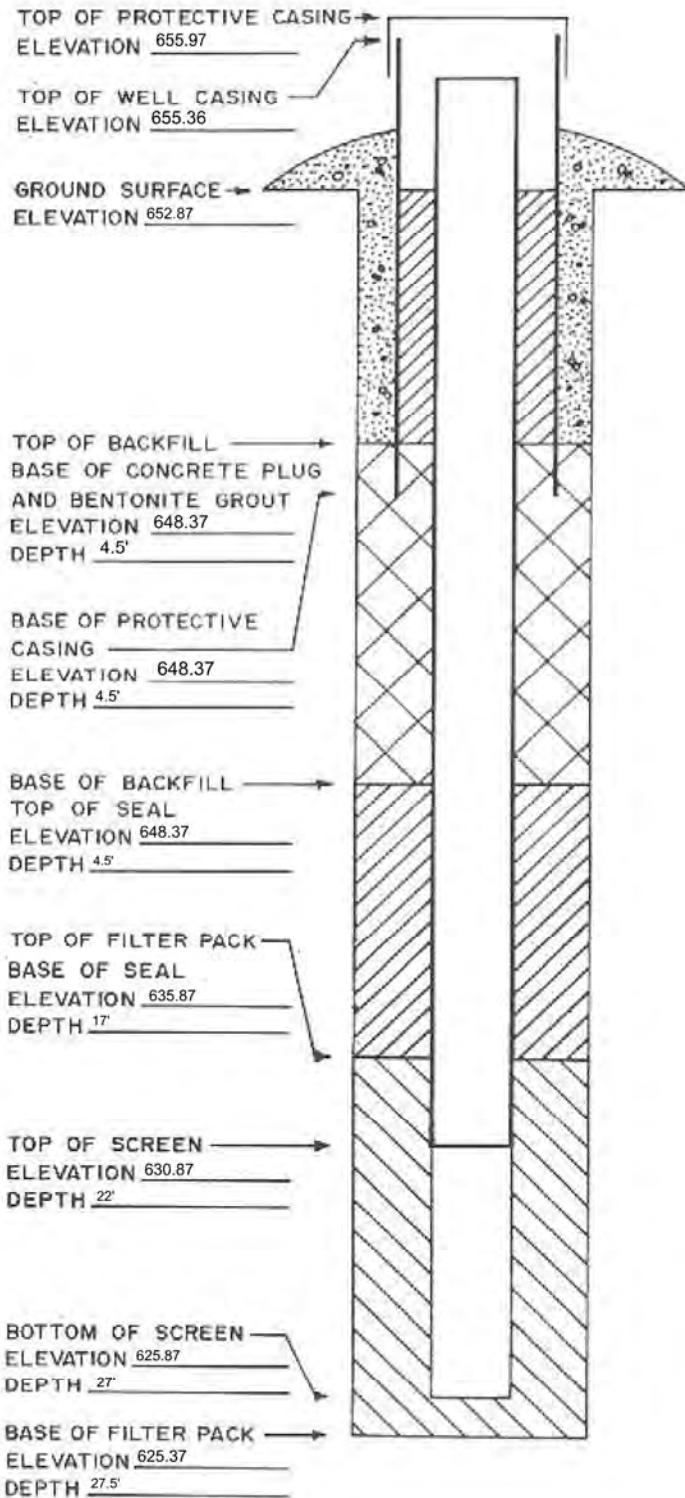
Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.

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

ELEVATIONS: ± 0.01 FT. MSL

DEPTHS: ± 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name Ottumwa Generating Station Permit No. _____
Well or Piezometer No. MW-313 Dates Started 12/14/21 Date Completed 12/15/21

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

Specify corner of site NE of parcel 3052510081000 Distance and direction along boundary 340' S
Distance and direction from boundary to surface monitoring well 20' E
Elevation (+0.01 ft. MSL) _____
Ground Surface 653.25 Top of protective casing 656.30
Top of well casing 655.84 Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Cascade Drilling
Address 301 Alderson St. City, State, Zip Code Schofield, WI. 54476
Name of driller Mike Mueller
Drilling method Roto Sonic Drilling fluid water Bore Hole diameter 6"
Soil sampling method Bagged Depth of boring 22.5'

C. MONITORING WELL INSTALLATION

Casing material <u>Sch. 40 PVC</u>	Placement method <u>Poured</u>
Length of casing <u>~23.82'</u>	Volume <u>1 - 50 lbs bag</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.05"</u>	Material <u>Bentonite Grout</u>
Casing joint type <u>Threaded</u>	Placement method <u>Pumped</u>
Casing/screen joint type <u>Threaded</u>	Volume <u>2.25 ft^3</u>
Screen material <u>Sch. 40 PVC</u>	Surface seal design: _____
Screen opening size <u>0.001"</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between protective casing and well casing: <u>Bentonite and sand</u>
Depth of Well <u>21'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Aluminium</u>
Material <u>Red Flint Sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#40</u>	Well cap: _____
Volume <u>1ft^3</u>	Material <u>Plastice</u>
Seal (minimum 3 ft. length above filter pack): _____	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Material <u>Bentonite chips</u>	

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

Water level 15.63 Stabilization time 1.75 hours
Well development method Surge and purge with pump
Average depth of frost line 4.5'

DRILLER'S CERTIFICATION

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

Signature  Certification # 9362 Date 12-15-2021

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

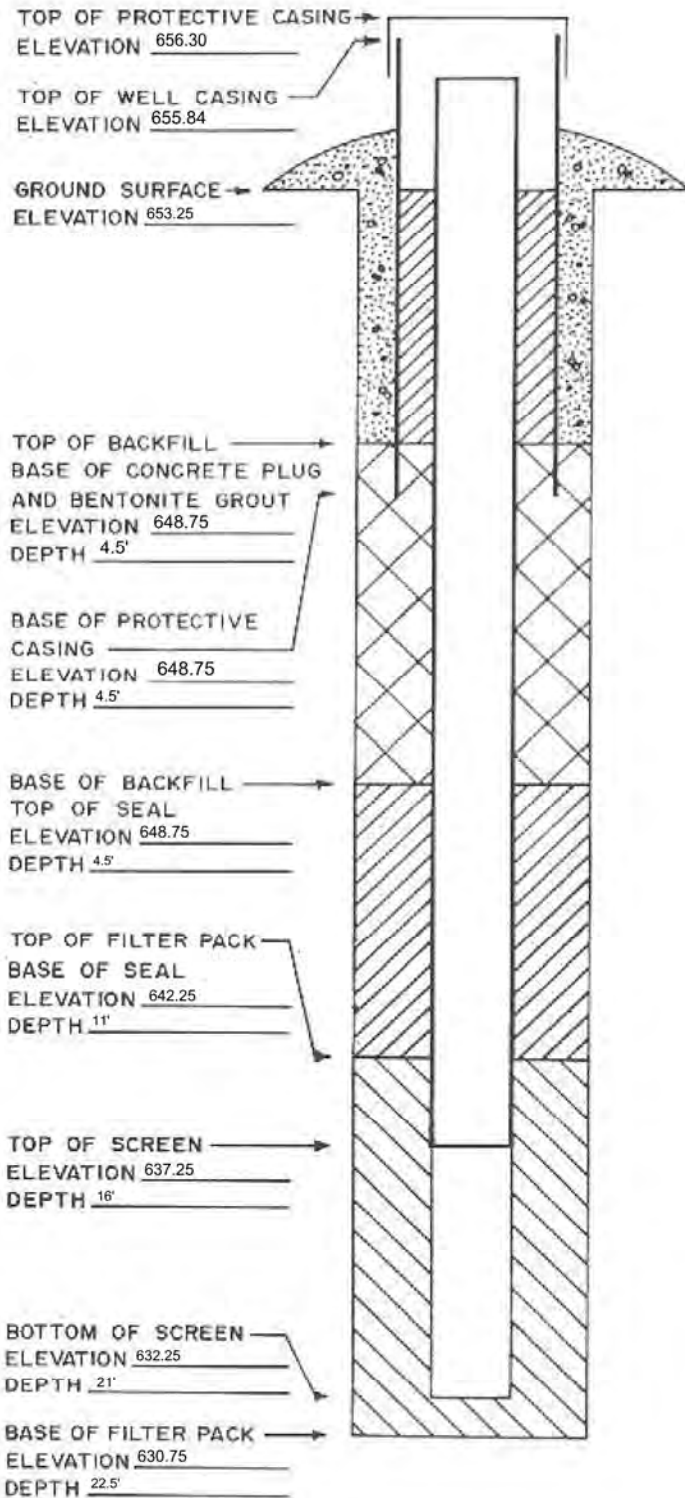
Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.

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

ELEVATIONS: ± 0.01 FT. MSL

DEPTHS: ± 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. 58910
Well or Piezometer No. MW-302WT Dates Started 4/27/2022 Date Completed 4/27/2022

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

Specify corner of site NW parc. 003052630215000 Distance and direction along boundary 840 NE
Distance and direction from boundary to surface monitoring well 4.5 S
Elevation (+0.01 ft. MSL) _____
Ground Surface 671.54' Top of protective casing 674.74
Top of well casing 674.53' Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Direct Push Analytical
Address 41909 Old Linton Rd. VALE City, State, Zip Code Saint Charles IL. 60175
Name of driller Bryan Kinzer
Drilling method HSA Drilling fluid None Bore Hole diameter 8.25"
Soil sampling method Blind drilled Depth of boring 16.5'

C. MONITORING WELL INSTALLATION

Casing material <u>Sch. 40 PVC</u>	Placement method <u>Poured/Hydrated</u>
Length of casing <u>19.23'</u>	Volume <u>1, 50lbs bag</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.05"</u>	Material _____
Casing joint type <u>Threaded</u>	Placement method _____
Casing/screen joint type <u>Threaded</u>	Volume _____
Screen material <u>Sch. 40 PVC</u>	Surface seal design: _____
Screen opening size <u>0.01"</u>	Material of protective casing: <u>Steel</u>
Screen length <u>10'</u>	Material of grout between protective casing and well casing: <u>Sand</u>
Depth of Well <u>16"</u>	Protective cap: _____
Filter Pack: _____	Material <u>Steel</u>
Material <u>RW Sidley filter sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#5</u>	Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Volume <u>3.5 ft^3 (7 bags)</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic</u>
Material <u>3/8" Bentonite chips</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

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

Water level 18.85 Stabilization time >1 day
Well development method N/A
Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

Signature [Signature] Certification # 0496 Date 4-27-22

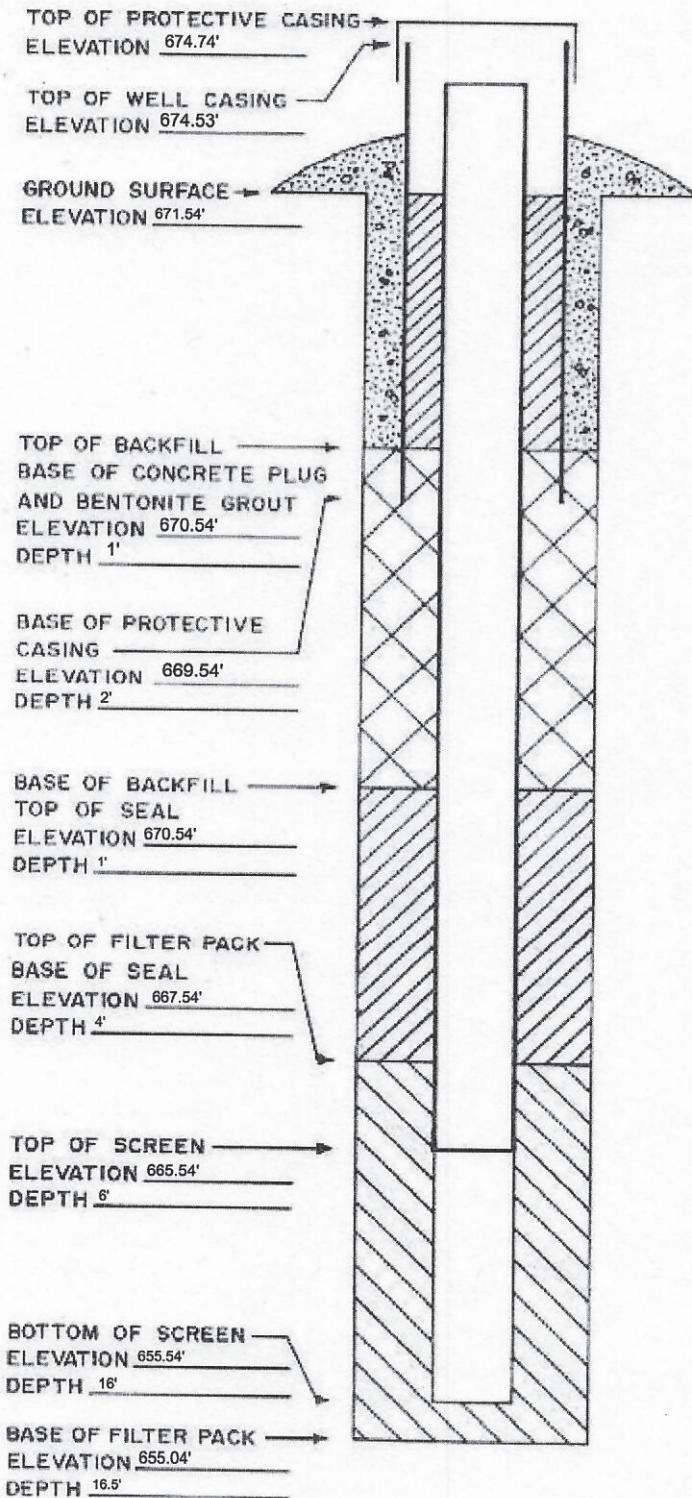
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov
09/2017 cmc

ELEVATIONS: ± 0.01 FT. MSL

DEPTHS: ± 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. 58910
Well or Piezometer No. MW-304WT Dates Started 4/27/2022 Date Completed 4/27/2022

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

Specify corner of site SE of parcel 3052620200000 Distance and direction along boundary 500' W
Distance and direction from boundary to surface monitoring well 40' N
Elevation (+0.01 ft. MSL) _____
Ground Surface 679.698' Top of protective casing 682.493'
Top of well casing 682.203' Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Direct Push Analytical
Address 44969 Old LaFox Rd. UNIT E City, State, Zip Code Saint Charles IL. 60175
Name of driller Bryan Kinzer
Drilling method HSA Drilling fluid None Bore Hole diameter 8.25"
Soil sampling method Blind drilled Depth of boring 36'

C. MONITORING WELL INSTALLATION

Casing material Sch. 40 PVC Placement method Poured/Hydrated
Length of casing 37.76' Volume 10, 50lbs bags
Outside casing diameter 2.4" Backfill (if different from seal): _____
Inside casing diameter 2.05" Material _____
Casing joint type Threaded Placement method _____
Casing/screen joint type Threaded Volume _____
Screen material Sch. 40 PVC Surface seal design: _____
Screen opening size 0.01" Material of protective casing: Steel
Screen length 10' Material of grout between
Depth of Well 35' protective casing and well casing: Sand
Filter Pack: _____ Protective cap: _____
Material RW Sidley filter sand Material Steel
Grain Size #5 Vented?: Y N Locking?: Y N
Volume 3.5 ft^3 (7 bags) Well cap: _____
Material Plastic
Seal (minimum 3 ft. length above filter pack): _____ Vented?: Y N
Material 3/8" Bentonite chips

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

Water level 30.5' Stabilization time > 1 day
Well development method N/A
Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

Signature [Signature] Certification # 0490 Date 0-7-22

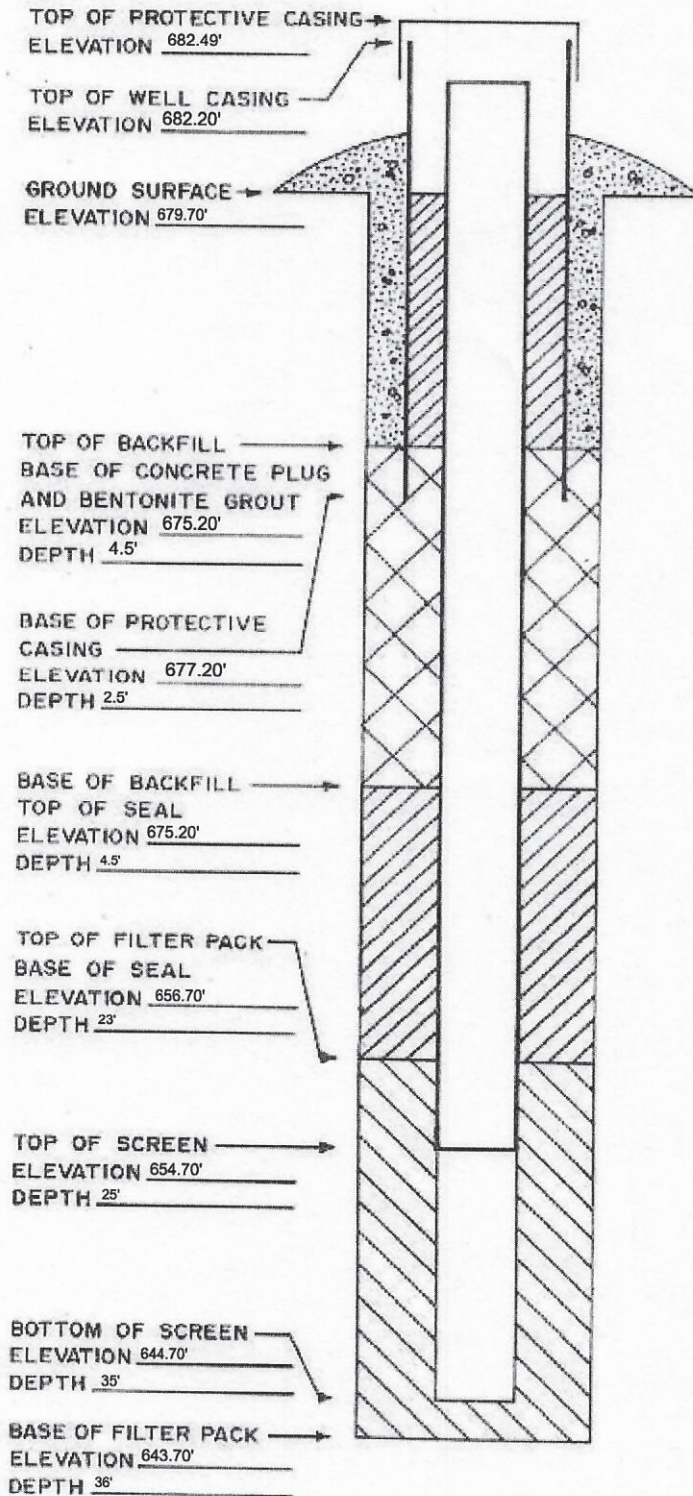
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

ELEVATIONS: ± 0.01 FT. MSL

DEPTHS: ± 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. 58910
Well or Piezometer No. MW-306WT Dates Started 4/27/2022 Date Completed 4/27/2022

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

Specify corner of site NW parcel 3052620200000 Distance and direction along boundary 140' E
Distance and direction from boundary to surface monitoring well 320' S
Elevation (+0.01 ft. MSL) _____
Ground Surface 681.342' Top of protective casing 684.291'
Top of well casing 684.050' Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Direct Push Analytical
Address 42969 Old LaFox Rd. UNIT E City, State, Zip Code Saint Charles IL. 60175
Name of driller Bryan Kinzer
Drilling method HSA Drilling fluid None Bore Hole diameter 8.25"
Soil sampling method Blind drilled Depth of boring 22'

C. MONITORING WELL INSTALLATION

Casing material Sch. 40 PVC Placement method Poured/Hydrated
Length of casing 24.05' Volume 2, 50lbs bags
Outside casing diameter 2.4" Backfill (if different from seal): _____
Inside casing diameter 2.05" Material _____
Casing joint type Threaded Placement method _____
Casing/screen joint type Threaded Volume _____
Screen material Sch. 40 PVC Surface seal design: _____
Screen opening size 0.01" Material of protective casing: Steel
Material of grout between protective casing and well casing: Sand
Screen length 10' Protective cap: _____
Depth of Well 21' Material Steel
Filter Pack: _____ Vented?: Y N Locking?: Y N
Material RW Sidley filter sand Well cap: _____
Grain Size #5 Material Plastic
Volume 2.75 ft^3 (1.25 bags) Vented?: Y N
Seal (minimum 3 ft. length above filter pack): _____
Material 3/8" Bentonite chips

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

Water level Dry Stabilization time N/A
Well development method N/A
Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

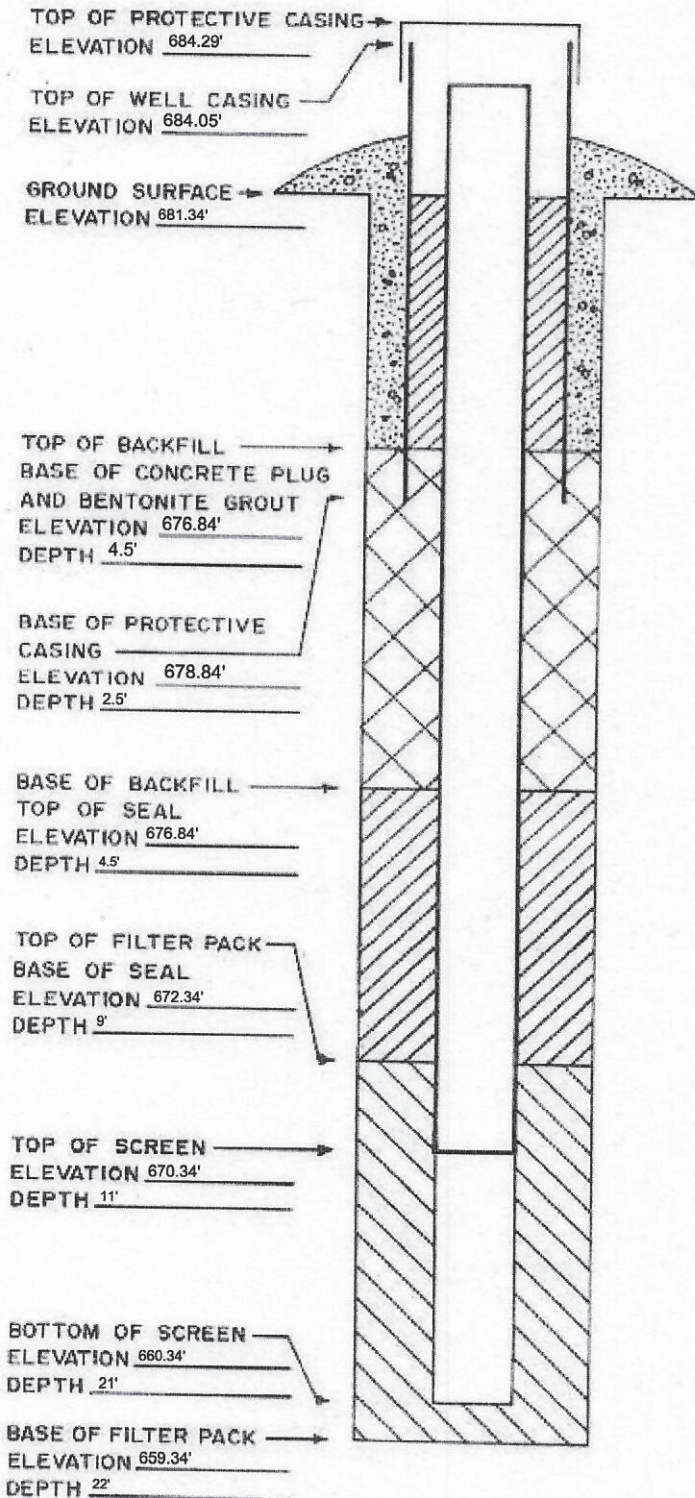
Signature _____ Certification # 8496 Date 4-23-22

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

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

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

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. 58910
Well or Piezometer No. MW-314 Dates Started 4/28/2022 Date Completed 4/28/2022

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

Specify corner of site SW parcel 3052620199000 Distance and direction along boundary 488' E
Distance and direction from boundary to surface monitoring well 132' N
Elevation (+0.01 ft. MSL) _____
Ground Surface 681.886' Top of protective casing 684.985'
Top of well casing 684.712' Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Direct Push Analytical
Address 4N969 Old Lafox Rd. UNIT E City, State, Zip Code Saint Charles IL. 60175
Name of driller Bryan Kinzer
Drilling method HSA Drilling fluid None Bore Hole diameter 8.25"
Soil sampling method Blind drilled Depth of boring 31'

C. MONITORING WELL INSTALLATION

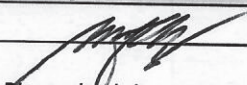
Casing material <u>Sch. 40 PVC</u>	Placement method <u>Poured/Hydrated</u>
Length of casing <u>33.24'</u>	Volume <u>6, 50lbs bags</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.05"</u>	Material _____
Casing joint type <u>Threaded</u>	Placement method _____
Casing/screen joint type <u>Threaded</u>	Volume _____
Screen material <u>Sch. 40 PVC</u>	Surface seal design: _____
Screen opening size <u>0.01"</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between protective casing and well casing: <u>Sand</u>
Depth of Well <u>30.4'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Steel</u>
Material <u>RW Sidley filter sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#5</u>	Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Volume <u>1.5 ft^3 (3 bags)</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic</u>
Material <u>3/8" Bentonite chips</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

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

Water level 17.04' Stabilization time < 1 hour
Well development method Surge and purge with pump
Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

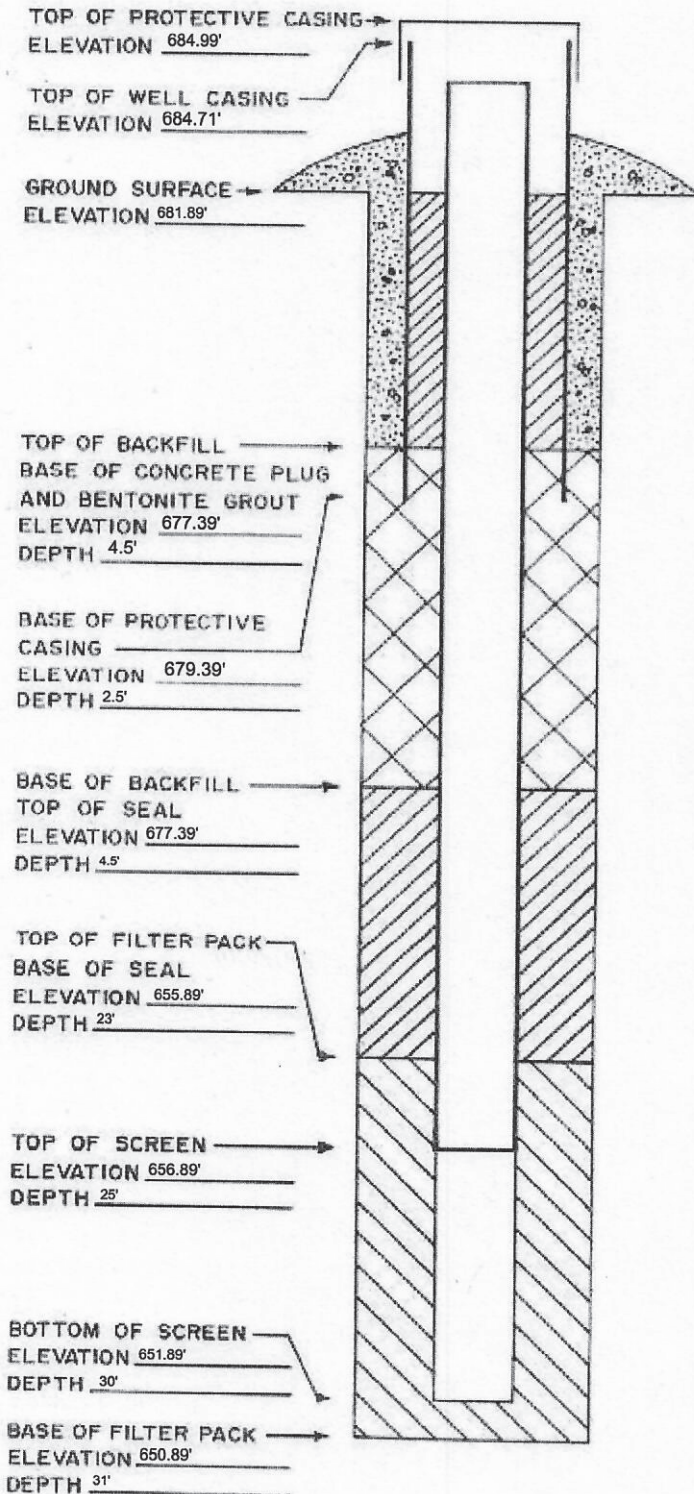
Signature  Certification # 849E Date 8-23-22

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

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

ELEVATIONS: \pm 0.01 FT. MSL
DEPTHS: \pm 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name IPL-Ottumwa Generating Station Permit No. 58910
 Well or Piezometer No. MW-314WT Dates Started 4/28/2022 Date Completed 4/28/2022

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

Specify corner of site SW parcel 3052620199000 Distance and direction along boundary 488' E
 Distance and direction from boundary to surface monitoring well 120' N
 Elevation (+0.01 ft. MSL) _____
 Ground Surface 681.743' Top of protective casing 684.880'
 Top of well casing 684.610' Benchmark elevation _____
 Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Direct Push Analytical
 Address 4N969 Old Wagon Rd. VAITE City, State, Zip Code Saint Charles IL. 60175
 Name of driller Bryan Kinzer
 Drilling method HSA Drilling fluid None Bore Hole diameter 8.25"
 Soil sampling method Blind drilled Depth of boring 22.5'

C. MONITORING WELL INSTALLATION

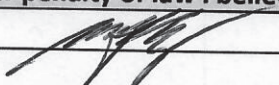
Casing material <u>Sch. 40 PVC</u>	Placement method <u>Poured/Hydrated</u>
Length of casing <u>24.81'</u>	Volume <u>3.75, 50lbs bags</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.05"</u>	Material _____
Casing joint type <u>Threaded</u>	Placement method _____
Casing/screen joint type <u>Threaded</u>	Volume _____
Screen material <u>Sch. 40 PVC</u>	Surface seal design: _____
Screen opening size <u>0.01"</u>	Material of protective casing: <u>Steel</u>
Screen length <u>10'</u>	Material of grout between protective casing and well casing: <u>Sand</u>
Depth of Well <u>21.9'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Steel</u>
Material <u>RW Sidley filter sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#5</u>	Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Volume <u>3.6 ft^3 (7.25 bags)</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic</u>
Material <u>3/8" Bentonite chips</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

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

Water level 17.03 Stabilization time >1 day
 Well development method N/A
 Average depth of frost line 3.5'

DRILLER'S CERTIFICATION

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

Signature  Certification # 8498 Date 4-28-22

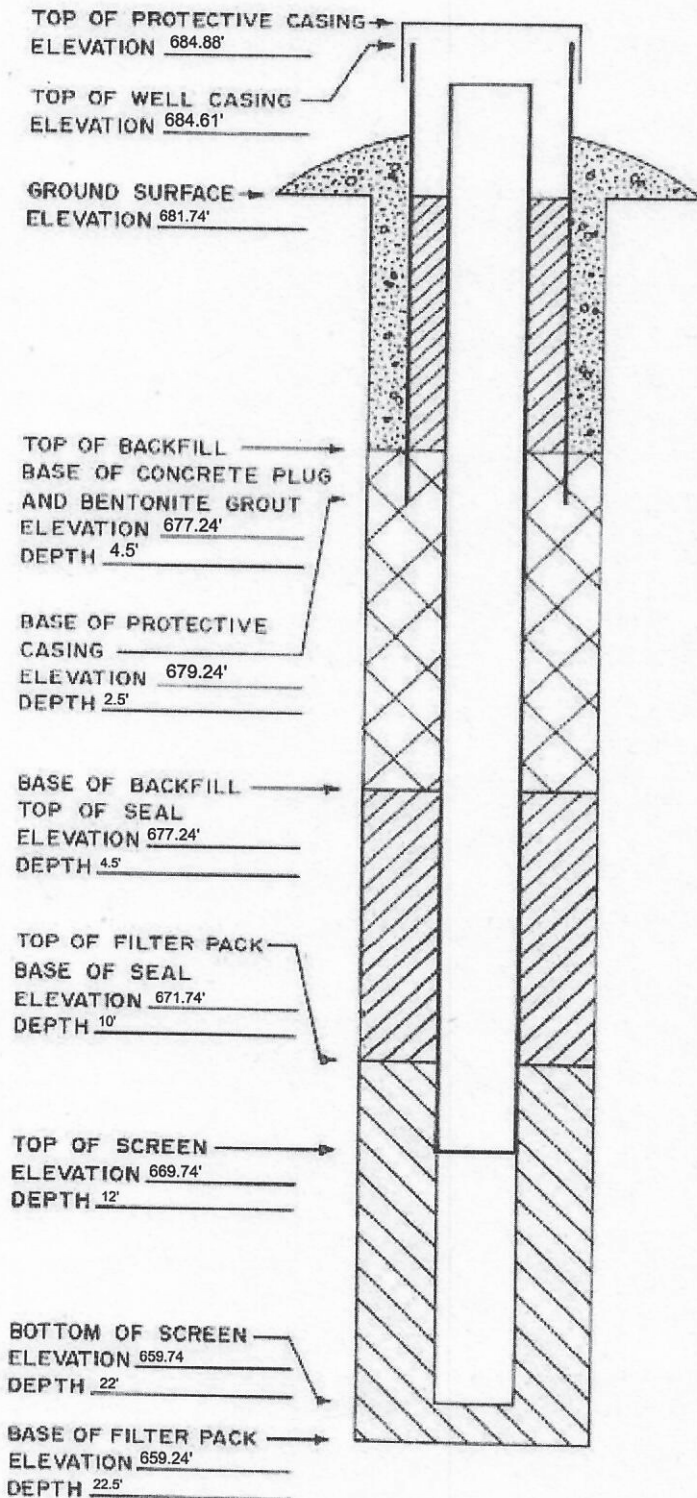
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

Please mail completed form to: Iowa Department of Natural Resources, Land Quality Bureau, 502 E. 9th St, Des Moines, IA 50319.
 Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

ELEVATIONS: ± 0.01 FT. MSL

DEPTHS: ± 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name Ottumwa Generating Station Permit No. 60630
Well or Piezometer No. MW-316 Dates Started 3/28/2023 Date Completed 3/29/2023

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

Specify corner of site N parcel 003052510081000 Distance and direction along boundary 373' north
Distance and direction from boundary to surface monitoring well 140' west
Elevation (+0.01 ft. MSL) 654.52
Ground Surface 654.52 Top of protective casing 657.74
Top of well casing 657.30 Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Cascade Environmental
Address 301 Alderson St. City, State, Zip Code Schofield, WI 54476
Name of driller Jeff Jehn
Drilling method Sonic Drilling fluid Water Bore Hole diameter 6"
Soil sampling method Grab/bagged Depth of boring 23'

C. MONITORING WELL INSTALLATION


Casing material <u>PVC</u>	Placement method <u>Gravity</u>
Length of casing <u>14.5'</u>	Volume <u>0.75 cu ft</u>
Outside casing diameter <u>2.37</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter <u>2.01</u>	Material <u>N/A</u>
Casing joint type <u>Thread</u>	Placement method <u>N/A</u>
Casing/screen joint type <u>Thread</u>	Volume <u>N/A</u>
Screen material <u>PVC</u>	Surface seal design: _____
Screen opening size <u>0.010</u>	Material of protective casing: <u>Steel</u>
Screen length <u>10'</u>	Material of grout between protective casing and well casing: <u>3/8" Bentonite chips</u>
Depth of Well <u>22'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Aluminum</u>
Material <u>Sand</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Grain Size <u>Red Flint #40</u>	Locking?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Volume <u>2.5 cu ft</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic/Rubber</u>
Material <u>3/8" Bentonite Chips</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

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

Water level 14.52 Stabilization time _____
Well development method Surge and purge with pump
Average depth of frost line _____

DRILLER'S CERTIFICATION

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

Signature  Certification # 12374 Date 3-29-2023

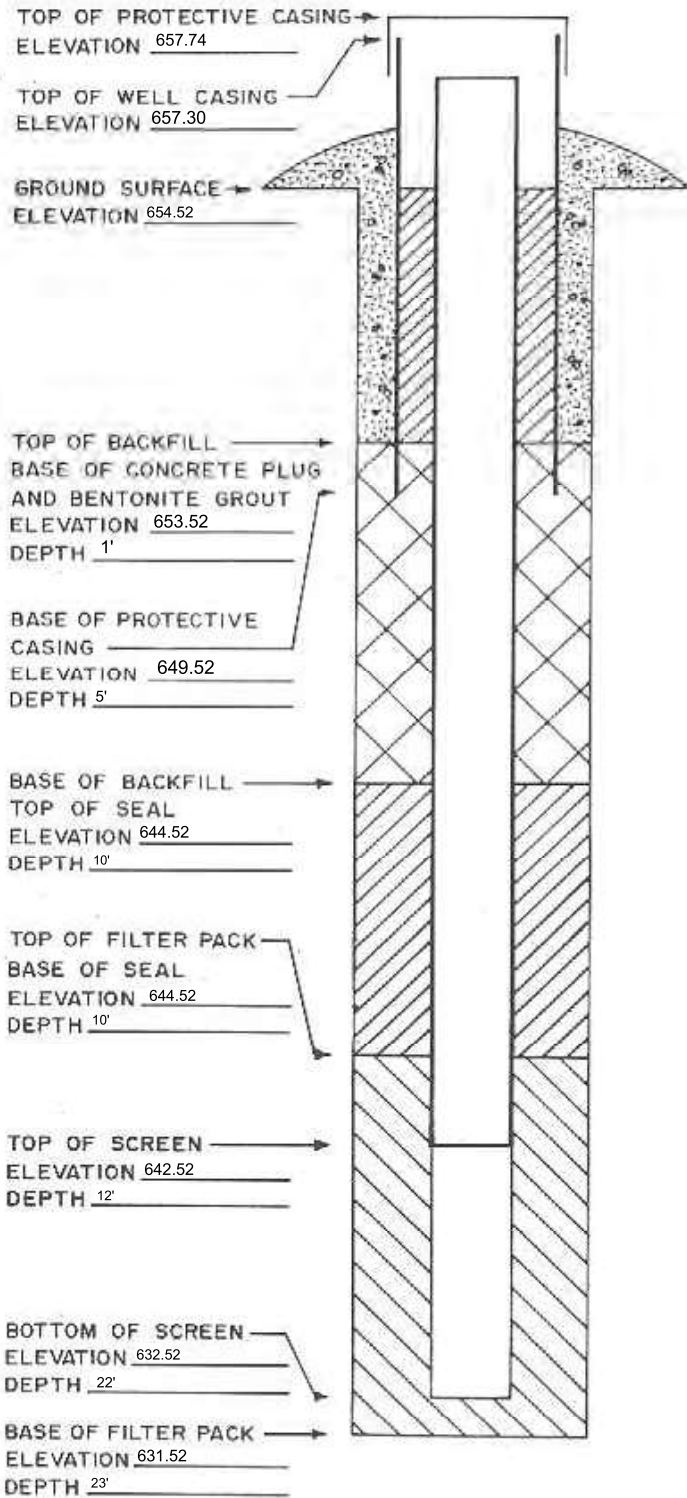
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

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

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

ELEVATIONS: \pm 0.01 FT. MSL
DEPTHS: \pm 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name Ottumwa Generating Station Permit No. 60630
Well or Piezometer No. MW-316A Dates Started 3/28/2023 Date Completed 3/28/2023

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

Specify corner of site N parcel 003052510081000 Distance and direction along boundary 365' north
Distance and direction from boundary to surface monitoring well 146' west
Elevation (+0.01 ft. MSL) 654.54
Ground Surface 654.54 Top of protective casing 658.01'
Top of well casing 657.74' Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Cascade Environmental
Address 301 Alderson St. City, State, Zip Code Schofield, WI 54476
Name of driller Jeff Jehn
Drilling method Sonic Drilling fluid Water Bore Hole diameter 6"
Soil sampling method Grab/bagged Depth of boring 53'

C. MONITORING WELL INSTALLATION


Casing material <u>PVC</u>	Placement method <u>Gravity</u>
Length of casing <u>49.5'</u>	Volume <u>4.5 cu ft</u>
Outside casing diameter <u>2.37</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter <u>2.01</u>	Material <u>N/A</u>
Casing joint type <u>Thread</u>	Placement method <u>N/A</u>
Casing/screen joint type <u>Thread</u>	Volume <u>N/A</u>
Screen material <u>PVC</u>	Surface seal design: _____
Screen opening size <u>0.010</u>	Material of protective casing: <u>Steel</u>
Screen length <u>5'</u>	Material of grout between protective casing and well casing: <u>3/8" Bentonite chips</u>
Depth of Well <u>52'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Aluminum</u>
Material <u>Sand</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Grain Size <u>Red Flint #40</u>	Locking?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Volume <u>1.25 cu ft</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic/Rubber</u>
Material <u>3/8" Bentonite Chips</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

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

Water level 14.25 Stabilization time _____
Well development method Surge and purge with pump
Average depth of frost line _____

DRILLER'S CERTIFICATION

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

Signature  Certification # 12374 Date 3-28-2023

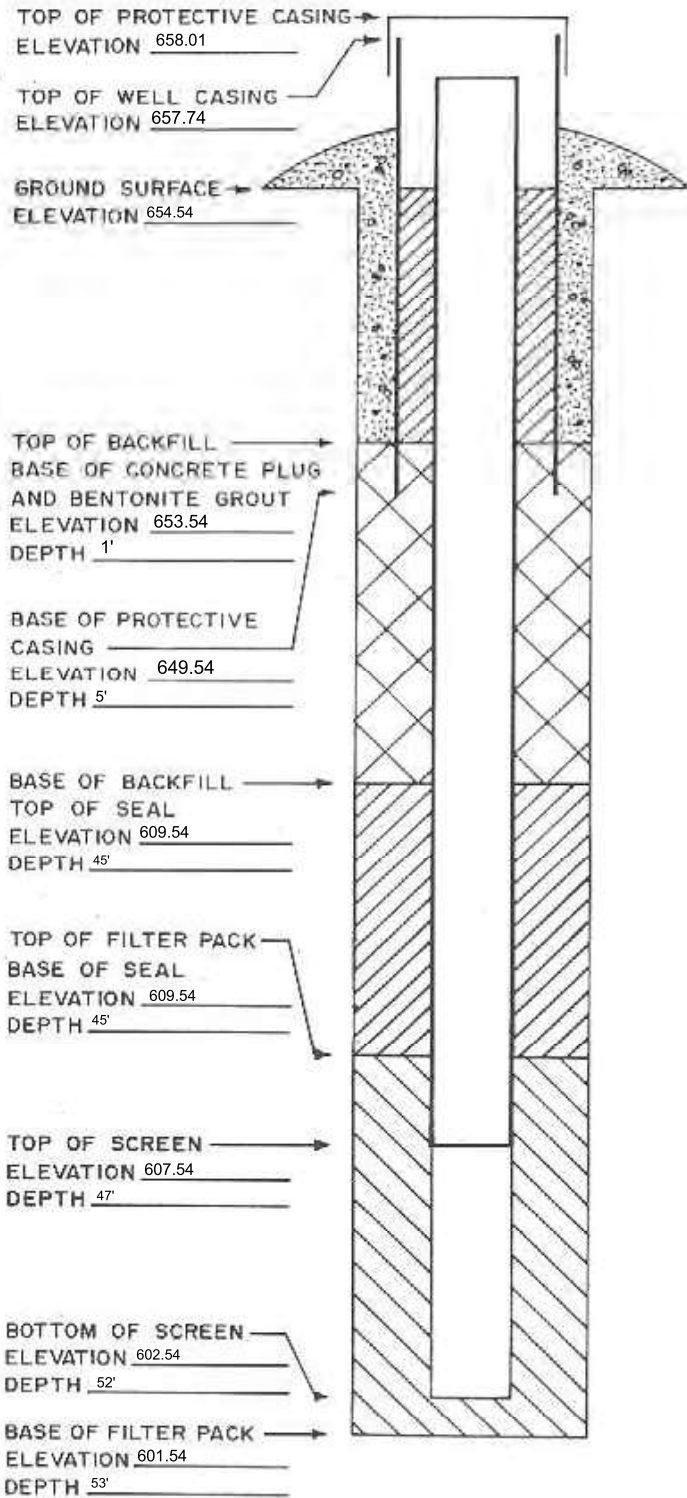
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

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

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

ELEVATIONS: \pm 0.01 FT. MSL
DEPTHS: \pm 0.1 FT. FROM
GROUND SURFACE

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



MONITORING WELL / PIEZOMETER CONSTRUCTION DOCUMENTATION FORM

Disposal Site Name Ottumwa Generating Station Permit No. 60630
Well or Piezometer No. MW-317 Dates Started 3/28/2023 Date Completed 3/28/2023

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

Specify corner of site NW parc. 003052620200000 Distance and direction along boundary 62' south
Distance and direction from boundary to surface monitoring well 90' east
Elevation (+0.01 ft. MSL) 653.70
Ground Surface 653.70 Top of protective casing 656.69
Top of well casing 656.33 Benchmark elevation _____
Benchmark description _____

B. SOIL BORING INFORMATION

Construction Company Name Cascade Environmental
Address 301 Alderson St. City, State, Zip Code Schofield, WI 54476
Name of driller Jeff Jehn
Drilling method Sonic Drilling fluid Water Bore Hole diameter 6"
Soil sampling method Grab/bagged Depth of boring 27'

C. MONITORING WELL INSTALLATION


Casing material <u>PVC</u>	Placement method <u>Gravity</u>
Length of casing <u>19.5</u>	Volume <u>0.5 cu ft</u>
Outside casing diameter <u>2.37</u>	Backfill (if different from seal): <u>N/A</u>
Inside casing diameter <u>2.01</u>	Material <u>N/A</u>
Casing joint type <u>Thread</u>	Placement method <u>N/A</u>
Casing/screen joint type <u>Thread</u>	Volume <u>N/A</u>
Screen material <u>PVC</u>	Surface seal design: _____
Screen opening size <u>0.010</u>	Material of protective casing: <u>Steel</u>
Screen length <u>10'</u>	Material of grout between protective casing and well casing: <u>3/8" Bentonite chips</u>
Depth of Well <u>25'</u>	Protective cap: _____
Filter Pack: _____	Material <u>Aluminum</u>
Material <u>Sand</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Grain Size <u>Red Flint #40</u>	Locking?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Volume <u>1.75 cu ft</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic/Rubber</u>
Material <u>3/8" Bentonite Chips</u>	Vented?: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N

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

Water level 13.49 Stabilization time _____
Well development method Surge and purge with pump
Average depth of frost line _____

DRILLER'S CERTIFICATION

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

Signature  Certification # 12374 Date 3-28-2023

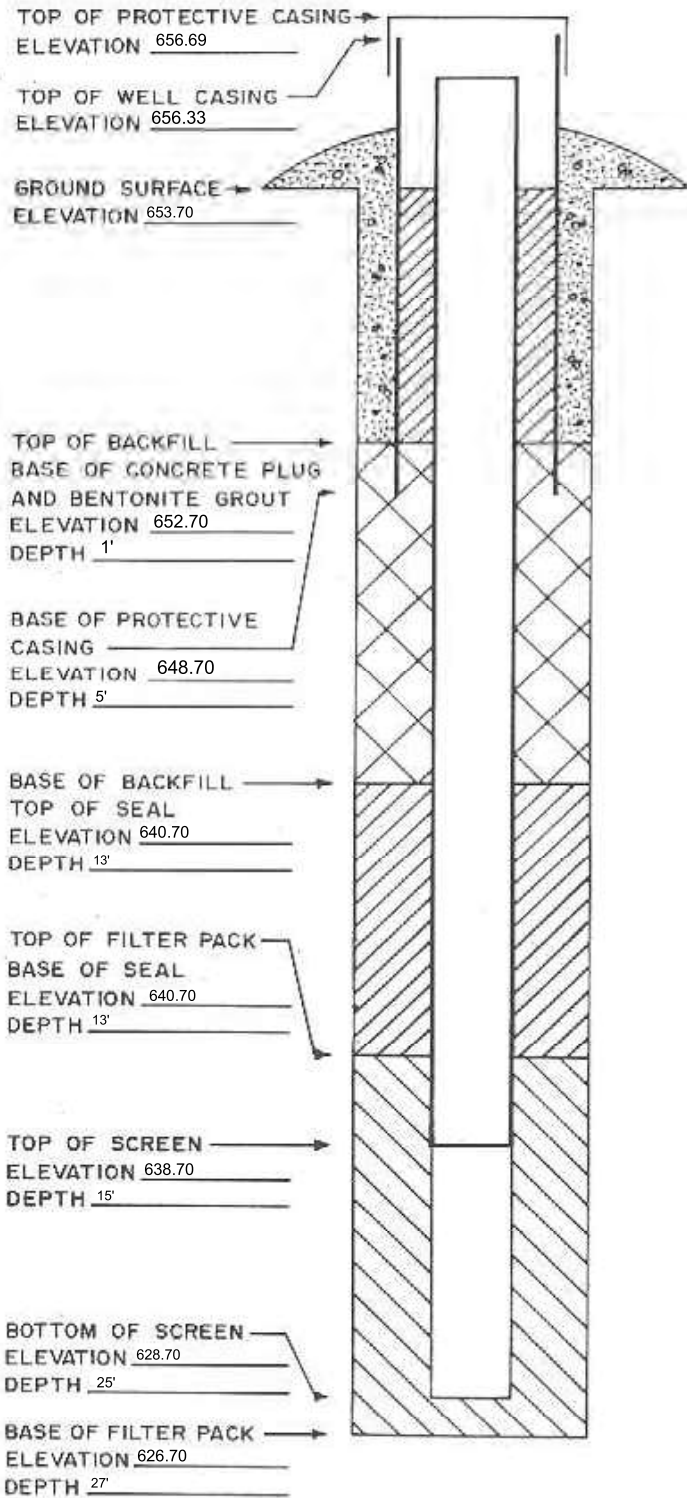
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.


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

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

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

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





Appendix C

Laboratory Reports

C1 Assessment Monitoring, October 2022

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison Wisconsin 53718

JOB DESCRIPTION

Alliant OGS - 25222072 Ash Pond MNA

JOB NUMBER

310-243395-1



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	8
Definitions	19
QC Sample Results	20
QC Association	23
Chronicle	25
Certification Summary	28
Method Summary	29
Chain of Custody	30
Receipt Checklists	33
Appendix	34

Case Narrative

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Job ID: 310-243395-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-243395-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 11/10/2022. The report (revision 1) is being revised due to: Updated incorrect Sample Dates per COC.

Receipt

The samples were received on 10/27/2022 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4° C.

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.

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

Sample Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-243395-1	MW-302	Water	10/26/22 10:50	10/27/22 17:00
310-243395-3	MW-304	Water	10/26/22 12:30	10/27/22 17:00
310-243395-4	MW-305	Water	10/25/22 14:10	10/27/22 17:00
310-243395-5	MW-305A	Water	10/26/22 13:00	10/27/22 17:00
310-243395-6	MW-306	Water	10/25/22 15:05	10/27/22 17:00
310-243395-7	MW-310	Water	10/25/22 13:40	10/27/22 17:00
310-243395-8	MW-310A	Water	10/26/22 13:30	10/27/22 17:00
310-243395-9	MW-311	Water	10/26/22 15:40	10/27/22 17:00
310-243395-10	MW-311A	Water	10/26/22 15:30	10/27/22 17:00
310-243395-11	MW-312	Water	10/25/22 17:10	10/27/22 17:00
310-243395-12	MW-313	Water	10/25/22 15:25	10/27/22 17:00

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Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-302

Lab Sample ID: 310-243395-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	80	J	100	36	ug/L	1		6020B	Total/NA
Magnesium	43000		500	150	ug/L	1		6020B	Total/NA
Manganese	90		10	3.6	ug/L	1		6020B	Total/NA
Potassium	1500		500	150	ug/L	1		6020B	Total/NA
Sodium	210000		1000	610	ug/L	1		6020B	Total/NA
Iron	49	J	100	36	ug/L	1		6020B	Dissolved
Manganese	91		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	87		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	87		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-243395-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	4700		100	36	ug/L	1		6020B	Total/NA
Magnesium	34000		500	150	ug/L	1		6020B	Total/NA
Manganese	3600		10	3.6	ug/L	1		6020B	Total/NA
Potassium	6700		500	150	ug/L	1		6020B	Total/NA
Sodium	180000		1000	610	ug/L	1		6020B	Total/NA
Iron	5500		100	36	ug/L	1		6020B	Dissolved
Manganese	4100		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	390		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	390		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-243395-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	76	J	100	36	ug/L	1		6020B	Total/NA
Magnesium	40000		500	150	ug/L	1		6020B	Total/NA
Manganese	3200		10	3.6	ug/L	1		6020B	Total/NA
Potassium	6800		500	150	ug/L	1		6020B	Total/NA
Sodium	150000		1000	610	ug/L	1		6020B	Total/NA
Cobalt	21		0.50	0.19	ug/L	1		6020B	Dissolved
Iron	66	J	100	36	ug/L	1		6020B	Dissolved
Manganese	3800		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	440		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	440		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-305A

Lab Sample ID: 310-243395-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	42	J	100	36	ug/L	1		6020B	Total/NA
Magnesium	24000		500	150	ug/L	1		6020B	Total/NA
Manganese	120		10	3.6	ug/L	1		6020B	Total/NA
Potassium	3400		500	150	ug/L	1		6020B	Total/NA
Sodium	42000		1000	610	ug/L	1		6020B	Total/NA
Manganese	140		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	300		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	300		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-243395-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	100		100	36	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-306 (Continued)

Lab Sample ID: 310-243395-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	33000		500	150	ug/L	1		6020B	Total/NA
Manganese	27000		100	36	ug/L	10		6020B	Total/NA
Potassium	4900		500	150	ug/L	1		6020B	Total/NA
Sodium	150000		1000	610	ug/L	1		6020B	Total/NA
Cobalt	8.2		0.50	0.19	ug/L	1		6020B	Dissolved
Iron	72	J	100	36	ug/L	1		6020B	Dissolved
Manganese	30000		100	36	ug/L	10		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	370		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	370		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-310

Lab Sample ID: 310-243395-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	57000		500	150	ug/L	1		6020B	Total/NA
Manganese	1100		10	3.6	ug/L	1		6020B	Total/NA
Potassium	12000		500	150	ug/L	1		6020B	Total/NA
Sodium	93000		1000	610	ug/L	1		6020B	Total/NA
Lithium	45		10	2.5	ug/L	1		6020B	Dissolved
Manganese	1300		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	250		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	250		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-310A

Lab Sample ID: 310-243395-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	96	J	100	36	ug/L	1		6020B	Total/NA
Magnesium	32000		500	150	ug/L	1		6020B	Total/NA
Manganese	24		10	3.6	ug/L	1		6020B	Total/NA
Potassium	8600		500	150	ug/L	1		6020B	Total/NA
Sodium	620000		10000	6100	ug/L	10		6020B	Total/NA
Iron	52	J	100	36	ug/L	1		6020B	Dissolved
Lithium	270		10	2.5	ug/L	1		6020B	Dissolved
Manganese	43		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	350		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	350		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-311

Lab Sample ID: 310-243395-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	27000		500	150	ug/L	1		6020B	Total/NA
Manganese	7.4	J	10	3.6	ug/L	1		6020B	Total/NA
Potassium	740		500	150	ug/L	1		6020B	Total/NA
Sodium	4800		1000	610	ug/L	1		6020B	Total/NA
Manganese	8.7	J	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	490		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	490		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-311A

Lab Sample ID: 310-243395-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	18000		500	150	ug/L	1		6020B	Total/NA
Manganese	9.4	J	10	3.6	ug/L	1		6020B	Total/NA
Potassium	7800		500	150	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-311A (Continued)

Lab Sample ID: 310-243395-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	720000		10000	6100	ug/L	10		6020B	Total/NA
Lithium	280		10	2.5	ug/L	1		6020B	Dissolved
Manganese	7.0	J	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	380		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	380		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-312

Lab Sample ID: 310-243395-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	260		100	36	ug/L	1		6020B	Total/NA
Magnesium	52000		500	150	ug/L	1		6020B	Total/NA
Manganese	1000		10	3.6	ug/L	1		6020B	Total/NA
Potassium	4800		500	150	ug/L	1		6020B	Total/NA
Sodium	130000		1000	610	ug/L	1		6020B	Total/NA
Iron	250		100	36	ug/L	1		6020B	Dissolved
Lithium	41		10	2.5	ug/L	1		6020B	Dissolved
Manganese	1200		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	230		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	230		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-313

Lab Sample ID: 310-243395-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	1100		100	36	ug/L	1		6020B	Total/NA
Magnesium	49000		500	150	ug/L	1		6020B	Total/NA
Manganese	2600		10	3.6	ug/L	1		6020B	Total/NA
Potassium	4300		500	150	ug/L	1		6020B	Total/NA
Sodium	100000		1000	610	ug/L	1		6020B	Total/NA
Iron	950		100	36	ug/L	1		6020B	Dissolved
Lithium	32		10	2.5	ug/L	1		6020B	Dissolved
Manganese	3100		10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	290		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	290		10	4.6	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-302
 Date Collected: 10/26/22 10:50
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-1
 Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	80	J	100	36	ug/L		10/31/22 09:45	11/04/22 19:22	1
Magnesium	43000		500	150	ug/L		10/31/22 09:45	11/04/22 19:22	1
Manganese	90		10	3.6	ug/L		10/31/22 09:45	11/04/22 19:22	1
Potassium	1500		500	150	ug/L		10/31/22 09:45	11/04/22 19:22	1
Sodium	210000		1000	610	ug/L		10/31/22 09:45	11/04/22 19:22	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	49	J	100	36	ug/L		10/31/22 09:45	11/07/22 19:48	1
Manganese	91		10	3.6	ug/L		10/31/22 09:45	11/07/22 19:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	87		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	87		10	4.6	mg/L			11/08/22 11:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-304

Lab Sample ID: 310-243395-3

Date Collected: 10/26/22 12:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	4700		100	36	ug/L		10/31/22 09:45	11/04/22 19:38	1
Magnesium	34000		500	150	ug/L		10/31/22 09:45	11/04/22 19:38	1
Manganese	3600		10	3.6	ug/L		10/31/22 09:45	11/04/22 19:38	1
Potassium	6700		500	150	ug/L		10/31/22 09:45	11/04/22 19:38	1
Sodium	180000		1000	610	ug/L		10/31/22 09:45	11/04/22 19:38	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	5500		100	36	ug/L		10/31/22 09:45	11/07/22 19:57	1
Manganese	4100		10	3.6	ug/L		10/31/22 09:45	11/07/22 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	390		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	390		10	4.6	mg/L			11/08/22 11:10	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-305

Lab Sample ID: 310-243395-4

Date Collected: 10/25/22 14:10

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	76	J	100	36	ug/L		10/31/22 09:45	11/04/22 19:41	1
Magnesium	40000		500	150	ug/L		10/31/22 09:45	11/04/22 19:41	1
Manganese	3200		10	3.6	ug/L		10/31/22 09:45	11/04/22 19:41	1
Potassium	6800		500	150	ug/L		10/31/22 09:45	11/04/22 19:41	1
Sodium	150000		1000	610	ug/L		10/31/22 09:45	11/04/22 19:41	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	21		0.50	0.19	ug/L		10/31/22 09:45	11/07/22 20:00	1
Iron	66	J	100	36	ug/L		10/31/22 09:45	11/07/22 20:00	1
Manganese	3800		10	3.6	ug/L		10/31/22 09:45	11/07/22 20:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	440		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	440		10	4.6	mg/L			11/08/22 11:10	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-305A

Lab Sample ID: 310-243395-5

Date Collected: 10/26/22 13:00

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	42	J	100	36	ug/L		10/31/22 09:45	11/04/22 20:06	1
Magnesium	24000		500	150	ug/L		10/31/22 09:45	11/04/22 20:06	1
Manganese	120		10	3.6	ug/L		10/31/22 09:45	11/04/22 20:06	1
Potassium	3400		500	150	ug/L		10/31/22 09:45	11/04/22 20:06	1
Sodium	42000		1000	610	ug/L		10/31/22 09:45	11/04/22 20:06	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 20:03	1
Manganese	140		10	3.6	ug/L		10/31/22 09:45	11/07/22 20:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	300		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	300		10	4.6	mg/L			11/08/22 11:10	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-306

Lab Sample ID: 310-243395-6

Date Collected: 10/25/22 15:05

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	100		100	36	ug/L		10/31/22 09:45	11/04/22 20:09	1
Magnesium	33000		500	150	ug/L		10/31/22 09:45	11/04/22 20:09	1
Manganese	27000		100	36	ug/L		10/31/22 09:45	11/07/22 17:28	10
Potassium	4900		500	150	ug/L		10/31/22 09:45	11/04/22 20:09	1
Sodium	150000		1000	610	ug/L		10/31/22 09:45	11/04/22 20:09	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	8.2		0.50	0.19	ug/L		10/31/22 09:45	11/07/22 20:06	1
Iron	72	J	100	36	ug/L		10/31/22 09:45	11/07/22 20:06	1
Manganese	30000		100	36	ug/L		10/31/22 09:45	11/08/22 14:04	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	370		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	370		10	4.6	mg/L			11/08/22 11:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-310

Lab Sample ID: 310-243395-7

Date Collected: 10/25/22 13:40

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 20:12	1
Magnesium	57000		500	150	ug/L		10/31/22 09:45	11/04/22 20:12	1
Manganese	1100		10	3.6	ug/L		10/31/22 09:45	11/04/22 20:12	1
Potassium	12000		500	150	ug/L		10/31/22 09:45	11/04/22 20:12	1
Sodium	93000		1000	610	ug/L		10/31/22 09:45	11/04/22 20:12	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 20:10	1
Lithium	45		10	2.5	ug/L		10/31/22 09:45	11/07/22 20:10	1
Manganese	1300		10	3.6	ug/L		10/31/22 09:45	11/07/22 20:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	250		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	250		10	4.6	mg/L			11/08/22 11:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-310A

Lab Sample ID: 310-243395-8

Date Collected: 10/26/22 13:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	96	J	100	36	ug/L		10/31/22 09:45	11/04/22 20:15	1
Magnesium	32000		500	150	ug/L		10/31/22 09:45	11/04/22 20:15	1
Manganese	24		10	3.6	ug/L		10/31/22 09:45	11/04/22 20:15	1
Potassium	8600		500	150	ug/L		10/31/22 09:45	11/04/22 20:15	1
Sodium	620000		10000	6100	ug/L		10/31/22 09:45	11/07/22 17:31	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	52	J	100	36	ug/L		10/31/22 09:45	11/07/22 20:13	1
Lithium	270		10	2.5	ug/L		10/31/22 09:45	11/07/22 20:13	1
Manganese	43		10	3.6	ug/L		10/31/22 09:45	11/07/22 20:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	350		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	350		10	4.6	mg/L			11/08/22 11:10	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-311
 Date Collected: 10/26/22 15:40
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-9
 Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 20:18	1
Magnesium	27000		500	150	ug/L		10/31/22 09:45	11/04/22 20:18	1
Manganese	7.4	J	10	3.6	ug/L		10/31/22 09:45	11/04/22 20:18	1
Potassium	740		500	150	ug/L		10/31/22 09:45	11/04/22 20:18	1
Sodium	4800		1000	610	ug/L		10/31/22 09:45	11/04/22 20:18	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 20:16	1
Manganese	8.7	J	10	3.6	ug/L		10/31/22 09:45	11/07/22 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	490		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	490		10	4.6	mg/L			11/08/22 11:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-311A

Lab Sample ID: 310-243395-10

Date Collected: 10/26/22 15:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 20:22	1
Magnesium	18000		500	150	ug/L		10/31/22 09:45	11/04/22 20:22	1
Manganese	9.4	J	10	3.6	ug/L		10/31/22 09:45	11/04/22 20:22	1
Potassium	7800		500	150	ug/L		10/31/22 09:45	11/04/22 20:22	1
Sodium	720000		10000	6100	ug/L		10/31/22 09:45	11/07/22 17:35	10

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 20:41	1
Lithium	280		10	2.5	ug/L		10/31/22 09:45	11/07/22 20:41	1
Manganese	7.0	J	10	3.6	ug/L		10/31/22 09:45	11/07/22 20:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	380		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	380		10	4.6	mg/L			11/08/22 11:10	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-312

Lab Sample ID: 310-243395-11

Date Collected: 10/25/22 17:10

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	260		100	36	ug/L		10/31/22 09:45	11/04/22 20:25	1
Magnesium	52000		500	150	ug/L		10/31/22 09:45	11/04/22 20:25	1
Manganese	1000		10	3.6	ug/L		10/31/22 09:45	11/04/22 20:25	1
Potassium	4800		500	150	ug/L		10/31/22 09:45	11/04/22 20:25	1
Sodium	130000		1000	610	ug/L		10/31/22 09:45	11/04/22 20:25	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	250		100	36	ug/L		10/31/22 09:45	11/07/22 20:44	1
Lithium	41		10	2.5	ug/L		10/31/22 09:45	11/07/22 20:44	1
Manganese	1200		10	3.6	ug/L		10/31/22 09:45	11/07/22 20:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	230		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	230		10	4.6	mg/L			11/08/22 11:10	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-313
 Date Collected: 10/25/22 15:25
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-12
 Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1100		100	36	ug/L		10/31/22 09:45	11/04/22 20:28	1
Magnesium	49000		500	150	ug/L		10/31/22 09:45	11/04/22 20:28	1
Manganese	2600		10	3.6	ug/L		10/31/22 09:45	11/04/22 20:28	1
Potassium	4300		500	150	ug/L		10/31/22 09:45	11/04/22 20:28	1
Sodium	100000		1000	610	ug/L		10/31/22 09:45	11/04/22 20:28	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	950		100	36	ug/L		10/31/22 09:45	11/07/22 20:47	1
Lithium	32		10	2.5	ug/L		10/31/22 09:45	11/07/22 20:47	1
Manganese	3100		10	3.6	ug/L		10/31/22 09:45	11/07/22 20:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	290		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	290		10	4.6	mg/L			11/08/22 11:10	1

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Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

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.

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-370224/1-A
Matrix: Water
Analysis Batch: 371144

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370224

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 19:16	1
Magnesium	<150		500	150	ug/L		10/31/22 09:45	11/04/22 19:16	1
Manganese	<3.6		10	3.6	ug/L		10/31/22 09:45	11/04/22 19:16	1
Potassium	<150		500	150	ug/L		10/31/22 09:45	11/04/22 19:16	1
Sodium	<610		1000	610	ug/L		10/31/22 09:45	11/04/22 19:16	1

Lab Sample ID: LCS 310-370224/2-A
Matrix: Water
Analysis Batch: 371144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370224

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	2000	1610		ug/L		81	80 - 120
Manganese	100	87.3		ug/L		87	80 - 120
Potassium	2000	1820		ug/L		91	80 - 120
Sodium	2000	1890		ug/L		95	80 - 120

Lab Sample ID: 310-243395-1 MS
Matrix: Water
Analysis Batch: 371144

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 370224

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	43000		2000	44500	4	ug/L		57	75 - 125
Manganese	90		100	176		ug/L		86	75 - 125
Potassium	1500		2000	3490		ug/L		100	75 - 125
Sodium	210000		2000	207000	4	ug/L		-64	75 - 125

Lab Sample ID: 310-243395-1 MSD
Matrix: Water
Analysis Batch: 371144

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 370224

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Magnesium	43000		2000	43300	4	ug/L		-4	75 - 125	3	20
Manganese	90		100	173		ug/L		83	75 - 125	2	20
Potassium	1500		2000	3450		ug/L		98	75 - 125	1	20
Sodium	210000		2000	204000	4	ug/L		-217	75 - 125	1	20

Lab Sample ID: 310-243395-12 DU
Matrix: Water
Analysis Batch: 371144

Client Sample ID: MW-313
Prep Type: Total/NA
Prep Batch: 370224

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Magnesium	49000		48300		ug/L		0.9	20
Manganese	2600		2620		ug/L		1	20
Potassium	4300		4280		ug/L		0.7	20
Sodium	100000		104000		ug/L		0.5	20

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

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

Lab Sample ID: MB 310-370225/1-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370225

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cobalt	<0.19		0.50	0.19	ug/L		10/31/22 09:45	11/07/22 19:17	1
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 19:17	1
Lithium	<2.5		10	2.5	ug/L		10/31/22 09:45	11/07/22 19:17	1
Manganese	<3.6		10	3.6	ug/L		10/31/22 09:45	11/07/22 19:17	1

Lab Sample ID: LCS 310-370225/2-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370225

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	200	228		ug/L		114	80 - 120
Lithium	200	234		ug/L		117	80 - 120
Manganese	100	106		ug/L		106	80 - 120

Lab Sample ID: 310-243395-1 MS
Matrix: Water
Analysis Batch: 371296

Client Sample ID: MW-302
Prep Type: Dissolved
Prep Batch: 370225

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	49	J	200	206		ug/L		78	75 - 125
Lithium	11		200	216		ug/L		102	75 - 125
Manganese	91		100	184		ug/L		93	75 - 125

Lab Sample ID: 310-243395-1 MSD
Matrix: Water
Analysis Batch: 371296

Client Sample ID: MW-302
Prep Type: Dissolved
Prep Batch: 370225

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Iron	49	J	200	214		ug/L		82	75 - 125	4	20
Lithium	11		200	222		ug/L		105	75 - 125	3	20
Manganese	91		100	190		ug/L		98	75 - 125	3	20

Lab Sample ID: 310-243395-12 DU
Matrix: Water
Analysis Batch: 371296

Client Sample ID: MW-313
Prep Type: Dissolved
Prep Batch: 370225

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Iron	950		946		ug/L		0.2	20
Lithium	32		30.7		ug/L		3	20
Manganese	3100		3030		ug/L		1	20

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-371321/1
Matrix: Water
Analysis Batch: 371321

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			11/08/22 11:10	1

Lab Sample ID: LCS 310-371321/2
Matrix: Water
Analysis Batch: 371321

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	1000	1020		mg/L		102	90 - 110

Lab Sample ID: 310-243395-1 MS
Matrix: Water
Analysis Batch: 371321

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	87		200	261		mg/L		87	71 - 130

Lab Sample ID: 310-243395-1 MSD
Matrix: Water
Analysis Batch: 371321

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Alkalinity as CaCO3	87		200	261		mg/L		87	71 - 130	0	10

QC Association Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Metals

Prep Batch: 370224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-1	MW-302	Total/NA	Water	3005A	
310-243395-3	MW-304	Total/NA	Water	3005A	
310-243395-4	MW-305	Total/NA	Water	3005A	
310-243395-5	MW-305A	Total/NA	Water	3005A	
310-243395-6	MW-306	Total/NA	Water	3005A	
310-243395-7	MW-310	Total/NA	Water	3005A	
310-243395-8	MW-310A	Total/NA	Water	3005A	
310-243395-9	MW-311	Total/NA	Water	3005A	
310-243395-10	MW-311A	Total/NA	Water	3005A	
310-243395-11	MW-312	Total/NA	Water	3005A	
310-243395-12	MW-313	Total/NA	Water	3005A	
MB 310-370224/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-370224/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-243395-1 MS	MW-302	Total/NA	Water	3005A	
310-243395-1 MSD	MW-302	Total/NA	Water	3005A	
310-243395-12 DU	MW-313	Total/NA	Water	3005A	

Prep Batch: 370225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-1	MW-302	Dissolved	Water	3005A	
310-243395-3	MW-304	Dissolved	Water	3005A	
310-243395-4	MW-305	Dissolved	Water	3005A	
310-243395-5	MW-305A	Dissolved	Water	3005A	
310-243395-6	MW-306	Dissolved	Water	3005A	
310-243395-7	MW-310	Dissolved	Water	3005A	
310-243395-8	MW-310A	Dissolved	Water	3005A	
310-243395-9	MW-311	Dissolved	Water	3005A	
310-243395-10	MW-311A	Dissolved	Water	3005A	
310-243395-11	MW-312	Dissolved	Water	3005A	
310-243395-12	MW-313	Dissolved	Water	3005A	
MB 310-370225/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-370225/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-243395-1 MS	MW-302	Dissolved	Water	3005A	
310-243395-1 MSD	MW-302	Dissolved	Water	3005A	
310-243395-12 DU	MW-313	Dissolved	Water	3005A	

Analysis Batch: 371144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-1	MW-302	Total/NA	Water	6020B	370224
310-243395-3	MW-304	Total/NA	Water	6020B	370224
310-243395-4	MW-305	Total/NA	Water	6020B	370224
310-243395-5	MW-305A	Total/NA	Water	6020B	370224
310-243395-6	MW-306	Total/NA	Water	6020B	370224
310-243395-7	MW-310	Total/NA	Water	6020B	370224
310-243395-8	MW-310A	Total/NA	Water	6020B	370224
310-243395-9	MW-311	Total/NA	Water	6020B	370224
310-243395-10	MW-311A	Total/NA	Water	6020B	370224
310-243395-11	MW-312	Total/NA	Water	6020B	370224
310-243395-12	MW-313	Total/NA	Water	6020B	370224
MB 310-370224/1-A	Method Blank	Total/NA	Water	6020B	370224
LCS 310-370224/2-A	Lab Control Sample	Total/NA	Water	6020B	370224

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QC Association Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Metals (Continued)

Analysis Batch: 371144 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-1 MS	MW-302	Total/NA	Water	6020B	370224
310-243395-1 MSD	MW-302	Total/NA	Water	6020B	370224
310-243395-12 DU	MW-313	Total/NA	Water	6020B	370224

Analysis Batch: 371296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-1	MW-302	Dissolved	Water	6020B	370225
310-243395-3	MW-304	Dissolved	Water	6020B	370225
310-243395-4	MW-305	Dissolved	Water	6020B	370225
310-243395-5	MW-305A	Dissolved	Water	6020B	370225
310-243395-6	MW-306	Dissolved	Water	6020B	370225
310-243395-6	MW-306	Total/NA	Water	6020B	370224
310-243395-7	MW-310	Dissolved	Water	6020B	370225
310-243395-8	MW-310A	Dissolved	Water	6020B	370225
310-243395-8	MW-310A	Total/NA	Water	6020B	370224
310-243395-9	MW-311	Dissolved	Water	6020B	370225
310-243395-10	MW-311A	Dissolved	Water	6020B	370225
310-243395-10	MW-311A	Total/NA	Water	6020B	370224
310-243395-11	MW-312	Dissolved	Water	6020B	370225
310-243395-12	MW-313	Dissolved	Water	6020B	370225
MB 310-370225/1-A	Method Blank	Total/NA	Water	6020B	370225
LCS 310-370225/2-A	Lab Control Sample	Total/NA	Water	6020B	370225
310-243395-1 MS	MW-302	Dissolved	Water	6020B	370225
310-243395-1 MSD	MW-302	Dissolved	Water	6020B	370225
310-243395-12 DU	MW-313	Dissolved	Water	6020B	370225

Analysis Batch: 371391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-6	MW-306	Dissolved	Water	6020B	370225

General Chemistry

Analysis Batch: 371321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243395-1	MW-302	Total/NA	Water	SM 2320B	
310-243395-3	MW-304	Total/NA	Water	SM 2320B	
310-243395-4	MW-305	Total/NA	Water	SM 2320B	
310-243395-5	MW-305A	Total/NA	Water	SM 2320B	
310-243395-6	MW-306	Total/NA	Water	SM 2320B	
310-243395-7	MW-310	Total/NA	Water	SM 2320B	
310-243395-8	MW-310A	Total/NA	Water	SM 2320B	
310-243395-9	MW-311	Total/NA	Water	SM 2320B	
310-243395-10	MW-311A	Total/NA	Water	SM 2320B	
310-243395-11	MW-312	Total/NA	Water	SM 2320B	
310-243395-12	MW-313	Total/NA	Water	SM 2320B	
MB 310-371321/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-371321/2	Lab Control Sample	Total/NA	Water	SM 2320B	
310-243395-1 MS	MW-302	Total/NA	Water	SM 2320B	
310-243395-1 MSD	MW-302	Total/NA	Water	SM 2320B	

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Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-302

Date Collected: 10/26/22 10:50

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 19:48
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 19:22
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-304

Date Collected: 10/26/22 12:30

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 19:57
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 19:38
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-305

Date Collected: 10/25/22 14:10

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:00
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 19:41
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-305A

Date Collected: 10/26/22 13:00

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:03
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:06
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-306
Date Collected: 10/25/22 15:05
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		10	371391	A6US	EET CF	11/08/22 14:04
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:06
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:09
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		10	371296	A6US	EET CF	11/07/22 17:28
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-310
Date Collected: 10/25/22 13:40
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:10
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:12
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-310A
Date Collected: 10/26/22 13:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:13
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:15
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		10	371296	A6US	EET CF	11/07/22 17:31
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-311
Date Collected: 10/26/22 15:40
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243395-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:16
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:18
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Client Sample ID: MW-311A

Lab Sample ID: 310-243395-10

Date Collected: 10/26/22 15:30

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:41
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:22
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		10	371296	A6US	EET CF	11/07/22 17:35
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-312

Lab Sample ID: 310-243395-11

Date Collected: 10/25/22 17:10

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:44
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:25
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: MW-313

Lab Sample ID: 310-243395-12

Date Collected: 10/25/22 15:25

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 20:47
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:28
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

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Method Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond MNA

Job ID: 310-243395-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2320B	Alkalinity	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

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:

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





Environment Testing
America



Cooler/Sample Receipt and Temperature Log Form

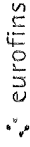
Client Information			
Client: <u>SCS</u>			
City/State:	<u>Milwaukee</u>	STATE: <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE: <u>10/27/22</u>	TIME: <u>17:00</u>	Received By: <u>EH</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input 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>R</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>1.4</u>	Corrected Temp (°C):	<u>1.4</u>
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information		Lab PM Fredrick, Sandie		Carrier Tracking No(s):		COC No: 310-75004-17488 1	
Client Contact: Meghan Bloodgett		E-Mail Sandra.Fredrick@st.eurofins.com		State of Origin:		Page: Page 1 of 2	
Company: SCS Engineers		PWSID:		Analysis Requested		Job #:	
Address: 2830 Dairy Drive		Due Date Requested:		Field Filtered Sample (Yes or No)		Preservation Codes:	
City: Madison		TAT Requested (days)		Perform MS/MSD (Yes or No)		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Nitric Acid R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
State Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2220B Alkalinity/Carb/Bicarb		6020A - Metals (5)	
Phone: 25222072		PO #: 25222072		6020A D Metals (2-4)		Total Number of containers	
Email: mblodgett@scsengineers.com		WO #		N D		Special Instructions/Note	
Project Name: Alliant OGS - 25222072 (Additional) 2		Project #: 31011020		X		250 mL FOR ALK.	
Site:		SSOW#:		X			
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
MW-302		10/26		1050		Water	
MW-303						Water	
MW-304		10/26		1230		Water	
MW-305		10/25		1410		Water	
MW-305A		10/26		1300		Water	
MW-306		10/25		1505		Water	
MW-310		10/25		1340		Water	
MW-310A		10/26		1330		Water	
MW-311		10/26		1540		Water	
MW-311A		10/26		1530		Water	
MW-312		10/25		1710		Water	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested I II III IV Other (specify)		Empty Kit Relinquished by:		Special Instructions/QC Requirements		Method of Shipment:	
Relinquished by: <i>Sean Marczewski</i>		Date: 10/27 1200		Received by: <i>ML</i>		Date/Time: 10-27-22 1700	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:			



Chain of Custody Record



Client Information Client Contact: Meghan Blodgett Company: SCS Engineers Address: 2830 Dairy Drive City: Madison State/Zip: WI 53718 Phone: 25222072 Email: mblodgett@scsengineers.com Project Name: Alliant OGS - 25222072 (Additional) 2 Site	Sampler: Ryan Matzduk Phone: 608-400-9597 Lab P/N: Fredrick, Sandie E-Mail: Sandra.Fredrick@et.eurofins.com	Carrier Tracking No(s): 310-75004-17488 2 State of Origin: Page 2 of 2 Job #:	Analysis Requested
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: 25222072 WO #: Project #: 31011020 SSO#: Matrix (W=water, S=solid, O=wastefoil, BT=Tissue, A=Air) Sample Type (C=comp, G=grab): Sample Time: Sample Date: 01/25 Preservation Code: C Matrix: Water Sample Type: C Preservation Code: C Matrix: Water		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 230B Alkalinity/Carb/Bicarb <input checked="" type="checkbox"/> 6020A Metals (5) <input checked="" type="checkbox"/> 6020A D Metals (2-4) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Total Number of Containers: <input checked="" type="checkbox"/>	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by Relinquished by: Sean Matzduk Date/Time: 10/27 1200 Company: SCS		Method of Shipment: Date/Time: 10/27-22 1700 Company:	
Relinquished by: Sean Matzduk Date/Time: 10/27 1200 Company: SCS		Relinquished by: Date/Time: Company:	
Relinquished by: Date/Time: Company:		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243395-1

Login Number: 243395

List Number: 1

Creator: Muehling, Angela C

List Source: Eurofins Cedar Falls

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



Eurofins Cedar Falls

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the {0} Project Manager.

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Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Generated 11/28/2022 7:03:13 PM Revision 2

JOB DESCRIPTION

Alliant OGS - 25222072 Ash Pond

JOB NUMBER

310-243393-1

Eurofins Cedar Falls

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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Authorized for release by
Sandie Fredrick, Project Manager II
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(920)261-1660



Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Sample Summary	5
Detection Summary	6
Client Sample Results	11
Definitions	22
QC Sample Results	23
QC Association	29
Chronicle	33
Certification Summary	37
Method Summary	38
Chain of Custody	39
Receipt Checklists	52
Field Data Sheets	53

Case Narrative

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Job ID: 310-243393-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-243393-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 11/10/2022. The report (revision 2) is being revised due to: Client requested Thallium be reanalyzed on sample 2.

Report revision history

Revision 1 - 11/15/2022 - Reason - Client requested Thallium be reanalyzed on sample 2.

Receipt

The samples were received on 10/27/2022 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were -0.8° C and 2.1° C.

HPLC/IC

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MW-311 (310-243393-8), MW-312 (310-243393-10) and MW-313 (310-243393-11). Elevated reporting limits (RLs) are provided.

Methods 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW-302 (310-243393-1), MW-305 (310-243393-3), MW-305A (310-243393-4) and MW-306 (310-243393-5). 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: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-243393-1	MW-302	Water	10/26/22 10:50	10/27/22 17:00
310-243393-2	MW-304	Water	10/26/22 12:30	10/27/22 17:00
310-243393-3	MW-305	Water	10/25/22 14:10	10/27/22 17:00
310-243393-4	MW-305A	Water	10/26/22 13:00	10/27/22 17:00
310-243393-5	MW-306	Water	10/25/22 15:05	10/27/22 17:00
310-243393-6	MW-310	Water	10/25/22 13:40	10/27/22 17:00
310-243393-7	MW-310A	Water	10/26/22 13:30	10/27/22 17:00
310-243393-8	MW-311	Water	10/26/22 15:40	10/27/22 17:00
310-243393-9	MW-311A	Water	10/26/22 15:30	10/27/22 17:00
310-243393-10	MW-312	Water	10/25/22 17:10	10/27/22 17:00
310-243393-11	MW-313	Water	10/25/22 15:25	10/27/22 17:00

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- 3
- 4
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- 6
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- 15

Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-302

Lab Sample ID: 310-243393-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	200		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	920		20	8.0	mg/L	20		9056A	Total/NA
Barium	21		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	1700		100	58	ug/L	1		6020B	Total/NA
Cadmium	0.28		0.10	0.055	ug/L	1		6020B	Total/NA
Calcium	220		0.50	0.19	mg/L	1		6020B	Total/NA
Chromium	8.8		5.0	1.1	ug/L	1		6020B	Total/NA
Cobalt	1.8		0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	11		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	4.9		2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1600		50	26	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	652.95				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-27.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	2.13				mg/L	1		Field Sampling	Total/NA
pH, Field	6.56				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	2051				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.8				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	8.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-243393-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	270		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	1.1		0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	280		5.0	2.0	mg/L	5		9056A	Total/NA
Arsenic	0.96	J	2.0	0.75	ug/L	1		6020B	Total/NA
Barium	85		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	750		100	58	ug/L	1		6020B	Total/NA
Cadmium	0.15		0.10	0.055	ug/L	1		6020B	Total/NA
Calcium	110		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.47	J	0.50	0.19	ug/L	1		6020B	Total/NA
Lead	0.38	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	3.3	J	10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	1.9	J	2.0	1.2	ug/L	1		6020B	Total/NA
Selenium	1.1	J	5.0	0.96	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1200		50	26	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	647.26				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-86.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.00				mg/L	1		Field Sampling	Total/NA
pH, Field	6.77				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1828				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.60				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-243393-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	220		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	190		5.0	2.0	mg/L	5		9056A	Total/NA
Barium	120		2.0	0.88	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-305 (Continued)

Lab Sample ID: 310-243393-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	640		100	58	ug/L	1		6020B	Total/NA
Calcium	99		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	17		0.50	0.19	ug/L	1		6020B	Total/NA
Molybdenum	7.4		2.0	1.2	ug/L	1		6020B	Total/NA
Thallium	0.44	J	1.0	0.26	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1000		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	651.48				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-33.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.35				mg/L	1		Field Sampling	Total/NA
pH, Field	6.76				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1633				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.2				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.59				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305A

Lab Sample ID: 310-243393-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	170		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	160		5.0	2.0	mg/L	5		9056A	Total/NA
Barium	93		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	140		100	58	ug/L	1		6020B	Total/NA
Calcium	150		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	1.7		0.50	0.19	ug/L	1		6020B	Total/NA
Lead	0.32	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	13		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	3.7		2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	690		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	644.38				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-14.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.75				mg/L	1		Field Sampling	Total/NA
pH, Field	7.11				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1127				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.7				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.43				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-243393-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	300		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	86		5.0	2.0	mg/L	5		9056A	Total/NA
Barium	95		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	560		100	58	ug/L	1		6020B	Total/NA
Cadmium	1.1		0.10	0.055	ug/L	1		6020B	Total/NA
Calcium	93		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	7.0		0.50	0.19	ug/L	1		6020B	Total/NA
Molybdenum	12		2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1100		50	26	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	657.11				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-37.7				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-306 (Continued)

Lab Sample ID: 310-243393-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxygen, Dissolved, Client Supplied	0.39				mg/L	1		Field Sampling	Total/NA
pH, Field	6.53				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1597				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-310

Lab Sample ID: 310-243393-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	140		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	0.80		0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	480		5.0	2.0	mg/L	5		9056A	Total/NA
Barium	78		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	340		100	58	ug/L	1		6020B	Total/NA
Cadmium	0.24		0.10	0.055	ug/L	1		6020B	Total/NA
Calcium	150		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.75		0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	36		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	24		2.0	1.2	ug/L	1		6020B	Total/NA
Selenium	2.6	J	5.0	0.96	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1200		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	638.55				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	113.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.03				mg/L	1		Field Sampling	Total/NA
pH, Field	6.70				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1856				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.3				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.73				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-310A

Lab Sample ID: 310-243393-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	120		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	2.0		0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	1200		20	8.0	mg/L	20		9056A	Total/NA
Barium	13		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	1500		100	58	ug/L	1		6020B	Total/NA
Calcium	69		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.56		0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	230		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	1.4	J	2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	2200		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	639.49				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	81.2				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.24				mg/L	1		Field Sampling	Total/NA
pH, Field	7.64				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	2964				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.2				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.85				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-311

Lab Sample ID: 310-243393-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	17		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	76		5.0	2.0	mg/L	5		9056A	Total/NA
Barium	200		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	75	J	100	58	ug/L	1		6020B	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020B	Total/NA
Lithium	4.4	J	10	2.5	ug/L	1		6020B	Total/NA
Selenium	1.3	J	5.0	0.96	ug/L	1		6020B	Total/NA
Total Dissolved Solids	550		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	638.46				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	52.8				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.68				mg/L	1		Field Sampling	Total/NA
pH, Field	6.61				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	846				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.6				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.84				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-311A

Lab Sample ID: 310-243393-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	140		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	4.3		0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	1200		20	8.0	mg/L	20		9056A	Total/NA
Antimony	0.83	J	2.0	0.69	ug/L	1		6020B	Total/NA
Barium	12		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	1400		100	58	ug/L	1		6020B	Total/NA
Calcium	46		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.60		0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	230		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	2.2		2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	2300		50	26	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	640.27				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-21.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.68				mg/L	1		Field Sampling	Total/NA
pH, Field	7.80				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	3022				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	5.88				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-312

Lab Sample ID: 310-243393-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	170		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	0.38	J	0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	610		20	8.0	mg/L	20		9056A	Total/NA
Arsenic	2.8		2.0	0.75	ug/L	1		6020B	Total/NA
Barium	45		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	580		100	58	ug/L	1		6020B	Total/NA
Calcium	160		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	11		0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	35		10	2.5	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-312 (Continued)

Lab Sample ID: 310-243393-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	1.4	J	2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1300		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	639.64				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	11.3				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.00				mg/L	1		Field Sampling	Total/NA
pH, Field	7.10				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1985				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.68				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-313

Lab Sample ID: 310-243393-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	170		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	580		20	8.0	mg/L	20		9056A	Total/NA
Arsenic	1.1	J	2.0	0.75	ug/L	1		6020B	Total/NA
Barium	53		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	540		100	58	ug/L	1		6020B	Total/NA
Calcium	170		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	3.8		0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	30		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	5.8		2.0	1.2	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1300		50	26	mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	639.16				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-18.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.22				mg/L	1		Field Sampling	Total/NA
pH, Field	6.95				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1937				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.0				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.75				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-302
 Date Collected: 10/26/22 10:50
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-1
 Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		5.0	2.3	mg/L			11/07/22 23:17	5
Fluoride	<0.22		0.50	0.22	mg/L			11/07/22 23:17	5
Sulfate	920		20	8.0	mg/L			11/08/22 09:13	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 15:20	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 15:20	1
Barium	21		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 15:20	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 15:20	1
Boron	1700		100	58	ug/L		11/02/22 09:50	11/08/22 15:20	1
Cadmium	0.28		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 15:20	1
Calcium	220		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 15:20	1
Chromium	8.8		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 15:20	1
Cobalt	1.8		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 15:20	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 15:20	1
Lithium	11		10	2.5	ug/L		11/02/22 09:50	11/08/22 15:20	1
Molybdenum	4.9		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 15:20	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 15:20	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 15:20	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:53	11/03/22 15:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1600		50	26	mg/L			10/30/22 06:35	1
pH (SM 4500 H+ B)	6.9	HF	0.1	0.1	SU			10/27/22 20:29	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	652.95				ft			10/26/22 10:50	1
Oxidation Reduction Potential	-27.1				millivolts			10/26/22 10:50	1
Oxygen, Dissolved, Client Supplied	2.13				mg/L			10/26/22 10:50	1
pH, Field	6.56				SU			10/26/22 10:50	1
Specific Conductance, Field	2051				umhos/cm			10/26/22 10:50	1
Temperature, Field	12.8				Degrees C			10/26/22 10:50	1
Turbidity, Field	8.02				NTU			10/26/22 10:50	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-304

Lab Sample ID: 310-243393-2

Date Collected: 10/26/22 12:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	270		5.0	2.3	mg/L			11/07/22 23:29	5
Fluoride	1.1		0.50	0.22	mg/L			11/07/22 23:29	5
Sulfate	280		5.0	2.0	mg/L			11/07/22 23:29	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 15:30	1
Arsenic	0.96	J	2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:09	1
Barium	85		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 01:09	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:09	1
Boron	750		100	58	ug/L		11/02/22 09:50	11/08/22 01:09	1
Cadmium	0.15		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:09	1
Calcium	110		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:09	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:09	1
Cobalt	0.47	J	0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:09	1
Lead	0.38	J	0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:09	1
Lithium	3.3	J	10	2.5	ug/L		11/02/22 09:50	11/08/22 15:30	1
Molybdenum	1.9	J	2.0	1.2	ug/L		11/02/22 09:50	11/08/22 15:30	1
Selenium	1.1	J	5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:09	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/28/22 13:21	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:53	11/03/22 15:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1200		50	26	mg/L			10/30/22 06:35	1
pH (SM 4500 H+ B)	7.1	HF	0.1	0.1	SU			10/27/22 20:31	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	647.26				ft			10/26/22 12:30	1
Oxidation Reduction Potential	-86.3				millivolts			10/26/22 12:30	1
Oxygen, Dissolved, Client Supplied	0.00				mg/L			10/26/22 12:30	1
pH, Field	6.77				SU			10/26/22 12:30	1
Specific Conductance, Field	1828				umhos/cm			10/26/22 12:30	1
Temperature, Field	13.5				Degrees C			10/26/22 12:30	1
Turbidity, Field	3.60				NTU			10/26/22 12:30	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-305

Lab Sample ID: 310-243393-3

Date Collected: 10/25/22 14:10

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		5.0	2.3	mg/L			11/07/22 23:42	5
Fluoride	<0.22		0.50	0.22	mg/L			11/07/22 23:42	5
Sulfate	190		5.0	2.0	mg/L			11/07/22 23:42	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 01:13	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:13	1
Barium	120		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 01:13	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:13	1
Boron	640		100	58	ug/L		11/02/22 09:50	11/08/22 01:13	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:13	1
Calcium	99		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:13	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:13	1
Cobalt	17		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:13	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:13	1
Lithium	<2.5		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:13	1
Molybdenum	7.4		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 01:13	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:13	1
Thallium	0.44 J		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:13	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:53	11/03/22 15:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1000		50	26	mg/L			10/30/22 06:35	1
pH (SM 4500 H+ B)	7.3	HF	0.1	0.1	SU			10/27/22 20:32	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	651.48				ft			10/26/22 14:10	1
Oxidation Reduction Potential	-33.0				millivolts			10/26/22 14:10	1
Oxygen, Dissolved, Client Supplied	0.35				mg/L			10/26/22 14:10	1
pH, Field	6.76				SU			10/26/22 14:10	1
Specific Conductance, Field	1633				umhos/cm			10/26/22 14:10	1
Temperature, Field	13.2				Degrees C			10/26/22 14:10	1
Turbidity, Field	2.59				NTU			10/26/22 14:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-305A

Lab Sample ID: 310-243393-4

Date Collected: 10/26/22 13:00

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		5.0	2.3	mg/L			11/07/22 23:55	5
Fluoride	<0.22		0.50	0.22	mg/L			11/07/22 23:55	5
Sulfate	160		5.0	2.0	mg/L			11/07/22 23:55	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 01:16	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:16	1
Barium	93		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 01:16	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:16	1
Boron	140		100	58	ug/L		11/02/22 09:50	11/08/22 01:16	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:16	1
Calcium	150		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:16	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:16	1
Cobalt	1.7		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:16	1
Lead	0.32	J	0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:16	1
Lithium	13		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:16	1
Molybdenum	3.7		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 01:16	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:16	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:16	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:53	11/03/22 15:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	690		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.2	HF	0.1	0.1	SU			10/27/22 20:34	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	644.38				ft			10/26/22 13:00	1
Oxidation Reduction Potential	-14.4				millivolts			10/26/22 13:00	1
Oxygen, Dissolved, Client Supplied	4.75				mg/L			10/26/22 13:00	1
pH, Field	7.11				SU			10/26/22 13:00	1
Specific Conductance, Field	1127				umhos/cm			10/26/22 13:00	1
Temperature, Field	13.7				Degrees C			10/26/22 13:00	1
Turbidity, Field	2.43				NTU			10/26/22 13:00	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-306

Lab Sample ID: 310-243393-5

Date Collected: 10/25/22 15:05

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		5.0	2.3	mg/L			11/08/22 00:08	5
Fluoride	<0.22		0.50	0.22	mg/L			11/08/22 00:08	5
Sulfate	86		5.0	2.0	mg/L			11/08/22 00:08	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 01:19	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:19	1
Barium	95		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 01:19	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:19	1
Boron	560		100	58	ug/L		11/02/22 09:50	11/08/22 01:19	1
Cadmium	1.1		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:19	1
Calcium	93		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:19	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:19	1
Cobalt	7.0		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:19	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:19	1
Lithium	<2.5		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:19	1
Molybdenum	12		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 01:19	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:19	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:19	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/07/22 12:26	11/07/22 16:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1100		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	6.9	HF	0.1	0.1	SU			10/27/22 20:35	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	657.11				ft			10/26/22 15:05	1
Oxidation Reduction Potential	-37.7				millivolts			10/26/22 15:05	1
Oxygen, Dissolved, Client Supplied	0.39				mg/L			10/26/22 15:05	1
pH, Field	6.53				SU			10/26/22 15:05	1
Specific Conductance, Field	1597				umhos/cm			10/26/22 15:05	1
Temperature, Field	13.5				Degrees C			10/26/22 15:05	1
Turbidity, Field	0.00				NTU			10/26/22 15:05	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-310

Lab Sample ID: 310-243393-6

Date Collected: 10/25/22 13:40

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140		5.0	2.3	mg/L			11/08/22 00:21	5
Fluoride	0.80		0.50	0.22	mg/L			11/08/22 00:21	5
Sulfate	480		5.0	2.0	mg/L			11/08/22 00:21	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 01:22	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:22	1
Barium	78		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 01:22	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:22	1
Boron	340		100	58	ug/L		11/02/22 09:50	11/08/22 01:22	1
Cadmium	0.24		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:22	1
Calcium	150		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:22	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:22	1
Cobalt	0.75		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:22	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:22	1
Lithium	36		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:22	1
Molybdenum	24		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 01:22	1
Selenium	2.6 J		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:22	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:22	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:53	11/03/22 15:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1200		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.0	HF	0.1	0.1	SU			10/27/22 20:40	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	638.55				ft			10/26/22 13:40	1
Oxidation Reduction Potential	113.6				millivolts			10/26/22 13:40	1
Oxygen, Dissolved, Client Supplied	0.03				mg/L			10/26/22 13:40	1
pH, Field	6.70				SU			10/26/22 13:40	1
Specific Conductance, Field	1856				umhos/cm			10/26/22 13:40	1
Temperature, Field	13.3				Degrees C			10/26/22 13:40	1
Turbidity, Field	0.73				NTU			10/26/22 13:40	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-310A

Lab Sample ID: 310-243393-7

Date Collected: 10/26/22 13:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120		5.0	2.3	mg/L			11/08/22 00:34	5
Fluoride	2.0		0.50	0.22	mg/L			11/08/22 00:34	5
Sulfate	1200		20	8.0	mg/L			11/08/22 09:26	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 15:33	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:47	1
Barium	13		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 15:33	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:47	1
Boron	1500		100	58	ug/L		11/02/22 09:50	11/08/22 15:33	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:47	1
Calcium	69		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:47	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:47	1
Cobalt	0.56		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:47	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:47	1
Lithium	230		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:47	1
Molybdenum	1.4 J		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 15:33	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:47	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:47	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2200		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.7	HF	0.1	0.1	SU			10/27/22 20:22	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	639.49				ft			10/26/22 13:30	1
Oxidation Reduction Potential	81.2				millivolts			10/26/22 13:30	1
Oxygen, Dissolved, Client Supplied	4.24				mg/L			10/26/22 13:30	1
pH, Field	7.64				SU			10/26/22 13:30	1
Specific Conductance, Field	2964				umhos/cm			10/26/22 13:30	1
Temperature, Field	14.2				Degrees C			10/26/22 13:30	1
Turbidity, Field	3.85				NTU			10/26/22 13:30	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-311

Lab Sample ID: 310-243393-8

Date Collected: 10/26/22 15:40

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17		5.0	2.3	mg/L			11/07/22 14:17	5
Fluoride	<0.22		0.50	0.22	mg/L			11/07/22 14:17	5
Sulfate	76		5.0	2.0	mg/L			11/07/22 14:17	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 01:50	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:50	1
Barium	200		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 15:36	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:50	1
Boron	75 J		100	58	ug/L		11/02/22 09:50	11/08/22 15:36	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:50	1
Calcium	130		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:50	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:50	1
Cobalt	<0.19		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:50	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:50	1
Lithium	4.4 J		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:50	1
Molybdenum	<1.2		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 15:36	1
Selenium	1.3 J		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:50	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:50	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	550		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.0	HF	0.1	0.1	SU			10/27/22 20:43	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	638.46				ft			10/26/22 15:40	1
Oxidation Reduction Potential	52.8				millivolts			10/26/22 15:40	1
Oxygen, Dissolved, Client Supplied	0.68				mg/L			10/26/22 15:40	1
pH, Field	6.61				SU			10/26/22 15:40	1
Specific Conductance, Field	846				umhos/cm			10/26/22 15:40	1
Temperature, Field	14.6				Degrees C			10/26/22 15:40	1
Turbidity, Field	0.84				NTU			10/26/22 15:40	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-311A

Lab Sample ID: 310-243393-9

Date Collected: 10/26/22 15:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140		5.0	2.3	mg/L			11/07/22 14:29	5
Fluoride	4.3		0.50	0.22	mg/L			11/07/22 14:29	5
Sulfate	1200		20	8.0	mg/L			11/07/22 14:41	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.83	J	2.0	0.69	ug/L		11/02/22 09:50	11/08/22 15:39	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:53	1
Barium	12		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 15:39	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:53	1
Boron	1400		100	58	ug/L		11/02/22 09:50	11/08/22 15:39	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:53	1
Calcium	46		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:53	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:53	1
Cobalt	0.60		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:53	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:53	1
Lithium	230		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:53	1
Molybdenum	2.2		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 15:39	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:53	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:53	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2300		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.9	HF	0.1	0.1	SU			10/27/22 20:25	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	640.27				ft			10/26/22 15:30	1
Oxidation Reduction Potential	-21.6				millivolts			10/26/22 15:30	1
Oxygen, Dissolved, Client Supplied	4.68				mg/L			10/26/22 15:30	1
pH, Field	7.80				SU			10/26/22 15:30	1
Specific Conductance, Field	3022				umhos/cm			10/26/22 15:30	1
Temperature, Field	14.1				Degrees C			10/26/22 15:30	1
Turbidity, Field	5.88				NTU			10/26/22 15:30	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-312

Lab Sample ID: 310-243393-10

Date Collected: 10/25/22 17:10

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		5.0	2.3	mg/L			11/07/22 14:55	5
Fluoride	0.38	J	0.50	0.22	mg/L			11/07/22 14:55	5
Sulfate	610		20	8.0	mg/L			11/07/22 15:07	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/09/22 13:05	1
Arsenic	2.8		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 01:57	1
Barium	45		2.0	0.88	ug/L		11/02/22 09:50	11/09/22 13:05	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 01:57	1
Boron	580		100	58	ug/L		11/02/22 09:50	11/09/22 13:05	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 01:57	1
Calcium	160		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 01:57	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 01:57	1
Cobalt	11		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 01:57	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 01:57	1
Lithium	35		10	2.5	ug/L		11/02/22 09:50	11/08/22 01:57	1
Molybdenum	1.4	J	2.0	1.2	ug/L		11/02/22 09:50	11/09/22 13:05	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 01:57	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 01:57	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1300		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.3	HF	0.1	0.1	SU			10/27/22 20:26	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	639.64				ft			10/26/22 17:10	1
Oxidation Reduction Potential	11.3				millivolts			10/26/22 17:10	1
Oxygen, Dissolved, Client Supplied	0.00				mg/L			10/26/22 17:10	1
pH, Field	7.10				SU			10/26/22 17:10	1
Specific Conductance, Field	1985				umhos/cm			10/26/22 17:10	1
Temperature, Field	13.1				Degrees C			10/26/22 17:10	1
Turbidity, Field	1.68				NTU			10/26/22 17:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-313

Lab Sample ID: 310-243393-11

Date Collected: 10/25/22 15:25

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		5.0	2.3	mg/L			11/07/22 15:19	5
Fluoride	<0.22		0.50	0.22	mg/L			11/07/22 15:19	5
Sulfate	580		20	8.0	mg/L			11/07/22 15:31	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 15:42	1
Arsenic	1.1	J	2.0	0.75	ug/L		11/02/22 09:50	11/08/22 02:00	1
Barium	53		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 15:42	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 02:00	1
Boron	540		100	58	ug/L		11/02/22 09:50	11/08/22 15:42	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 02:00	1
Calcium	170		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 02:00	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 02:00	1
Cobalt	3.8		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 02:00	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 02:00	1
Lithium	30		10	2.5	ug/L		11/02/22 09:50	11/08/22 15:42	1
Molybdenum	5.8		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 15:42	1
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 02:00	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 02:00	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1300		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	7.2	HF	0.1	0.1	SU			10/27/22 20:28	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	639.16				ft			10/26/22 15:25	1
Oxidation Reduction Potential	-18.4				millivolts			10/26/22 15:25	1
Oxygen, Dissolved, Client Supplied	0.22				mg/L			10/26/22 15:25	1
pH, Field	6.95				SU			10/26/22 15:25	1
Specific Conductance, Field	1937				umhos/cm			10/26/22 15:25	1
Temperature, Field	14.0				Degrees C			10/26/22 15:25	1
Turbidity, Field	2.75				NTU			10/26/22 15:25	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Qualifiers

HPLC/IC

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

Metals

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

General Chemistry

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-371316/3
Matrix: Water
Analysis Batch: 371316

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			11/07/22 11:15	1
Fluoride	<0.044		0.10	0.044	mg/L			11/07/22 11:15	1
Sulfate	<0.40		1.0	0.40	mg/L			11/07/22 11:15	1

Lab Sample ID: LCS 310-371316/4
Matrix: Water
Analysis Batch: 371316

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	9.90		mg/L		99	90 - 110
Fluoride	2.00	2.10		mg/L		105	90 - 110
Sulfate	10.0	10.4		mg/L		104	90 - 110

Lab Sample ID: MB 310-371382/3
Matrix: Water
Analysis Batch: 371382

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			11/07/22 18:22	1
Fluoride	<0.044		0.10	0.044	mg/L			11/07/22 18:22	1
Sulfate	<0.40		1.0	0.40	mg/L			11/07/22 18:22	1

Lab Sample ID: LCS 310-371382/4
Matrix: Water
Analysis Batch: 371382

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	9.98		mg/L		100	90 - 110
Fluoride	2.00	2.13		mg/L		107	90 - 110
Sulfate	10.0	10.5		mg/L		105	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-370387/1-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		11/02/22 09:50	11/08/22 00:26	1
Arsenic	<0.75		2.0	0.75	ug/L		11/02/22 09:50	11/08/22 00:26	1
Barium	<0.88		2.0	0.88	ug/L		11/02/22 09:50	11/08/22 00:26	1
Beryllium	<0.27		1.0	0.27	ug/L		11/02/22 09:50	11/08/22 00:26	1
Boron	<58		100	58	ug/L		11/02/22 09:50	11/08/22 00:26	1
Cadmium	<0.055		0.10	0.055	ug/L		11/02/22 09:50	11/08/22 00:26	1
Calcium	<0.19		0.50	0.19	mg/L		11/02/22 09:50	11/08/22 00:26	1
Chromium	<1.1		5.0	1.1	ug/L		11/02/22 09:50	11/08/22 00:26	1
Cobalt	<0.19		0.50	0.19	ug/L		11/02/22 09:50	11/08/22 00:26	1
Lead	<0.24		0.50	0.24	ug/L		11/02/22 09:50	11/08/22 00:26	1
Lithium	<2.5		10	2.5	ug/L		11/02/22 09:50	11/08/22 00:26	1
Molybdenum	<1.2		2.0	1.2	ug/L		11/02/22 09:50	11/08/22 00:26	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

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

Lab Sample ID: MB 310-370387/1-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.96		5.0	0.96	ug/L		11/02/22 09:50	11/08/22 00:26	1
Thallium	<0.26		1.0	0.26	ug/L		11/02/22 09:50	11/08/22 00:26	1

Lab Sample ID: LCS 310-370387/2-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	182		ug/L		91	80 - 120
Arsenic	200	177		ug/L		89	80 - 120
Barium	100	100		ug/L		100	80 - 120
Beryllium	100	87.3		ug/L		87	80 - 120
Boron	200	179		ug/L		89	80 - 120
Cadmium	100	88.4		ug/L		88	80 - 120
Calcium	2.00	1.73		mg/L		87	80 - 120
Chromium	100	87.8		ug/L		88	80 - 120
Cobalt	100	87.2		ug/L		87	80 - 120
Lead	200	190		ug/L		95	80 - 120
Lithium	200	185		ug/L		92	80 - 120
Molybdenum	200	201		ug/L		100	80 - 120
Selenium	400	347		ug/L		87	80 - 120
Thallium	200	163		ug/L		82	80 - 120

Lab Sample ID: 310-243393-1 MS
Matrix: Water
Analysis Batch: 371394

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 370387

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.69		200	236		ug/L		118	75 - 125
Arsenic	<0.75		200	215		ug/L		107	75 - 125
Barium	21		100	132		ug/L		111	75 - 125
Beryllium	<0.27		100	114		ug/L		114	75 - 125
Boron	1700		200	1880	4	ug/L		66	75 - 125
Cadmium	0.28		100	108		ug/L		108	75 - 125
Calcium	220		2.00	205	4	mg/L		-565	75 - 125
Chromium	8.8		100	111		ug/L		102	75 - 125
Cobalt	1.8		100	99.6		ug/L		98	75 - 125
Lead	<0.24		200	213		ug/L		106	75 - 125
Lithium	11		200	214		ug/L		101	75 - 125
Molybdenum	4.9		200	230		ug/L		113	75 - 125
Selenium	<0.96		400	432		ug/L		108	75 - 125
Thallium	<0.26		200	217		ug/L		108	75 - 125

Lab Sample ID: 310-243393-1 MSD
Matrix: Water
Analysis Batch: 371394

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 370387

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.69		200	242		ug/L		121	75 - 125	3	20

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

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

Lab Sample ID: 310-243393-1 MSD
Matrix: Water
Analysis Batch: 371394

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 370387

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits	Limit	
Arsenic	<0.75		200	217		ug/L		109	75 - 125	1	20
Barium	21		100	136		ug/L		114	75 - 125	3	20
Beryllium	<0.27		100	115		ug/L		115	75 - 125	1	20
Boron	1700		200	1890	4	ug/L		72	75 - 125	1	20
Cadmium	0.28		100	111		ug/L		111	75 - 125	3	20
Calcium	220		2.00	204	4	mg/L		-630	75 - 125	1	20
Chromium	8.8		100	111		ug/L		102	75 - 125	0	20
Cobalt	1.8		100	101		ug/L		99	75 - 125	2	20
Lead	<0.24		200	216		ug/L		108	75 - 125	2	20
Lithium	11		200	215		ug/L		102	75 - 125	1	20
Molybdenum	4.9		200	235		ug/L		115	75 - 125	2	20
Selenium	<0.96		400	439		ug/L		110	75 - 125	2	20
Thallium	<0.26		200	221		ug/L		111	75 - 125	2	20

Lab Sample ID: 310-243393-11 DU
Matrix: Water
Analysis Batch: 371296

Client Sample ID: MW-313
Prep Type: Total/NA
Prep Batch: 370387

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Antimony	<0.69		<0.69		ug/L		NC	20
Arsenic	1.1	J	1.03	J	ug/L		4	20
Beryllium	<0.27		<0.27		ug/L		NC	20
Cadmium	<0.055		<0.055		ug/L		NC	20
Calcium	170		169		mg/L		1	20
Chromium	<1.1		<1.1		ug/L		NC	20
Cobalt	3.8		3.68		ug/L		3	20
Lead	<0.24		<0.24		ug/L		NC	20
Selenium	<0.96		<0.96		ug/L		NC	20
Thallium	<0.26		<0.26		ug/L		NC	20

Lab Sample ID: 310-243393-11 DU
Matrix: Water
Analysis Batch: 371394

Client Sample ID: MW-313
Prep Type: Total/NA
Prep Batch: 370387

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Antimony	<0.69		<0.69		ug/L		NC	20
Barium	53		56.3		ug/L		6	20
Boron	540		556		ug/L		2	20
Lithium	30		31.4		ug/L		3	20
Molybdenum	5.8		5.97		ug/L		3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-370679/1-A
Matrix: Water
Analysis Batch: 370843

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370679

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:53	11/03/22 14:30	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

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

Lab Sample ID: LCS 310-370679/2-A
Matrix: Water
Analysis Batch: 370843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370679

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.74		ug/L		105	80 - 120

Lab Sample ID: MB 310-370680/1-A
Matrix: Water
Analysis Batch: 370843

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370680

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:30	1

Lab Sample ID: LCS 310-370680/2-A
Matrix: Water
Analysis Batch: 370843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370680

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.52		ug/L		91	80 - 120

Lab Sample ID: 310-243393-7 MS
Matrix: Water
Analysis Batch: 370843

Client Sample ID: MW-310A
Prep Type: Total/NA
Prep Batch: 370680

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.11		1.67	1.83		ug/L		110	80 - 120

Lab Sample ID: 310-243393-7 MSD
Matrix: Water
Analysis Batch: 370843

Client Sample ID: MW-310A
Prep Type: Total/NA
Prep Batch: 370680

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.11		1.67	1.77		ug/L		106	80 - 120	3	20

Lab Sample ID: MB 310-371190/1-A
Matrix: Water
Analysis Batch: 371245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 371190

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/07/22 12:25	11/07/22 16:11	1

Lab Sample ID: LCS 310-371190/2-A
Matrix: Water
Analysis Batch: 371245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371190

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.77		ug/L		106	80 - 120

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

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

Lab Sample ID: MB 310-370266/1
Matrix: Water
Analysis Batch: 370266

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		50	26	mg/L			10/30/22 05:24	1

Lab Sample ID: LCS 310-370266/2
Matrix: Water
Analysis Batch: 370266

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	960		mg/L		96	90 - 110

Lab Sample ID: MB 310-370267/1
Matrix: Water
Analysis Batch: 370267

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		50	26	mg/L			10/30/22 06:35	1

Lab Sample ID: LCS 310-370267/2
Matrix: Water
Analysis Batch: 370267

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	994		mg/L		99	90 - 110

Lab Sample ID: 310-243393-3 DU
Matrix: Water
Analysis Batch: 370267

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1000		1030		mg/L		1	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-370088/1
Matrix: Water
Analysis Batch: 370088

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	7.1		SU		101	98 - 102

Lab Sample ID: 310-243393-6 DU
Matrix: Water
Analysis Batch: 370088

Client Sample ID: MW-310
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.0	HF	7.0		SU		0.7	20

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QC Sample Results

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 310-243393-7 DU
Matrix: Water
Analysis Batch: 370088

Client Sample ID: MW-310A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.7	HF	7.6		SU		0.5	20

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

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

HPLC/IC

Analysis Batch: 371316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-8	MW-311	Total/NA	Water	9056A	
310-243393-9	MW-311A	Total/NA	Water	9056A	
310-243393-9	MW-311A	Total/NA	Water	9056A	
310-243393-10	MW-312	Total/NA	Water	9056A	
310-243393-10	MW-312	Total/NA	Water	9056A	
310-243393-11	MW-313	Total/NA	Water	9056A	
310-243393-11	MW-313	Total/NA	Water	9056A	
MB 310-371316/3	Method Blank	Total/NA	Water	9056A	
LCS 310-371316/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 371382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	9056A	
310-243393-1	MW-302	Total/NA	Water	9056A	
310-243393-2	MW-304	Total/NA	Water	9056A	
310-243393-3	MW-305	Total/NA	Water	9056A	
310-243393-4	MW-305A	Total/NA	Water	9056A	
310-243393-5	MW-306	Total/NA	Water	9056A	
310-243393-6	MW-310	Total/NA	Water	9056A	
310-243393-7	MW-310A	Total/NA	Water	9056A	
310-243393-7	MW-310A	Total/NA	Water	9056A	
MB 310-371382/3	Method Blank	Total/NA	Water	9056A	
LCS 310-371382/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 370387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	3005A	
310-243393-2	MW-304	Total/NA	Water	3005A	
310-243393-3	MW-305	Total/NA	Water	3005A	
310-243393-4	MW-305A	Total/NA	Water	3005A	
310-243393-5	MW-306	Total/NA	Water	3005A	
310-243393-6	MW-310	Total/NA	Water	3005A	
310-243393-7	MW-310A	Total/NA	Water	3005A	
310-243393-8	MW-311	Total/NA	Water	3005A	
310-243393-9	MW-311A	Total/NA	Water	3005A	
310-243393-10	MW-312	Total/NA	Water	3005A	
310-243393-11	MW-313	Total/NA	Water	3005A	
MB 310-370387/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-370387/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-243393-1 MS	MW-302	Total/NA	Water	3005A	
310-243393-1 MSD	MW-302	Total/NA	Water	3005A	
310-243393-11 DU	MW-313	Total/NA	Water	3005A	

Prep Batch: 370679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	7470A	
310-243393-2	MW-304	Total/NA	Water	7470A	
310-243393-3	MW-305	Total/NA	Water	7470A	
310-243393-4	MW-305A	Total/NA	Water	7470A	

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QC Association Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Metals (Continued)

Prep Batch: 370679 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-6	MW-310	Total/NA	Water	7470A	
MB 310-370679/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-370679/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 370680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-7	MW-310A	Total/NA	Water	7470A	
310-243393-8	MW-311	Total/NA	Water	7470A	
310-243393-9	MW-311A	Total/NA	Water	7470A	
310-243393-10	MW-312	Total/NA	Water	7470A	
310-243393-11	MW-313	Total/NA	Water	7470A	
MB 310-370680/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-370680/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-243393-7 MS	MW-310A	Total/NA	Water	7470A	
310-243393-7 MSD	MW-310A	Total/NA	Water	7470A	

Analysis Batch: 370843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	7470A	370679
310-243393-2	MW-304	Total/NA	Water	7470A	370679
310-243393-3	MW-305	Total/NA	Water	7470A	370679
310-243393-4	MW-305A	Total/NA	Water	7470A	370679
310-243393-6	MW-310	Total/NA	Water	7470A	370679
310-243393-7	MW-310A	Total/NA	Water	7470A	370680
310-243393-8	MW-311	Total/NA	Water	7470A	370680
310-243393-9	MW-311A	Total/NA	Water	7470A	370680
310-243393-10	MW-312	Total/NA	Water	7470A	370680
310-243393-11	MW-313	Total/NA	Water	7470A	370680
MB 310-370679/1-A	Method Blank	Total/NA	Water	7470A	370679
MB 310-370680/1-A	Method Blank	Total/NA	Water	7470A	370680
LCS 310-370679/2-A	Lab Control Sample	Total/NA	Water	7470A	370679
LCS 310-370680/2-A	Lab Control Sample	Total/NA	Water	7470A	370680
310-243393-7 MS	MW-310A	Total/NA	Water	7470A	370680
310-243393-7 MSD	MW-310A	Total/NA	Water	7470A	370680

Prep Batch: 371190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-5	MW-306	Total/NA	Water	7470A	
MB 310-371190/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-371190/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 371245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-5	MW-306	Total/NA	Water	7470A	371190
MB 310-371190/1-A	Method Blank	Total/NA	Water	7470A	371190
LCS 310-371190/2-A	Lab Control Sample	Total/NA	Water	7470A	371190

Analysis Batch: 371296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-2	MW-304	Total/NA	Water	6020B	370387
310-243393-3	MW-305	Total/NA	Water	6020B	370387

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QC Association Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Metals (Continued)

Analysis Batch: 371296 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-4	MW-305A	Total/NA	Water	6020B	370387
310-243393-5	MW-306	Total/NA	Water	6020B	370387
310-243393-6	MW-310	Total/NA	Water	6020B	370387
310-243393-7	MW-310A	Total/NA	Water	6020B	370387
310-243393-8	MW-311	Total/NA	Water	6020B	370387
310-243393-9	MW-311A	Total/NA	Water	6020B	370387
310-243393-10	MW-312	Total/NA	Water	6020B	370387
310-243393-11	MW-313	Total/NA	Water	6020B	370387
MB 310-370387/1-A	Method Blank	Total/NA	Water	6020B	370387
LCS 310-370387/2-A	Lab Control Sample	Total/NA	Water	6020B	370387
310-243393-11 DU	MW-313	Total/NA	Water	6020B	370387

Analysis Batch: 371394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	6020B	370387
310-243393-2	MW-304	Total/NA	Water	6020B	370387
310-243393-7	MW-310A	Total/NA	Water	6020B	370387
310-243393-8	MW-311	Total/NA	Water	6020B	370387
310-243393-9	MW-311A	Total/NA	Water	6020B	370387
310-243393-11	MW-313	Total/NA	Water	6020B	370387
310-243393-1 MS	MW-302	Total/NA	Water	6020B	370387
310-243393-1 MSD	MW-302	Total/NA	Water	6020B	370387
310-243393-11 DU	MW-313	Total/NA	Water	6020B	370387

Analysis Batch: 371549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-10	MW-312	Total/NA	Water	6020B	370387

Analysis Batch: 373150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-2	MW-304	Total/NA	Water	6020B	370387

General Chemistry

Analysis Batch: 370088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	SM 4500 H+ B	
310-243393-2	MW-304	Total/NA	Water	SM 4500 H+ B	
310-243393-3	MW-305	Total/NA	Water	SM 4500 H+ B	
310-243393-4	MW-305A	Total/NA	Water	SM 4500 H+ B	
310-243393-5	MW-306	Total/NA	Water	SM 4500 H+ B	
310-243393-6	MW-310	Total/NA	Water	SM 4500 H+ B	
310-243393-7	MW-310A	Total/NA	Water	SM 4500 H+ B	
310-243393-8	MW-311	Total/NA	Water	SM 4500 H+ B	
310-243393-9	MW-311A	Total/NA	Water	SM 4500 H+ B	
310-243393-10	MW-312	Total/NA	Water	SM 4500 H+ B	
310-243393-11	MW-313	Total/NA	Water	SM 4500 H+ B	
LCS 310-370088/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-243393-6 DU	MW-310	Total/NA	Water	SM 4500 H+ B	
310-243393-7 DU	MW-310A	Total/NA	Water	SM 4500 H+ B	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

General Chemistry

Analysis Batch: 370266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-4	MW-305A	Total/NA	Water	SM 2540C	
310-243393-5	MW-306	Total/NA	Water	SM 2540C	
310-243393-6	MW-310	Total/NA	Water	SM 2540C	
310-243393-7	MW-310A	Total/NA	Water	SM 2540C	
310-243393-8	MW-311	Total/NA	Water	SM 2540C	
310-243393-9	MW-311A	Total/NA	Water	SM 2540C	
310-243393-10	MW-312	Total/NA	Water	SM 2540C	
310-243393-11	MW-313	Total/NA	Water	SM 2540C	
MB 310-370266/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-370266/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 370267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	SM 2540C	
310-243393-2	MW-304	Total/NA	Water	SM 2540C	
310-243393-3	MW-305	Total/NA	Water	SM 2540C	
MB 310-370267/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-370267/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-243393-3 DU	MW-305	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 370344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	Field Sampling	
310-243393-2	MW-304	Total/NA	Water	Field Sampling	
310-243393-3	MW-305	Total/NA	Water	Field Sampling	
310-243393-4	MW-305A	Total/NA	Water	Field Sampling	
310-243393-5	MW-306	Total/NA	Water	Field Sampling	
310-243393-6	MW-310	Total/NA	Water	Field Sampling	
310-243393-7	MW-310A	Total/NA	Water	Field Sampling	
310-243393-8	MW-311	Total/NA	Water	Field Sampling	
310-243393-9	MW-311A	Total/NA	Water	Field Sampling	
310-243393-10	MW-312	Total/NA	Water	Field Sampling	
310-243393-11	MW-313	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-302
Date Collected: 10/26/22 10:50
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/07/22 23:17
Total/NA	Analysis	9056A		20	371382	J7CK	EET CF	11/08/22 09:13
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371394	A6US	EET CF	11/08/22 15:20
Total/NA	Prep	7470A			370679	XXW3	EET CF	11/02/22 17:53
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:17
Total/NA	Analysis	SM 2540C		1	370267	WZC8	EET CF	10/30/22 06:35
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:29
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 10:50

Client Sample ID: MW-304
Date Collected: 10/26/22 12:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/07/22 23:29
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	373150	A6US	EET CF	11/28/22 13:21
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:09
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371394	A6US	EET CF	11/08/22 15:30
Total/NA	Prep	7470A			370679	XXW3	EET CF	11/02/22 17:53
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:20
Total/NA	Analysis	SM 2540C		1	370267	WZC8	EET CF	10/30/22 06:35
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:31
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 12:30

Client Sample ID: MW-305
Date Collected: 10/25/22 14:10
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/07/22 23:42
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:13
Total/NA	Prep	7470A			370679	XXW3	EET CF	11/02/22 17:53
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:22
Total/NA	Analysis	SM 2540C		1	370267	WZC8	EET CF	10/30/22 06:35
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:32
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 14:10

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-305A
Date Collected: 10/26/22 13:00
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/07/22 23:55
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:16
Total/NA	Prep	7470A			370679	XXW3	EET CF	11/02/22 17:53
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:24
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:34
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 13:00

Client Sample ID: MW-306
Date Collected: 10/25/22 15:05
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/08/22 00:08
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:19
Total/NA	Prep	7470A			371190	XXW3	EET CF	11/07/22 12:26
Total/NA	Analysis	7470A		1	371245	XXW3	EET CF	11/07/22 16:28
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:35
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 15:05

Client Sample ID: MW-310
Date Collected: 10/25/22 13:40
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/08/22 00:21
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:22
Total/NA	Prep	7470A			370679	XXW3	EET CF	11/02/22 17:53
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:28
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:40
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 13:40

Client Sample ID: MW-310A
Date Collected: 10/26/22 13:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371382	J7CK	EET CF	11/08/22 00:34
Total/NA	Analysis	9056A		20	371382	J7CK	EET CF	11/08/22 09:26

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-310A
Date Collected: 10/26/22 13:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:47
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371394	A6US	EET CF	11/08/22 15:33
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:39
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:22
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 13:30

Client Sample ID: MW-311
Date Collected: 10/26/22 15:40
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371316	J7CK	EET CF	11/07/22 14:17
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:50
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371394	A6US	EET CF	11/08/22 15:36
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:45
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:43
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 15:40

Client Sample ID: MW-311A
Date Collected: 10/26/22 15:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371316	J7CK	EET CF	11/07/22 14:29
Total/NA	Analysis	9056A		20	371316	J7CK	EET CF	11/07/22 14:41
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:53
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371394	A6US	EET CF	11/08/22 15:39
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:47
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:25
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 15:30

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Client Sample ID: MW-312

Lab Sample ID: 310-243393-10

Date Collected: 10/25/22 17:10

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371316	J7CK	EET CF	11/07/22 14:55
Total/NA	Analysis	9056A		20	371316	J7CK	EET CF	11/07/22 15:07
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371549	A6US	EET CF	11/09/22 13:05
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 01:57
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:49
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:26
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 17:10

Client Sample ID: MW-313

Lab Sample ID: 310-243393-11

Date Collected: 10/25/22 15:25

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371316	J7CK	EET CF	11/07/22 15:19
Total/NA	Analysis	9056A		20	371316	J7CK	EET CF	11/07/22 15:31
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371296	A6US	EET CF	11/08/22 02:00
Total/NA	Prep	3005A			370387	DHM5	EET CF	11/02/22 09:50
Total/NA	Analysis	6020B		1	371394	A6US	EET CF	11/08/22 15:42
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:52
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:28
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 15:25

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

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Method Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET 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.

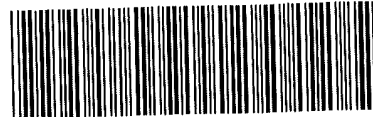
Laboratory References:

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





Environment Testing
America



310-243393 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10-27-22</u>	TIME <u>1700</u>	Received By: <u>ML</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>T</u>	Correction Factor (°C):	<u>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(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			





Environment Testing America

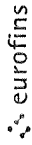
Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27-22</u>	TIME <u>1700</u>	Received By: <u>ML</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>22</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>T</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>2.1</u>		Corrected Temp (°C): <u>2.1</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



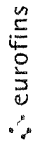
Chain of Custody Record



Client Information		Sampler: Ryan Metzler		Lab PM: Fredrick, Sandie	Carrier Tracking No(s): 310-75003-17487 1				
Client Contact: Meghan Blodgett		Phone: 503-400-9597		E-Mail: Sandra.Fredrick@st.eurofins.com	Page: Page 1 of 2				
Company: SCS Engineers		PWSID:		Job #:					
Address: 2830 Dairy Drive		Due Date Requested		Analysis Requested					
City: Madison		TAT Requested (days):		Total Number of Containers					
State, Zip: WI 53718		Compliance Project: Δ Yes Δ No		Preservation Codes					
Phone: 25222072		PO #: 25222072		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					
Email: mblodgett@scsengineers.com		WO #: 31011020		M - Hexane N - None O - AsNBO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Docecalhydrate U - Acetone V - MCAA W - pH 4-5 X - Trizma Z - other (specify)					
Project Name: Alliant OGS - 25222072		Project #: 31011020		Special Instructions/Note					
Site:		SSOW#:							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Solid, Gas, Oil, etc.)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Special Instructions/Note
MW-302	10/26	050	C		Water	X	X	2540C_Calcd, SM4500_H+	
MW-303					Water	X	X	6020A, 7470A	
MW-304	10/26	1230			Water	X	X	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	
MW-305	10/25	1410			Water	X	X	9040 - Radium-226 (GFCP)	
MW-305A	10/26	1300			Water	X	X	9030 - Radium-226 (GFCP)	
MW-306	10/25	1505			Water	X	X		
MW-310	10/25	1340			Water	X	X		
MW-310A	10/26	1330			Water	X	X		
MW-311	10/26	1540			Water	X	X		500 mL FOR ANIONS TDS PH
MW-311A	10/26	1530			Water	X	X		
MW-312	10/25	1710			Water	X	X		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements									
Empty Kit Relinquished by:									
Relinquished by: Sean Mawzevskic		Date: 10/27 1200		Company: SCS		Received by: _____ Date/Time: _____ Company: _____			
Relinquished by:		Date/Time:		Company:		Received by: _____ Date/Time: _____ Company: _____			
Relinquished by:		Date/Time:		Company:		Received by: _____ Date/Time: 10/27/22 1700 Company: _____			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:					



Chain of Custody Record



Client Information		Lab PM Frederick, Sandie		Carrier Tracking No(s)		COC No: 310-75003-17487 1	
Client Contact: Meghan Bloodgett		E-Mail Sandira.Fredrick@eurofins.com		State of Origin		Page: Page 1 of 2	
Company SCS Engineers		PWSID:		Analysis Requested		Job #:	
Address: 2830 Dairy Drive		Due Date Requested		Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)	
City: Madison		TAT Requested (days):		903 0 Radium-226 (GFPC)		904 0 Radium-228 (GFPC)	
State, Zip WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		966A-ORGM-2RD-Chloride, Fluoride & Sulfate		9620A-7470A	
Phone: 537 18		PO #: 25222072		990C-ORGM-3M4500-H+		2990C-ORGM-3M4500-H+	
Email: mbloodgett@scsengineers.com		WO #: 25222072		Matrix (Water, Solid, Other)		Preservation Codes:	
Project Name: Alliant OGS - 25222072		Project #: 31011020		Sample Type (C=Comp, G=grab)		M Hexane N - None O AsN ₂ O P Na ₂ O ₄ S Q - Na ₂ SO ₃ R - Na ₂ SO ₃ S H ₂ SO ₄ T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (specify)	
Site: Site		SSOW#:		Sample Date		Special Instructions/Note	
Sample Identification		Sample Time		Sample Date		Total Number of Containers	
MW-302		10:50		10/26		X	
MW-303				to			
MW-304		1230		10/26		X	
MW-305		1410		10/25		X	
MW-305A		1300		10/26		X	
MW-306		1505		10/25		X	
MW-310		1340		10/25		X	
MW-310A		1330		10/26		X	
MW-311		1540		to 10/26		X	
MW-311A		1530		10/26		X	
MW-312		1710		10/25		X	
Possible Hazard Identification		Date		Time		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		10/27		1200		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested I II III IV Other (specify)		Date		Time		Special Instructions/QC Requirements	
Empty Kit Relinquished by		Date/Time		Company		Method of Shipment:	
Relinquished by <i>Sum M... ..</i>		10/27		1200		Received by _____ Date/Time _____ Company _____	
Relinquished by		Date/Time:		Company		Received by _____ Date/Time _____ Company _____	
Relinquished by		Date/Time		Company		Received by _____ Date/Time _____ Company _____	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Date/Time		Company		Received by _____ Date/Time _____ Company _____	
Custody Seal No		Date/Time		Company		Received by _____ Date/Time _____ Company _____	
Cooler Temperature(s) °C and Other Remarks		Date/Time		Company		Received by _____ Date/Time _____ Company _____	
10 ~ 27 ~ 22		1700		1700		1700	



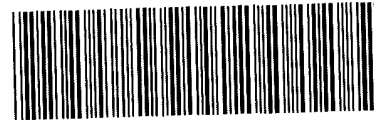
Chain of Custody Record

Client Information	Client Contact: Meghan Blodgett Company: SCS Engineers Address: 2830 Dairy Drive City: Madison State: WI 53718 Phone: [Redacted] Email: mblodgett@scsengineers.com Project Name: Alliant OGS - 25222072 Site: [Redacted]	Lab P.M.: Fredrick, Sandie E-Mail: Sandra.Fredrick@et.eurofins.com PWSID: [Redacted]	Sampler: Ryan Matzuk Phone: 603-700-9577	Carrier Tracking No(s): 310-75003-17487.2 State of Origin: [Redacted]	Page: Page 2 of 2 Job #: [Redacted]																																																															
Analysis Requested	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Analysis Requested</th> <th>Perform MS/MSD (Yes or No)</th> <th>Field Filtered Sample (Yes or No)</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=comp, G=grab)</th> <th>Matrix (Water, Sewage, Other)</th> <th>Preservation Code</th> <th>Special Instructions/Note</th> </tr> </thead> <tbody> <tr> <td>9030 Radium-226 (GFPC)</td> <td>X</td> <td>X</td> <td>10/25</td> <td>1525</td> <td>Water</td> <td>Water</td> <td></td> <td></td> </tr> <tr> <td>9040 Radium-228 (GFPC)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9060 ORGEM 280 - Chloride, Fluoride & Sulfate</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6020A Zr70A</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2540C Calc'd SMA500.H</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="9" style="text-align: right;">Total Number of containers</td> </tr> </tbody> </table>					Analysis Requested	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Sewage, Other)	Preservation Code	Special Instructions/Note	9030 Radium-226 (GFPC)	X	X	10/25	1525	Water	Water			9040 Radium-228 (GFPC)									9060 ORGEM 280 - Chloride, Fluoride & Sulfate									6020A Zr70A									2540C Calc'd SMA500.H									Total Number of containers								
Analysis Requested	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Sewage, Other)	Preservation Code	Special Instructions/Note																																																												
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Deliverable Requested	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> Other (specify)																																																																			
Empty Kit Relinquished by	Relinquished by: Sean Muzenski Date: 10/27 1200 Company: SCS																																																																			
Relinquished by	Relinquished by: [Redacted] Date/Time: [Redacted] Company: [Redacted]																																																																			
Relinquished by	Relinquished by: [Redacted] Date/Time: 10-27-22 1700 Company: [Redacted]																																																																			
Custody Seals Intact:	Custody Seal No: [Redacted] Cooler Temperature(s) °C and Other Remarks: [Redacted]																																																																			





Environment Testing
America



310-243393 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10-27-22</u>	TIME <u>1700</u>	Received By: <u>ML</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>T</u>	Correction Factor (°C): <u>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(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			





Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27 22</u>	TIME <u>1700</u>	Received By: <u>ML</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>12</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>T</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.1</u>	Corrected Temp (°C):	<u>2.1</u>
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information Client Contact: Meghan Blodgett Company: SCS Engineers Address: 2830 Dairy Drive City: Madison State Zip: WI 53718 Phone: 25222072 Email: mblodgett@scsengineers.com Project Name: Alliant OGS - 25222072 Site:	Lab PM: Fredrick, Sande E-Mail: Sandra.Fredrick@et.eurolfins.com Carrier Tracking No(s): State of Origin:	COC No: 310-75003-174871 Page: Page 1 of 2 Job #:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: 25222072 WO #: 31011020 Project #: 31011020 SSO#:		Analysis Requested Total Number of Containers:	
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Special Instructions/Note:			
Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> 9048 - Radium-226 (GFP) <input checked="" type="checkbox"/> 9049 - Radium-228 (GFP) <input checked="" type="checkbox"/> 9056A - ORGFM_28D - Chloride, Fluoride & Sulfate <input checked="" type="checkbox"/> 6020A, 7470A <input checked="" type="checkbox"/> 2540C - Calc'd, SM4500_H+ <input checked="" type="checkbox"/>			
Sample Identification MW-302 MW-303 MW-304 MW-305 MW-305A MW-306 MW-310 MW-310A MW-311 MW-311A MW-312	Sample Date 10/26 10/26 10/25 10/26 10/25 10/26 10/26 10/25	Sample Time 050 1230 1410 1300 1505 1340 1330 1540 1530 1710	Matrix (Water, Seawater, Other) Preservation Code: Water Water Water Water Water Water Water Water Water Water
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)			
Empty Kit Relinquished by:			
Relinquished by: <i>Sandra Madsen</i> Date: 10/27 1200 Relinquished by: Company: SCS Relinquished by: Company:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks:			

Chain of Custody Record

Sampler Ryan Matzke	Lab PM Fredrick, Sandie	Carrier Tracking No(s)	310-75003-17487 1		
Client Contact Meghan Bloodgett	E-Mail Sandra.Fredrick@et.eurofins.com	State of Origin	Page 1 of 2		
Company SCS Engineers	PWSID	Job #			
Address 2830 Dairy Drive City: Madison State, Zip: WI 53718 Phone: 25222072		Analysis Requested			
TAT Requested (days)		Total Number of Containers			
Compliance Project <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
PO # 25222072					
WO #					
Email mbloodgett@sccsengineers.com					
Project Name Alliant OGS - 25222072					
Site					

Sample Identification	Sample Date	Sample Time	Sample Type (C=Camp, G=grab)	Preservation Code	Matrix (Water, Solid, Other)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Special Instructions/Note
						Field Filtered	MS/MSD	Perform MS/MSD	MS/MSD	
MW-302	10/26	1050	G		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-303	10/26	1230			Water					
MW-304	10/26	1230			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-305	10/25	1410			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-305A	10/26	1300			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-306	10/25	1505			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-310	10/25	1310			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-310A	10/26	1330			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-311	10/26	1540			Water					
MW-311A	10/26	1530			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-312	10/25	1710			Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Possible Hazard Identification			
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Radiological
Deliverable Requested I II III IV Other (specify)			
Empty Kit Relinquished by		Date	
Relinquished by <i>Sen mance</i>		10/27 1200	
Relinquished by		Date/Time	
Relinquished by		Date/Time	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No	

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab
Special Instructions/QC Requirements	
Method of Shipment	
Received by	Date/Time
Received by	Date/Time
Received by	Date/Time: 10-27-22 1700
Cooler Temperature(s) °C and Other Remarks.	

Chain of Custody Record

Client Information Client Contact: Meghan Blodgett Company: SCS Engineers Address: 2830 Dairy Drive City: Madison State/Zip: WI 53718 Phone: 53718 Email: mblodgett@scsengineers.com Project Name: Alliant OGS - 25222072 Site:		Lab P.M.: Fredrick, Sandie E-Mail: Sandra.Fredrick@et.eurofins.com Phone: 608-400-1577 PWSID:		Carrier Tracking No(s): 310-75003-174872 Page: Page 2 of 2 Job #:	
Due Date Requested TAT Requested (days) Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: 25222072 WO #: Project #: 31011020 SSOV#:		Analysis Requested 9030 Radium 226 (GFPE) 9040 Radium 228 (GFPE) 9056A ORGFM 28D Chloride, Fluoride & Sulfate 6020A, 7470A 2540C Calcd, SM4500_H+		Total Number of containers: <input checked="" type="checkbox"/>	
Sample Identification MW-313 Sample Date: 10/25 Sample Time: 1525 Sample Type (C=comp, G=grab): G Preservation Code: Water Matrix (Water, Swab, Ore/soil, Other): Water Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/>		Special Instructions/Note 		Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify):					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: Susan Mrozewska Relinquished by:		Date/Time: 10/27 12:00 Date/Time:		Received by: DCS Date/Time:	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:		Date/Time: 10/27 17:00 Company:	



Chain of Custody Record

Client Information			Lab PM		Carrier Tracking No(s):		COC No:																		
Client Contact: Ryan Matzke			Fredrick, Sandie		State of Origin:		310-75003-17487 2																		
Company: SCS Engineers			E-Mail: Sandra.Fredrick@st.eurofins.com		Page 2 of 2		Job #:																		
Address: 2830 Dairy Drive			Due Date Requested:		Analysis Requested		Preservation Codes:																		
City: Madison			TAT Requested (days):		<input checked="" type="checkbox"/> 2540C Calcd. SMA500 HT <input checked="" type="checkbox"/> 6020A Z470A <input checked="" type="checkbox"/> 9066A DRGFM 28D - Chloride, Fluoride & Sulfate <input checked="" type="checkbox"/> 904.0 Radium-228 (GFPC) <input checked="" type="checkbox"/> 903.0 Radium-226 (GFPC)		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:																		
State Zip: WI 53718			Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																						
Phone: 25222072			PO #: 25222072																						
Email: mbloggett@scsengineers.com			WO #: 31011020																						
Project Name: Alliant OGS - 25222072			Project #: SSOW#:																						
Site: MW-313			Site:		M - Hexane N None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U Acetone V MCAA W - pH 4-5 Y - Trizma Z - other (specify)		Special Instructions/Note:																		
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Identification</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Preservation Code</th> <th>Matrix (Water, Solid, On-water/Oil)</th> <th>Total Number of Containers</th> </tr> </thead> <tbody> <tr> <td>MW-313</td> <td>10/25</td> <td>1525</td> <td></td> <td></td> <td>Water</td> <td>X</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Water</td> <td></td> </tr> </tbody> </table>			Sample Identification	Sample Date					Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Solid, On-water/Oil)	Total Number of Containers	MW-313	10/25	1525			Water	X					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Solid, On-water/Oil)	Total Number of Containers																			
MW-313	10/25	1525			Water	X																			
					Water																				
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements																				
Empty Kit Relinquished by Relinquished by: Sean Marzenski			Date Date/Time: 10/27 1200		Method of Shipment: Received by: _____ Company: _____ Relinquished by: _____ Company: _____ Relinquished by: _____ Company: _____																				
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Cooler Temperature(s) °C and Other Remarks: 10-27-22 1700																						

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243393-1

Login Number: 243393

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Table 1. Groundwater Monitoring Results - Field Parameters
Ottumwa Generating Station / SCS Engineers Project No. 25222072.00
October 2022

Sample	Date/Sample Time	Groundwater Elevation (amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity
MW-301	10/26/2022 805	680.68	14.6	6.29	4.74	1036	26.9	0.62
MW-302	10/26/2022 1050	652.95	12.8	6.56	2.13	2051	-27.1	8.02
MW-303	10/26/2022 1225	648.22	15.9	6.70	0.65	1660	-40.9	574.1
MW-304	10/26/2022 1230	647.26	13.5	6.77	0.00	1828	-86.3	3.60
MW-305	10/25/2022 1410	651.48	13.2	6.76	0.35	1633	-33.0	2.59
MW-305A	10/26/2022 1300	644.38	13.7	7.11	4.75	1127	-14.4	2.43
MW-306	10/25/2022 1505	657.11	13.5	6.53	0.39	1597	-37.7	0.00
MW-310	10/25/2022 1340	638.55	13.3	6.70	0.03	1856	113.6	0.73
MW-310A	10/26/2022 1330	639.49	14.2	7.64	4.24	2964	81.2	3.85
MW-311	10/26/2022 1540	638.46	14.6	6.61	0.68	846	52.8	0.84
MW-311A	10/26/2022 1530	640.27	14.1	7.80	4.68	3022	-21.6	5.88
MW-312	10/25/2022 1710	639.64	13.1	7.10	0.00	1985	11.3	1.68
MW-313	10/25/2022 1525	639.16	14.0	6.95	0.22	1937	-18.4	2.75

Abbreviations:

mg/L = milligrams per liter

amsl = above mean sea level

NA = Not Analyzed

NM= Not Measured

Created by: MDB
 Last revision by: RM
 Checked by: DK

Date: 5/1/2017
 Date: 10/28/2022
 Date: 10/28/2022

C:\Users\hld0\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\USG3GGGC\2210_October - OGS AP_CCR_Field.xlsx\GW Field Parameters



ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Generated 11/30/2022 3:38:09 PM

JOB DESCRIPTION

Alliant OGS - 25222072 Ash Pond

JOB NUMBER

310-243393-2

Eurofins Cedar Falls

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Sample Summary	5
Detection Summary	6
Client Sample Results	7
Definitions	17
QC Sample Results	18
QC Association	19
Chronicle	20
Certification Summary	23
Method Summary	24
Chain of Custody	25
Receipt Checklists	40
Tracer Carrier Summary	42

Case Narrative

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Job ID: 310-243393-2

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-243393-2

Comments

No additional comments.

Receipt

The samples were received on 10/27/2022 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were -0.8° C and 2.1° C.

RAD

Methods 903.0, 9315: Radium-226 batch 588508

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-302 (310-243393-1), MW-304 (310-243393-2), MW-305 (310-243393-3), MW-305A (310-243393-4), MW-306 (310-243393-5), MW-310 (310-243393-6), MW-310A (310-243393-7), MW-311A (310-243393-9), MW-312 (310-243393-10), MW-313 (310-243393-11), (LCS 160-588508/2-A), (MB 160-588508/1-A), (310-243392-D-6-A), (310-243392-C-6-A MS) and (310-243392-C-6-B MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-588509:

The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. (310-243392-D-6-B), (310-243392-C-6-C MS) and (310-243392-C-6-D MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-588509:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-302 (310-243393-1), MW-304 (310-243393-2), MW-305 (310-243393-3), MW-305A (310-243393-4), MW-306 (310-243393-5), MW-310 (310-243393-6), MW-310A (310-243393-7), MW-311A (310-243393-9), MW-312 (310-243393-10), MW-313 (310-243393-11), (LCS 160-588509/2-A), (MB 160-588509/1-A), (310-243392-D-6-B), (310-243392-C-6-C MS) and (310-243392-C-6-D MSD)

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

Sample Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-243393-1	MW-302	Water	10/26/22 10:50	10/27/22 17:00
310-243393-2	MW-304	Water	10/26/22 12:30	10/27/22 17:00
310-243393-3	MW-305	Water	10/25/22 14:10	10/27/22 17:00
310-243393-4	MW-305A	Water	10/26/22 13:00	10/27/22 17:00
310-243393-5	MW-306	Water	10/25/22 15:05	10/27/22 17:00
310-243393-6	MW-310	Water	10/25/22 13:40	10/27/22 17:00
310-243393-7	MW-310A	Water	10/26/22 13:30	10/27/22 17:00
310-243393-9	MW-311A	Water	10/26/22 15:30	10/27/22 17:00
310-243393-10	MW-312	Water	10/25/22 17:10	10/27/22 17:00
310-243393-11	MW-313	Water	10/25/22 15:25	10/27/22 17:00

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Detection Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-302	Lab Sample ID: 310-243393-1
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-304	Lab Sample ID: 310-243393-2
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-305	Lab Sample ID: 310-243393-3
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-305A	Lab Sample ID: 310-243393-4
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-306	Lab Sample ID: 310-243393-5
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-310	Lab Sample ID: 310-243393-6
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-310A	Lab Sample ID: 310-243393-7
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-311A	Lab Sample ID: 310-243393-8
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-312	Lab Sample ID: 310-243393-9
<input type="checkbox"/> No Detections.	
Client Sample ID: MW-313	Lab Sample ID: 310-243393-10
<input type="checkbox"/> No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-302

Lab Sample ID: 310-243393-1

Date Collected: 10/26/22 10:50

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.182		0.0942	0.0957	1.00	0.119	pCi/L	11/04/22 06:23	11/30/22 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	85.7		40 - 110					11/04/22 06:23	11/30/22 08:04	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.445	U	0.336	0.338	1.00	0.508	pCi/L	11/04/22 06:53	11/18/22 13:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	85.7		40 - 110					11/04/22 06:53	11/18/22 13:51	1
Y Carrier	79.3		40 - 110					11/04/22 06:53	11/18/22 13:51	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.627		0.349	0.351	5.00	0.508	pCi/L		11/30/22 14:45	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-304

Lab Sample ID: 310-243393-2

Date Collected: 10/26/22 12:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	1.25		0.193	0.223	1.00	0.106	pCi/L	11/04/22 06:23	11/30/22 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	92.5		40 - 110					11/04/22 06:23	11/30/22 08:04	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	1.41		0.459	0.477	1.00	0.527	pCi/L	11/04/22 06:53	11/18/22 13:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	92.5		40 - 110					11/04/22 06:53	11/18/22 13:51	1
Y Carrier	75.9		40 - 110					11/04/22 06:53	11/18/22 13:51	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	2.66		0.498	0.527	5.00	0.527	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-305

Lab Sample ID: 310-243393-3

Date Collected: 10/25/22 14:10

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.387		0.113	0.118	1.00	0.0917	pCi/L	11/04/22 06:23	11/30/22 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	90.1		40 - 110					11/04/22 06:23	11/30/22 07:54	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.523		0.350	0.353	1.00	0.521	pCi/L	11/04/22 06:53	11/18/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	90.1		40 - 110					11/04/22 06:53	11/18/22 13:52	1
Y Carrier	81.1		40 - 110					11/04/22 06:53	11/18/22 13:52	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.910		0.368	0.372	5.00	0.521	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-305A

Lab Sample ID: 310-243393-4

Date Collected: 10/26/22 13:00

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	2.51		0.271	0.353	1.00	0.0912	pCi/L	11/04/22 06:23	11/30/22 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	88.2		40 - 110					11/04/22 06:23	11/30/22 07:54	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	1.19		0.424	0.438	1.00	0.504	pCi/L	11/04/22 06:53	11/18/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	88.2		40 - 110					11/04/22 06:53	11/18/22 13:52	1
Y Carrier	80.0		40 - 110					11/04/22 06:53	11/18/22 13:52	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	3.70		0.503	0.563	5.00	0.504	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-306
 Date Collected: 10/25/22 15:05
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-5
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.120		0.0714	0.0722	1.00	0.0870	pCi/L	11/04/22 06:23	11/30/22 07:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.2		40 - 110					11/04/22 06:23	11/30/22 07:55	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.912		0.424	0.432	1.00	0.578	pCi/L	11/04/22 06:53	11/18/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.2		40 - 110					11/04/22 06:53	11/18/22 13:52	1
Y Carrier	82.2		40 - 110					11/04/22 06:53	11/18/22 13:52	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	1.03		0.430	0.438	5.00	0.578	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-310
 Date Collected: 10/25/22 13:40
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-6
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.0610	U	0.0759	0.0761	1.00	0.126	pCi/L	11/04/22 06:23	11/30/22 07:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	92.0		40 - 110					11/04/22 06:23	11/30/22 07:55	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.766		0.374	0.380	1.00	0.510	pCi/L	11/04/22 06:53	11/18/22 13:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	92.0		40 - 110					11/04/22 06:53	11/18/22 13:53	1
Y Carrier	81.9		40 - 110					11/04/22 06:53	11/18/22 13:53	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.827		0.382	0.388	5.00	0.510	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-310A

Lab Sample ID: 310-243393-7

Date Collected: 10/26/22 13:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	3.24		0.306	0.423	1.00	0.116	pCi/L	11/04/22 06:23	11/30/22 07:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	90.1		40 - 110					11/04/22 06:23	11/30/22 07:55	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	1.16		0.405	0.418	1.00	0.470	pCi/L	11/04/22 06:53	11/18/22 13:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	90.1		40 - 110					11/04/22 06:53	11/18/22 13:53	1
Y Carrier	82.6		40 - 110					11/04/22 06:53	11/18/22 13:53	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	4.40		0.508	0.595	5.00	0.470	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-311A

Lab Sample ID: 310-243393-9

Date Collected: 10/26/22 15:30

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	2.99		0.281	0.389	1.00	0.0806	pCi/L	11/04/22 06:23	11/30/22 07:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	97.1		40 - 110					11/04/22 06:23	11/30/22 07:56	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	1.22		0.422	0.437	1.00	0.520	pCi/L	11/04/22 06:53	11/18/22 13:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	97.1		40 - 110					11/04/22 06:53	11/18/22 13:53	1
Y Carrier	82.2		40 - 110					11/04/22 06:53	11/18/22 13:53	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	4.21		0.507	0.585	5.00	0.520	pCi/L		11/30/22 14:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-312

Lab Sample ID: 310-243393-10

Date Collected: 10/25/22 17:10

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.493		0.129	0.137	1.00	0.104	pCi/L	11/04/22 06:23	11/30/22 07:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.2		40 - 110					11/04/22 06:23	11/30/22 07:56	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.802		0.407	0.413	1.00	0.567	pCi/L	11/04/22 06:53	11/18/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.2		40 - 110					11/04/22 06:53	11/18/22 13:54	1
Y Carrier	82.2		40 - 110					11/04/22 06:53	11/18/22 13:54	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	1.29		0.427	0.435	5.00	0.567	pCi/L		11/30/22 14:45	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-313
 Date Collected: 10/25/22 15:25
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-11
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.210		0.0936	0.0955	1.00	0.107	pCi/L	11/04/22 06:23	11/30/22 07:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.9		40 - 110					11/04/22 06:23	11/30/22 07:56	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	1.35		0.480	0.496	1.00	0.598	pCi/L	11/04/22 06:53	11/18/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.9		40 - 110					11/04/22 06:53	11/18/22 13:54	1
Y Carrier	78.5		40 - 110					11/04/22 06:53	11/18/22 13:54	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	1.56		0.489	0.505	5.00	0.598	pCi/L		11/30/22 14:45	1

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Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Qualifiers

Rad

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-588508/1-A
Matrix: Water
Analysis Batch: 591653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 588508

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium 226	0.06780	U	0.0705	0.0708	1.00	0.112	pCi/L	11/04/22 06:23	11/30/22 08:00	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba	89.6		40 - 110				11/04/22 06:23		11/30/22 08:00	1

Lab Sample ID: LCS 160-588508/2-A
Matrix: Water
Analysis Batch: 591653

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 588508

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium 226	11.3	9.751		1.02	1.00	0.120	pCi/L	86	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba	91.3		40 - 110						

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-588509/1-A
Matrix: Water
Analysis Batch: 590568

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 588509

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium 228	0.7488		0.450	0.455	1.00	0.674	pCi/L	11/04/22 06:53	11/18/22 13:48	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba	89.6		40 - 110				11/04/22 06:53		11/18/22 13:48	1
Y Carrier	81.9		40 - 110				11/04/22 06:53		11/18/22 13:48	1

Lab Sample ID: LCS 160-588509/2-A
Matrix: Water
Analysis Batch: 590568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 588509

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium 228	8.43	10.25		1.36	1.00	0.561	pCi/L	122	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba	91.3		40 - 110						
Y Carrier	82.2		40 - 110						

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Rad

Prep Batch: 588508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	PrecSep-21	
310-243393-2	MW-304	Total/NA	Water	PrecSep-21	
310-243393-3	MW-305	Total/NA	Water	PrecSep-21	
310-243393-4	MW-305A	Total/NA	Water	PrecSep-21	
310-243393-5	MW-306	Total/NA	Water	PrecSep-21	
310-243393-6	MW-310	Total/NA	Water	PrecSep-21	
310-243393-7	MW-310A	Total/NA	Water	PrecSep-21	
310-243393-9	MW-311A	Total/NA	Water	PrecSep-21	
310-243393-10	MW-312	Total/NA	Water	PrecSep-21	
310-243393-11	MW-313	Total/NA	Water	PrecSep-21	
MB 160-588508/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-588508/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 588509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243393-1	MW-302	Total/NA	Water	PrecSep_0	
310-243393-2	MW-304	Total/NA	Water	PrecSep_0	
310-243393-3	MW-305	Total/NA	Water	PrecSep_0	
310-243393-4	MW-305A	Total/NA	Water	PrecSep_0	
310-243393-5	MW-306	Total/NA	Water	PrecSep_0	
310-243393-6	MW-310	Total/NA	Water	PrecSep_0	
310-243393-7	MW-310A	Total/NA	Water	PrecSep_0	
310-243393-9	MW-311A	Total/NA	Water	PrecSep_0	
310-243393-10	MW-312	Total/NA	Water	PrecSep_0	
310-243393-11	MW-313	Total/NA	Water	PrecSep_0	
MB 160-588509/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-588509/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-302

Lab Sample ID: 310-243393-1

Date Collected: 10/26/22 10:50

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591653	FLC	EET SL	11/30/22 08:04
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590567	FLC	EET SL	11/18/22 13:51
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-304

Lab Sample ID: 310-243393-2

Date Collected: 10/26/22 12:30

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591653	FLC	EET SL	11/30/22 08:04
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590567	FLC	EET SL	11/18/22 13:51
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-305

Lab Sample ID: 310-243393-3

Date Collected: 10/25/22 14:10

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:54
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:52
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-305A

Lab Sample ID: 310-243393-4

Date Collected: 10/26/22 13:00

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:54
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:52
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-306
Date Collected: 10/25/22 15:05
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:55
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:52
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-310
Date Collected: 10/25/22 13:40
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:55
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:53
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-310A
Date Collected: 10/26/22 13:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:55
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:53
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-311A
Date Collected: 10/26/22 15:30
Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:56
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:53
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Client Sample ID: MW-312

Date Collected: 10/25/22 17:10

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:56
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:54
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: MW-313

Date Collected: 10/25/22 15:25

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243393-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:56
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:54
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	12-31-22

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

Method Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228 Pos	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

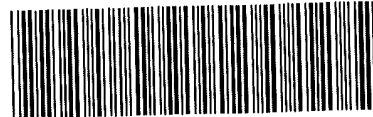
Laboratory References:

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

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Environment Testing
America



310-243393 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10-27-22</u>	TIME <u>1700</u>	Received By: <u>PL</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>22</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>T</u>	Correction Factor (°C): <u>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(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			





Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27-22</u>	TIME <u>1700</u>	Received By: <u>ML</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>22</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>T</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>2.1</u>		Corrected Temp (°C): <u>2.1</u>	
Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

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Chain of Custody Record

Client Information		Sampler: Ryan Metzler		Lab PM: Fredrick, Sandie		Carrier Tracking No(s): 310-75003-17487 1		COC No: 310-75003-17487 1	
Client Contact: Meghan Blodgett		Phone: 503-400-7597		E-Mail: Sandra.Fredrick@st.eurofins.com		State of Origin:		Page: Page 1 of 2	
Company: SCS Engineers		PWSID:		Analysis Requested		Total Number of Containers		Job #:	
Address: 2830 Dairy Drive		Due Date Requested		Field Filled Sample (Yes or No)		Perform MS/MSD (Yes or No)		Preservation Codes	
City: Madison		TAT Requested (days):		9030 - Radium, 226 (GSP)		9040 - Radon-220 (GFP)		A - HCL	
State, Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		6020A, 7470A		2540C_Calcd, SM4500_H+		B - NaOH	
Phone: 25222072		PO #: 25222072		9056A_ORGFM_28D - Chloride, Fluoride & Sulfate				C - Zn Acetate	
Email: mblodgett@scsengineers.com		WO #: 31011020		9090 - Radium, 226 (GSP)				D - Nitric Acid	
Project Name: Alliant OGS - 25222072		Project #: 31011020		9090 - Radium, 226 (GSP)				E - NaHSO4	
Site:		SSOW#:		9090 - Radium, 226 (GSP)				F - MeOH	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		G - Amchlor	
MW-302		10/26		050		Water		H - Ascorbic Acid	
MW-303		10/26		1230		Water		I - Ice	
MW-304		10/26		1230		Water		J - DI Water	
MW-305		10/25		1410		Water		K - EDTA	
MW-305A		10/26		1300		Water		L - EDA	
MW-306		10/25		1505		Water		Other	
MW-310		10/25		1340		Water		M - Hexane	
MW-310A		10/26		1330		Water		N - None	
MW-311		10/26		1540		Water		O - AsNbO2	
MW-311A		10/26		1530		Water		P - Na2O4S	
MW-312		10/25		1710		Water		Q - Na2SO3	
Possible Hazard Identification		Date		Date/Time		Date/Time		R - Na2SO3	
<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		10/27		1200		10/27		S - H2SO4	
Deliverable Requested I II III IV Other (specify)		Date		Date/Time		Date/Time		T - TSP Docecalhydrate	
Empty Kit Relinquished by: Sean M. Metzler		Date		Date/Time		Date/Time		U - Acetone	
Relinquished by: Sean Metzler		Date		Date/Time		Date/Time		V - MCAA	
Relinquished by:		Date		Date/Time		Date/Time		W - pH 4-5	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Date		Date/Time		Date/Time		X - Trizma	
Custody Seal No		Date		Date/Time		Date/Time		Y - Trizma	
Cooler Temperature(s) °C and Other Remarks:		Date		Date/Time		Date/Time		Z - other (specify)	
10/27-22 1700		Date		Date/Time		Date/Time		Special Instructions/Note	
500 mL FOR ANALYSIS TDS PH		Date		Date/Time		Date/Time		Special Instructions/Note	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Date		Date/Time		Date/Time		Special Instructions/Note	
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Date		Date/Time		Date/Time		Special Instructions/Note	
Special Instructions/QC Requirements		Date		Date/Time		Date/Time		Special Instructions/Note	
Method of Shipment:		Date		Date/Time		Date/Time		Special Instructions/Note	
Received by: _____		Date		Date/Time		Date/Time		Special Instructions/Note	
Received by: _____		Date		Date/Time		Date/Time		Special Instructions/Note	
Received by: _____		Date		Date/Time		Date/Time		Special Instructions/Note	



Chain of Custody Record

Client Information		Lab PM: Fredrick, Sandie		Carrier Tracking No(s): 310-75003-17487 1	
Client Contact: Meghan Bloodgett		E-Mail: Sandra.Fredrick@eurofins.com		State of Origin:	
Company: SCS Engineers		PWSID:		Job #:	
Address: 2830 Dairy Drive		Due Date Requested:		Preservation Codes:	
City: Madison		TAT Requested (days):		A HCL M Hexane N - None O AsNaO2 P Na2O4S Q - Na2SO3 R - Na2SO3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (specify)	
State, Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Total Number of Containers: <input checked="" type="checkbox"/>	
Phone: 25222072		PO #: 25222072		Special Instructions/Note:	
Email: mblodgett@scsengineers.com		WO #: 31011020			
Project Name: Alliant OGS - 25222072		Project #: 31011020			
Site:		SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Over-sat, etc.)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested		Special Instructions/Note
							903 0 Radium-226 (GFPC)	904 0 Radium-228 (GFPC)	
MW-302	10/26	1050	G	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-303	10/26	1230		Water					
MW-304	10/26	1230		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-305	10/25	1410		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-305A	10/26	1300		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-306	10/25	1505		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-310	10/25	1340		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-310A	10/26	1330		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-311	10/26	1540		Water					
MW-311A	10/26	1530		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-312	10/25	1710		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested I II III IV Other (specify):

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

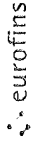
Special Instructions/QC Requirements:

Received by	Date/Time	Company	Method of Shipment:
Sum Mancusi	10/27 1200	SCS	
		Company	
		Company	

Cooler Temperature(s) °C and Other Remarks: 10-27-22 1700



Chain of Custody Record



Client Information Client Contact: Meghan Blodgett Company: SCS Engineers Address: 2830 Dairy Drive City: Madison State: WI Zip: 53718 Phone: 25222072 Email: mblodgett@scsengineers.com Project Name: Alliant OGS - 25222072 Site:		Sampler: Ryan Matzke Phone: 608-400-1517 Lab PIR: Fredrick Sandie E-Mail: Sandra.Fredrick@eurofins.com Carrier Tracking No(s): 310-75003-174872 State of Origin: Page 2 of 2 Job #:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: 25222072 WO #:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> 903.0 Radium 226 (CFR) <input checked="" type="checkbox"/> 904.0 Radium 228 (CFR) <input checked="" type="checkbox"/> 9056A ORGFM 28D Chloride, Fluoride & Sulfate <input checked="" type="checkbox"/> 6020A, 7470A <input checked="" type="checkbox"/> 2540C Calcd. SM4500_H+ <input checked="" type="checkbox"/>	
Sample Identification MW-313 Sample Date: 10/25 Sample Time: 1525 Sample Type (C=Comp, G=grab): G Preservation Code:		Matrix (W=Water, S=solid, O=soil, BT=Tissue, A=Air): Water Water Total Number of Containers:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)			
Empty Kit Relinquished by:			
Relinquished by: Sam Muzewski Date/Time: 10/27 12:00 Company: SCS		Method of Shipment:	
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Custody Seal No: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 16 27 22 1700	

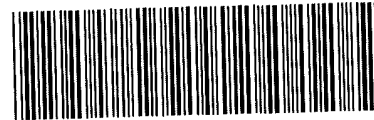


Chain of Custody Record

Client Information		Sampler: Ryan Matzuk		Lab P/M: Fredrick Sande	Carrier Tracking No(s): 310-75003-17487.2	
Client Contact: Meghan Blodgett		Phone: 603-700-9577	E-Mail: Sandra.Fredrick@et.eurofins.com	Page: Page 2 of 2		
Company: SCS Engineers		PWSID:	Job #: _____			
Address: 2830 Dairy Drive		Due Date Requested	Analysis Requested			
City: Madison	TAT Requested (days):	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - NaHSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)				
State, Zip: WI 53718	Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	Total Number of Containers				
Phone:	PO #: 25222072	Perform MS/MSD (Yes or No)				
Email: mblodgett@scsengineers.com	WO #: _____	Field Filtered Sample (Yes or No)				
Project Name: Alliant OGS - 25222072	Project #: 31011020	Special Instructions/Note:				
Site:	SSOW#: _____					
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, On-water, etc.)	Preservation Code	Special Instructions/Note
	10/25	1525		Water		
MW-313				Water		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)						
Empty Kit Relinquished by						
Relinquished by: Sean Muzenski	Date: 10/27	Time: 1200	Company: SCS	Received by		
Relinquished by:	Date/Time:		Company:	Received by:		
Relinquished by:	Date/Time:		Company:	Received by:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks				



Environment Testing
America



310-243393 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10-27-22</u>	TIME <u>1700</u>	Received By: <u>ML</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>T</u>	Correction Factor (°C): <u>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(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			



Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27 22</u>	TIME <u>1700</u>	Received By: <u>ML</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>12</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>T</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.1</u>	Corrected Temp (°C):	<u>2.1</u>
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

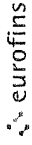
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Chain of Custody Record

Client Information		Sampler: Ryan Matzke	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-75003-174871
Company: SCS Engineers		Phone: 603-100-7597	E-Mail: Sandra.Fredrick@et.eurolfins.com	State of Origin:	Page: Page 1 of 2
Address: 2830 Dairy Drive		PMSID:		Job #:	
City: Madison		Due Date Requested:		Analysis Requested	
State Zip: WI 53718		TAT Requested (days):		Total Number of Containers	
Phone: 25222072		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Preservation Codes:	
Email: mblodgett@scsengineers.com		PO #: 25222072		A - HCL M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Project Name: Alliant OGS - 25222072		WO #: 31011020		Other	
Site:		Project #:		Special Instructions/Note:	
		SSOW#:			
Sample Identification		Field Filtered Sample (Yes or No)			
		Perform MS/MSD (Yes or No)			
		9030-Radium-226 (GPR)			
		9040-Radium-226 (GPR)			
		9056A-ORGM-28D - Chloride, Fluoride & Sulfate			
		6020A, 7470A			
		2540C_Calcd, SM4500_H+			
MW-302	10/26	050	Water	X	
MW-303			Water		
MW-304	10/26	1230	Water	X	
MW-305	10/25	1410	Water	X	
MW-305A	10/26	1300	Water	X	
MW-306	10/25	1505	Water	X	
MW-310	10/25	1340	Water	X	
MW-310A	10/26	1330	Water	X	
MW-311	10/26	1540	Water	X	
MW-311A	10/26	1530	Water	X	
MW-312	10/25	1710	Water	X	
Possible Hazard Identification		Sample Date		Sample Time	
<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		Date		Time	
Deliverable Requested I II III IV Other (specify)		Date/Time		Date/Time	
Empty Kit Relinquished by:		Date/Time		Date/Time	
Relinquished by: Ryan Matzke		Date/Time: 10/27 1200		Date/Time: 10/27-22 1700	
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks	



Chain of Custody Record



Client Information		Lab PM: Fredrick, Sandie		Carrier Tracking No(s): 310-75003-17487 1	
Client Contact: Meghan Bloodgett		E-Mail: Sandra.Fredrick@et.eurofins.com		Page: Page 1 of 2	
Company: SCS Engineers		PWSID:		Job #:	
Address: 2830 Dairy Drive		Due Date Requested:		Preservation Codes	
City: Madison		TAT Requested (days):		A HCL M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2SO3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 X Trizma Y Trizma Z other (specify)	
State, Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Total Number of Containers	
Phone: 25222072		PO #:		Total Number of Containers	
Email: mblodgett@scsengineers.com		WO #:		Special Instructions/Note	
Project Name: Alliant OGS - 25222072		Project #:			
Site:		SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Solid, Other)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Special Instructions/Note
						Field Filtered	MS/MSD	Perform	MS/MSD	
MW-302	10/26	1050	G		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-303					Water					
MW-304	10/26	1230			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-305	10/25	1410			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-305A	10/26	1300			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-306	10/25	1505			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-310	10/25	1310			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-310A	10/26	1330			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-311	10/26	1540			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-311A	10/26	1530			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-312	10/25	1710			Water			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by:		Method of Shipment:	
Relinquished by: <i>Sen mance</i>	Date/Time: 10/27 1200	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 10-27-22 1700
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	

Chain of Custody Record

Client Information		Lab P.M. Fredrick, Sandie		Carrier Tracking No(s) 310-75003-17487 2	
Client Contact: Meghan Blodgett		E-Mail: Sandra.Fredrick@et.euofins.com		Page: Page 2 of 2	
Company: SCS Engineers		Phone: 603-400-1577		Job #:	
Address: 2830 Dairy Drive		City: Madison		State of Origin:	
State/Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Preservation Codes:	
Phone:		PO #: 25222072		A HCL	
Email: mblodgett@scsengineers.com		WO #:		B NaOH	
Project Name: Alliant OGS - 25222072		Project #: 31011020		C Zn Acetate	
Site:		SSOW#:		D Nitric Acid	
				E NaHSO4	
				F MeOH	
				G Amchlor	
				H Ascorbic Acid	
				I Ice	
				J DI Water	
				K EDTA	
				L EDA	
				Other:	
				M - Hexane	
				N - None	
				O - AshNaO2	
				P Na2O4S	
				Q Na2SO3	
				R Na2SO3	
				S H2SO4	
				T - TSP Dodecahydrate	
				U Acetone	
				V MCAA	
				W pH 4-5	
				Y - Trizma	
				Z other (specify)	
				Total Number of containers	
				Special Instructions/Note	
Sample Identification		Sample Date: 10/25		9030 Radium 226 (CFE)	
MW-313		Sample Time: 1525		9040 Radium 226 (CFE)	
		Sample Type (C=comp, G=grab): G		9056A_ORGFM_28D Chloride, Fluoride & Sulfate	
		Sample Preservation Code: Water		6020A, 7470A	
		Matrix (Water, Swab, On-surface, BT-Tissue, AsAir): Water		2540C_Calcd, SM4500_H+	
		Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/>			
		Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/>			
		Analysis Requested			
		Possible Hazard Identification			
		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
		Deliverable Requested I II III IV Other (specify)			
		Empty Kit Relinquished by:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
		Relinquished by: Sean Muzewski		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
		Date/Time: 10/27 12:00		Special Instructions/QC Requirements	
		Date/Time:		Method of Shipment:	
		Date/Time:		Received by: _____ Company	
		Date/Time:		Received by: _____ Company	
		Date/Time:		Received by: _____ Company	
		Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 16 22 22 1700	



Chain of Custody Record

Client Information		Lab PM Fredrick, Sandie		Carrier Tracking No(s): 310-75003-17487 2		
Client Contact: Meghan Blodgett		E-Mail Sandra.Fredrick@st.eurofins.com		Page: Page 2 of 2		
Company: SCS Engineers		PWSID:		Job #:		
Address: 2830 Dairy Drive		Due Date Requested		Analysis Requested		
City: Madison		TAT Requested (days):		Total Number of Containers		
State Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Preservation Codes:		
Phone: 25222072		PO #: 25222072		A - HCL		
Email: mblodgett@scsengineers.com		WO #:		B - NaOH		
Project Name: Alliant OGS - 25222072		Project #: 31011020		C - Zn Acetate		
Site: 25222072		SSOW#:		D - Nitric Acid		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Solid, Oil)
MW-313		10/25	1525			Water
						Water
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Special Instructions/Note.		
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements		
Deliverable Requested I II III IV Other (specify)		Empty Kit Relinquished by		Method of Shipment:		
Relinquished by: <i>Sean Macewski</i>		Date: 10/27 1200		Received by: _____ Company: SCS		
Relinquished by:		Date/Time:		Received by: _____ Company: _____		
Relinquished by:		Date/Time:		Received by: _____ Company: _____		
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks		



Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: Eurofins America Laboratories, Inc.			Lab P/N: Fredrick, Sandie State of Origin: Iowa							
Address: 13715 Ridler Trail North, Cedar Falls, IA 50613 City: Cedar Falls, IA State: IA Zip: 50613 Phone: 319-298-6566 (Tel) 314-298-8757 (Fax) Email: sales@eurofins.com			GPO NS: 310-55350 1 Page 1 of 1 Us #							
Date Requested (days): 11/29/2022			Preservation Codes: A- HCl B- H2SO4 C- Zn Acetate D- Nitric Acid E- NaHSO4 F- NaOH G- Ammonia H- Acetic Acid I- Ice J- In Water K- pH 4.5 L- EDA M- Other:							
Analysis Requested			M- Hexane N- None O- AMMO2 P- Nitrogen Q- Nitrous Oxide R- Na2S2O3 S- H2SO4 T- FSP Dodecylsulfate U- Hg V- MCAA W- pH 4.5 X- Y- Trizma Z- other (specify)							
Sample ID	Sample Date	Sample Time	Sample Type (C=Composite, G=grab)	Matrix (Water, Seawater, Urine, etc)	Field Filled Sample (Yes or No)	Perform M/MSD (Yes or No)	803 (P/F) 21 Radium-226 (FP)	904 (P/F) 21 Radium-228 (FP)	Ra226, 228FP, Pl Combined Radium-226 and Radium-228	Analysis Requested
MW-302 (310-243393-1)	10/26/22	10:50	Central	Water	X	X	X	X	X	
MW-304 (310-243393-2)	10/26/22	15:19	Central	Water	X	X	X	X	X	
Special Instructions/Note: DO NOT SHIP ON ICE TO ST. LOUIS DO NOT SHIP ON ICE TO ST. LOUIS										
Total Number of containers: 2										
Special Instructions/Note: DO NOT SHIP ON ICE TO ST. LOUIS DO NOT SHIP ON ICE TO ST. LOUIS										

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontracted laboratories. The sample shipment is forwarded under chain of custody. If the laboratory does not currently maintain accreditation in the State of origin, please refer to the State of origin website for accreditation requirements. Accredited laboratories are required to maintain accreditation in the State of origin. Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody to Eurofins Environment Testing North Central, LLC. Accreditation should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months				
Deliverable Requested i, ii, iii, iv, Other (specify)	Primary Deliverable Rank 2				
Empty Kit Relinquished by	Date	Time	Method of Shipment		
Relinquished by: <i>[Signature]</i>	11/29	17:15	FED EX		
Relinquished by: FED EX	Date/Time		Received by: <i>[Signature]</i>	Date/Time	Company: FED EX
Relinquished by:	Date/Time		Received by: <i>[Signature]</i>	Date/Time	Company:
Custody Seal No. 3. Yes - 3, No	Custody Seal No. 6851				

Ver: 06/08/2021

Chain of Custody Record

Client Information (Sub Contract Lab)		Sampler: Lab P/L Fredrick, Sandie	Carrier Tracking No(s): 310-55349 1
Company: ResAmerica Laboratories Inc.		E-Mail: Fredrick@et.eurofins.com	State of Origin: Iowa
City: 13715 Rider Trail North		Phone: Fredrick@et.eurofins.com	Page: 1 of 1
State: Ia		Address: State Program - Iowa	Job #
City: Earth City		Due Date Requested: 11/29/2022	310-243393-2
State: Mo		TAT Requested (days):	
City: MO, 63045			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)			
Email:			
Project Name: Alliant OGS - 25222072 Ash Pond			
Display #:			
Site: 3503W			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Com, G=Grab)	Matrix (W=Water, S=Soil, O=Other, U=Unknown)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.01/r/csep, 21 Radium-226 (FFC)	903.01/r/csep, 0 Radium-226 (FFC)	904.01/r/csep, P Combined Radium-226 and Radium-228	Analysis Requested	Preservation Codes:	Total Number of Containers	Special Instructions/Note:
MW-305 (310-243393-3)	10/26/22	14:10	Central	Water	X	X	X	X	X		A-HCL M-Hexane N-None O-None P-N2O4S Q-None R-N2SO3 S-NH3SO4 T-None U-None	2	DO NOT SHIP ON ICE TO ST LOUIS
MW-305A (310-243393-4)	10/26/22	13:00	Central	Water	X	X	X	X	X		B-NHCl C-Acetic Acid D-NH3SO4 E-NH3SO4 F-NHCl G-NHCl H-Ascorbic Acid I-Di Water J-Di Water K-EDTA L-EDA M-None N-None O-None P-N2O4S Q-None R-N2SO3 S-NH3SO4 T-None U-None	2	DO NOT SHIP ON ICE TO ST LOUIS
MW-310 (310-243393-5)	10/26/22	15:05	Central	Water	X	X	X	X	X		V-MCAA W-PH 4-5 X-None Y-None Z-Other (Specify)	2	DO NOT SHIP ON ICE TO ST LOUIS
MW-310A (310-243393-7)	10/26/22	13:40	Central	Water	X	X	X	X	X			2	DO NOT SHIP ON ICE TO ST LOUIS
MW-311A (310-243393-9)	10/26/22	13:30	Central	Water	X	X	X	X	X			2	DO NOT SHIP ON ICE TO ST LOUIS
MW-312 (310-243393-10)	10/26/22	15:30	Central	Water	X	X	X	X	X			2	DO NOT SHIP ON ICE TO ST LOUIS
MW-313 (310-243393-11)	10/26/22	17:10	Central	Water	X	X	X	X	X			2	DO NOT SHIP ON ICE TO ST LOUIS
	10/26/22	15:45	Central	Water	X	X	X	X	X			2	DO NOT SHIP ON ICE TO ST LOUIS

Note: Since laboratory accelerations are subject to change, Eurofins Environment Testing North Central, LLC please the necessity of method, analyze & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain of custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/testing/matrix being analyzed the State of Origin listed above for analysis/testing/matrix being analyzed the State of Origin listed above for analysis/testing/matrix being analyzed the State of Origin listed above for analysis/testing/matrix being analyzed. If all requested accelerations are current to date, including signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accelerations are current to date, including signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately.

Possible Hazard Identification
 Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: Return To Client Disposal By Lab Archive For _____ Months

Relinquished by: <i>[Signature]</i>	Date: _____	Time: _____	Method of Shipment: FEDEX
Relinquished by: FEDEX	Date/Time: 10/26/22 15:30	Company: _____	Received by: <i>[Signature]</i>
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: _____
Custody Seals Intact: _____	Custody Seal No: _____	Company: _____	Other Time: _____
3. Yes 3. No		Company: _____	Other Time: _____

Ver: 06/08/2021



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243393-2

Login Number: 243393

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243393-2

Login Number: 243393

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 10/31/22 12:37 PM

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



Tracer/Carrier Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Ash Pond

Job ID: 310-243393-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)
310-243393-1	MW-302	85.7
310-243393-2	MW-304	92.5
310-243393-3	MW-305	90.1
310-243393-4	MW-305A	88.2
310-243393-5	MW-306	87.2
310-243393-6	MW-310	92.0
310-243393-7	MW-310A	90.1
310-243393-9	MW-311A	97.1
310-243393-10	MW-312	87.2
310-243393-11	MW-313	87.9
LCS 160-588508/2-A	Lab Control Sample	91.3
MB 160-588508/1-A	Method Blank	89.6

Tracer/Carrier Legend

Ba = Ba

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
310-243393-1	MW-302	85.7	79.3
310-243393-2	MW-304	92.5	75.9
310-243393-3	MW-305	90.1	81.1
310-243393-4	MW-305A	88.2	80.0
310-243393-5	MW-306	87.2	82.2
310-243393-6	MW-310	92.0	81.9
310-243393-7	MW-310A	90.1	82.6
310-243393-9	MW-311A	97.1	82.2
310-243393-10	MW-312	87.2	82.2
310-243393-11	MW-313	87.9	78.5
LCS 160-588509/2-A	Lab Control Sample	91.3	82.2
MB 160-588509/1-A	Method Blank	89.6	81.9

Tracer/Carrier Legend

Ba = Ba

Y = Y Carrier



Environment Testing

ANALYTICAL REPORT

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

Laboratory Job ID: 310-243398-1

Client Project/Site: Alliant OGS - 25222072 Background MNA

For:

SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett

Authorized for release by:
11/8/2022 5:27:48 PM

Sandie Fredrick, Project Manager II
(920)261-1660
Sandra.Fredrick@et.eurofinsus.com



LINKS

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www.eurofinsus.com/Env

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

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

- 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	8
QC Sample Results	9
QC Association	11
Chronicle	12
Certification Summary	13
Method Summary	14
Chain of Custody	15
Receipt Checklists	17

Case Narrative

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Job ID: 310-243398-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-243398-1

Comments

No additional comments.

Receipt

The samples were received on 10/27/2022 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -0.2° C.

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.

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

Sample Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-243398-1	MW-301	Water	10/26/22 08:05	10/27/22 17:00
310-243398-2	Field Blank	Water	10/26/22 07:40	10/27/22 17:00

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- 3
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Detection Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Client Sample ID: MW-301

Lab Sample ID: 310-243398-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	73000		1000	610	ug/L	1		6020B	Total/NA
Potassium	980		500	150	ug/L	1		6020B	Total/NA
Magnesium	28000		500	150	ug/L	1		6020B	Total/NA
Manganese	8.0	J	10	3.6	ug/L	1		6020B	Total/NA
Manganese	7.9	J	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	250		10	4.6	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	250		10	4.6	mg/L	1		SM 2320B	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-243398-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Backgournd MNA

Job ID: 310-243398-1

Client Sample ID: MW-301
 Date Collected: 10/26/22 08:05
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243398-1
 Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	73000		1000	610	ug/L		10/31/22 09:45	11/04/22 20:34	1
Potassium	980		500	150	ug/L		10/31/22 09:45	11/04/22 20:34	1
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 20:34	1
Magnesium	28000		500	150	ug/L		10/31/22 09:45	11/04/22 20:34	1
Manganese	8.0	J	10	3.6	ug/L		10/31/22 09:45	11/04/22 20:34	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 21:34	1
Manganese	7.9	J	10	3.6	ug/L		10/31/22 09:45	11/07/22 21:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	250		10	4.6	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<4.6		10	4.6	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3 (SM 2320B)	250		10	4.6	mg/L			11/08/22 11:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Backgournd MNA

Job ID: 310-243398-1

Client Sample ID: Field Blank

Lab Sample ID: 310-243398-2

Date Collected: 10/26/22 07:40

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 20:59	1
Magnesium	<150		500	150	ug/L		10/31/22 09:45	11/04/22 20:59	1
Manganese	<3.6		10	3.6	ug/L		10/31/22 09:45	11/04/22 20:59	1
Potassium	<150		500	150	ug/L		10/31/22 09:45	11/04/22 20:59	1
Sodium	<610		1000	610	ug/L		10/31/22 09:45	11/04/22 20:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	<2.3		5.0	2.3	mg/L			10/29/22 14:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.3		5.0	2.3	mg/L			10/29/22 14:39	1
Total Alkalinity as CaCO3 (SM 2320B)	<2.3		5.0	2.3	mg/L			10/29/22 14:39	1

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- 14

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Qualifiers

Metals

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Backgournd MNA

Job ID: 310-243398-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-370224/1-A
Matrix: Water
Analysis Batch: 371144

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370224

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sodium	<610		1000	610	ug/L		10/31/22 09:45	11/04/22 19:16	1
Potassium	<150		500	150	ug/L		10/31/22 09:45	11/04/22 19:16	1
Iron	<36		100	36	ug/L		10/31/22 09:45	11/04/22 19:16	1
Magnesium	<150		500	150	ug/L		10/31/22 09:45	11/04/22 19:16	1
Manganese	<3.6		10	3.6	ug/L		10/31/22 09:45	11/04/22 19:16	1

Lab Sample ID: LCS 310-370224/2-A
Matrix: Water
Analysis Batch: 371144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370224

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	2000	1820		ug/L		91	80 - 120
Iron	200	175		ug/L		88	80 - 120
Magnesium	2000	1610		ug/L		81	80 - 120
Manganese	100	87.3		ug/L		87	80 - 120

Lab Sample ID: MB 310-370225/1-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370225

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron	<36		100	36	ug/L		10/31/22 09:45	11/07/22 19:17	1
Manganese	<3.6		10	3.6	ug/L		10/31/22 09:45	11/07/22 19:17	1

Lab Sample ID: LCS 310-370225/2-A
Matrix: Water
Analysis Batch: 371296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370225

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	100	106		ug/L		106	80 - 120

Method: 2320B - Alkalinity (Low Level)

Lab Sample ID: MB 310-370263/1
Matrix: Water
Analysis Batch: 370263

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bicarbonate Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			10/29/22 14:39	1
Carbonate Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			10/29/22 14:39	1
Total Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			10/29/22 14:39	1

Lab Sample ID: LCS 310-370263/2
Matrix: Water
Analysis Batch: 370263

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

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

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QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-371321/1
Matrix: Water
Analysis Batch: 371321

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			11/08/22 11:10	1
Carbonate Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			11/08/22 11:10	1
Total Alkalinity as CaCO3	<2.3		5.0	2.3	mg/L			11/08/22 11:10	1

Lab Sample ID: LCS 310-371321/2
Matrix: Water
Analysis Batch: 371321

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	1000	1020		mg/L		102	90 - 110

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QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Backgournd MNA

Job ID: 310-243398-1

Metals

Prep Batch: 370224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243398-1	MW-301	Total/NA	Water	3005A	
310-243398-2	Field Blank	Total/NA	Water	3005A	
MB 310-370224/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-370224/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 370225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243398-1	MW-301	Dissolved	Water	3005A	
MB 310-370225/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-370225/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 371144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243398-1	MW-301	Total/NA	Water	6020B	370224
310-243398-2	Field Blank	Total/NA	Water	6020B	370224
MB 310-370224/1-A	Method Blank	Total/NA	Water	6020B	370224
LCS 310-370224/2-A	Lab Control Sample	Total/NA	Water	6020B	370224

Analysis Batch: 371296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243398-1	MW-301	Dissolved	Water	6020B	370225
MB 310-370225/1-A	Method Blank	Total/NA	Water	6020B	370225
LCS 310-370225/2-A	Lab Control Sample	Total/NA	Water	6020B	370225

General Chemistry

Analysis Batch: 370263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243398-2	Field Blank	Total/NA	Water	2320B	
MB 310-370263/1	Method Blank	Total/NA	Water	2320B	
LCS 310-370263/2	Lab Control Sample	Total/NA	Water	2320B	

Analysis Batch: 371321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243398-1	MW-301	Total/NA	Water	SM 2320B	
MB 310-371321/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-371321/2	Lab Control Sample	Total/NA	Water	SM 2320B	

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Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Client Sample ID: MW-301

Date Collected: 10/26/22 08:05

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243398-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			370225	DHM5	EET CF	10/31/22 09:45
Dissolved	Analysis	6020B		1	371296	A6US	EET CF	11/07/22 21:34
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:34
Total/NA	Analysis	SM 2320B		1	371321	MAQ3	EET CF	11/08/22 11:10

Client Sample ID: Field Blank

Date Collected: 10/26/22 07:40

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243398-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			370224	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371144	A6US	EET CF	11/04/22 20:59
Total/NA	Analysis	2320B		1	370263	MAQ3	EET CF	10/29/22 14:39

Laboratory References:

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



Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

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Method Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background MNA

Job ID: 310-243398-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	EET CF
2320B	Alkalinity (Low Level)	SM	EET CF
SM 2320B	Alkalinity	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

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:

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

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Environment Testing
America



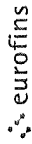
310-243398 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27-22</u>	TIME <u>1700</u>	Received By: <u>AK</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>T</u>	Correction Factor (°C):	<u>0</u>
* Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>-0.2</u>	Corrected Temp (°C):	<u>-0.2</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			



Chain of Custody Record



Client Information		Sampler		Lab P#		Carrier Tracking No(s)		COC No:																																																																																																																																																																																
Client Contact: Meghan Blodgett SCS Engineers		Ryar Matzuk 603-400-9597		Fredrick, Sande Sandra.Fredrick@et.eurofins.com		310-75002-17486 1		310-75002-17486 1																																																																																																																																																																																
Address: 2830 Dairy Drive Madison State, Zip: WI 53718 Phone: Email: Project Name: Site:		Company: PWSID:		E-Mail: Sandra.Fredrick@et.eurofins.com		State of Origin:		Page: Page 1 of 1 Job #:																																																																																																																																																																																
Due Date Requested:		TAT Requested (days)		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		PO #: 25222072		WO #:																																																																																																																																																																																
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Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Swab, Soil, Other)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		2320B - Alkalinity/Carb/Bicarb		6020A Metals (5)		6020A D Metals (2-4)		Special Instructions/Note																																																																																																																																																																								
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<p>Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological</p> <p>Deliverable Requested I II III IV Other (specify)</p> <p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: <u>Sean Muzorse</u> Date/Time: <u>10/27 1200</u> Company: <u>SCS</u></p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks: _____</p>																																																																																																																																																																																								
<p>Analysis Requested</p> <table border="1"> <tr> <td colspan="2">Total Number of Containers</td> <td colspan="2">X</td> </tr> <tr> <td colspan="2">M - Hexane</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">N - None</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">O - AsNaO2</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">P - Na2O4S</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">D - Nitric Acid</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">E - NaHSO4</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">F - MeOH</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">G - Amchlor</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">H - Ascorbic Acid</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">I - Ice</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">J - DI Water</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">K - EDTA</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">L - EDA</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Other:</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Preservation Codes</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">A - HCL</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">B - NaOH</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">C - Zn Acetate</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">D - Nitric Acid</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">E - NaHSO4</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">F - MeOH</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">G - Amchlor</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">H - Ascorbic Acid</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">I - Ice</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">J - DI Water</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">K - EDTA</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">L - EDA</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Other:</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">M - Hexane</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">N - None</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">O - AsNaO2</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">P - Na2O4S</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Q - Na2SO3</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">R - Na2SO3</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">S - H2SO4</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">T - TSP Dodecahydrate</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">U - Acetone</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">V - MCAA</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">W - pH 4-5</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Y - Trizma</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Z - other (specify)</td> <td colspan="2"></td> </tr> </table>																	Total Number of Containers		X		M - Hexane				N - None				O - AsNaO2				P - Na2O4S				D - Nitric Acid				E - NaHSO4				F - MeOH				G - Amchlor				H - Ascorbic Acid				I - Ice				J - DI Water				K - EDTA				L - EDA				Other:				Preservation Codes				A - HCL				B - NaOH				C - Zn Acetate				D - Nitric Acid				E - NaHSO4				F - MeOH				G - Amchlor				H - Ascorbic Acid				I - Ice				J - DI Water				K - EDTA				L - EDA				Other:				M - Hexane				N - None				O - AsNaO2				P - Na2O4S				Q - Na2SO3				R - Na2SO3				S - H2SO4				T - TSP Dodecahydrate				U - Acetone				V - MCAA				W - pH 4-5				Y - Trizma				Z - other (specify)			
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V - MCAA																																																																																																																																																																																								
W - pH 4-5																																																																																																																																																																																								
Y - Trizma																																																																																																																																																																																								
Z - other (specify)																																																																																																																																																																																								
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/QC Requirements</p>																																																																																																																																																																																								
<p>Method of Shipment: _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Received by: <u>AK</u> Date/Time: <u>10-27-22</u> Company: _____</p>																																																																																																																																																																																								



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243398-1

SDG Number:

Login Number: 243398

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



ANALYTICAL REPORT

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

Laboratory Job ID: 310-243396-1

Client Project/Site: Alliant OGS - 25222072 Background

For:

SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Attn: Meghan Blodgett



Authorized for release by:

11/8/2022 4:40:21 PM

Sandie Fredrick, Project Manager II
(920)261-1660

Sandra.Fredrick@et.eurofinsus.com

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

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



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	8
QC Sample Results	9
QC Association	11
Chronicle	13
Certification Summary	14
Method Summary	15
Chain of Custody	16
Receipt Checklists	19
Field Data Sheets	20

Case Narrative

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Job ID: 310-243396-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-243396-1

Comments

No additional comments.

Receipt

The samples were received on 10/27/2022 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -0.1° C.

HPLC/IC

Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-301 (310-243396-1). Elevated reporting limits (RLs) are provided.

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

Metals

Methods 6020A, 6020B: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: MW-301 (310-243396-1) and Field Blank (310-243396-2).

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

General Chemistry

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



Sample Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-243396-1	MW-301	Water	10/26/22 08:05	10/27/22 17:00
310-243396-2	Field Blank	Water	10/26/22 07:40	10/27/22 17:00

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Detection Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Client Sample ID: MW-301

Lab Sample ID: 310-243396-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	160		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	180		5.0	2.0	mg/L	5		9056A	Total/NA
Barium	44		2.0	0.88	ug/L	1		6020B	Total/NA
Boron	780		100	58	ug/L	1		6020B	Total/NA
Cadmium	0.055	J	0.10	0.055	ug/L	1		6020B	Total/NA
Calcium	110		0.50	0.19	mg/L	1		6020B	Total/NA
Chromium	1.2	J	5.0	1.1	ug/L	1		6020B	Total/NA
Cobalt	0.29	J	0.50	0.19	ug/L	1		6020B	Total/NA
Lithium	30	J	70	18	ug/L	7		6020B	Total/NA
Selenium	6.9		5.0	0.96	ug/L	1		6020B	Total/NA
Total Dissolved Solids	690		50	26	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	680.68				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	26.9				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.74				mg/L	1		Field Sampling	Total/NA
pH, Field	6.29				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1036				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	14.6				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.62				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-243396-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	0.27	J	0.50	0.19	mg/L	1		6020B	Total/NA
pH	6.4	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Client Sample ID: MW-301

Lab Sample ID: 310-243396-1

Date Collected: 10/26/22 08:05

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		5.0	2.3	mg/L			11/07/22 16:08	5
Fluoride	<0.22		0.50	0.22	mg/L			11/07/22 16:08	5
Sulfate	180		5.0	2.0	mg/L			11/07/22 16:08	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		10/31/22 09:45	11/07/22 15:20	1
Arsenic	<0.75		2.0	0.75	ug/L		10/31/22 09:45	11/03/22 20:31	1
Barium	44		2.0	0.88	ug/L		10/31/22 09:45	11/03/22 20:31	1
Beryllium	<0.27		1.0	0.27	ug/L		10/31/22 09:45	11/03/22 20:31	1
Boron	780		100	58	ug/L		10/31/22 09:45	11/03/22 20:31	1
Cadmium	0.055	J	0.10	0.055	ug/L		10/31/22 09:45	11/03/22 20:31	1
Calcium	110		0.50	0.19	mg/L		10/31/22 09:45	11/03/22 20:31	1
Chromium	1.2	J	5.0	1.1	ug/L		10/31/22 09:45	11/03/22 20:31	1
Cobalt	0.29	J	0.50	0.19	ug/L		10/31/22 09:45	11/03/22 20:31	1
Lead	<0.24		0.50	0.24	ug/L		10/31/22 09:45	11/03/22 20:31	1
Lithium	30	J	70	18	ug/L		10/31/22 09:45	11/07/22 18:55	7
Molybdenum	<8.4		14	8.4	ug/L		10/31/22 09:45	11/07/22 18:55	7
Selenium	6.9		5.0	0.96	ug/L		10/31/22 09:45	11/03/22 20:31	1
Thallium	<0.26		1.0	0.26	ug/L		10/31/22 09:45	11/03/22 20:31	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	690		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	6.7	HF	0.1	0.1	SU			10/27/22 20:44	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	680.68				ft			10/26/22 08:05	1
Oxidation Reduction Potential	26.9				millivolts			10/26/22 08:05	1
Oxygen, Dissolved, Client Supplied	4.74				mg/L			10/26/22 08:05	1
pH, Field	6.29				SU			10/26/22 08:05	1
Specific Conductance, Field	1036				umhos/cm			10/26/22 08:05	1
Temperature, Field	14.6				Degrees C			10/26/22 08:05	1
Turbidity, Field	0.62				NTU			10/26/22 08:05	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Client Sample ID: Field Blank

Lab Sample ID: 310-243396-2

Date Collected: 10/26/22 07:40

Matrix: Water

Date Received: 10/27/22 17:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			11/07/22 16:20	1
Fluoride	<0.044		0.10	0.044	mg/L			11/07/22 16:20	1
Sulfate	<0.40		1.0	0.40	mg/L			11/07/22 16:20	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		10/31/22 09:45	11/07/22 15:23	1
Arsenic	<0.75		2.0	0.75	ug/L		10/31/22 09:45	11/03/22 20:34	1
Barium	<0.88		2.0	0.88	ug/L		10/31/22 09:45	11/03/22 20:34	1
Beryllium	<0.27		1.0	0.27	ug/L		10/31/22 09:45	11/03/22 20:34	1
Boron	<58		100	58	ug/L		10/31/22 09:45	11/03/22 20:34	1
Cadmium	<0.055		0.10	0.055	ug/L		10/31/22 09:45	11/03/22 20:34	1
Calcium	0.27	J	0.50	0.19	mg/L		10/31/22 09:45	11/03/22 20:34	1
Chromium	<1.1		5.0	1.1	ug/L		10/31/22 09:45	11/03/22 20:34	1
Cobalt	<0.19		0.50	0.19	ug/L		10/31/22 09:45	11/03/22 20:34	1
Lead	<0.24		0.50	0.24	ug/L		10/31/22 09:45	11/03/22 20:34	1
Lithium	<18		70	18	ug/L		10/31/22 09:45	11/07/22 18:58	7
Molybdenum	<8.4		14	8.4	ug/L		10/31/22 09:45	11/07/22 18:58	7
Selenium	<0.96		5.0	0.96	ug/L		10/31/22 09:45	11/03/22 20:34	1
Thallium	<0.26		1.0	0.26	ug/L		10/31/22 09:45	11/03/22 20:34	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<26		50	26	mg/L			10/30/22 05:24	1
pH (SM 4500 H+ B)	6.4	HF	0.1	0.1	SU			10/27/22 20:46	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Qualifiers

Metals

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

General Chemistry

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-371316/3
Matrix: Water
Analysis Batch: 371316

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			11/07/22 11:15	1
Fluoride	<0.044		0.10	0.044	mg/L			11/07/22 11:15	1
Sulfate	<0.40		1.0	0.40	mg/L			11/07/22 11:15	1

Lab Sample ID: LCS 310-371316/4
Matrix: Water
Analysis Batch: 371316

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	9.90		mg/L		99	90 - 110
Fluoride	2.00	2.10		mg/L		105	90 - 110
Sulfate	10.0	10.4		mg/L		104	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-370221/1-A
Matrix: Water
Analysis Batch: 370535

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370221

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.69		2.0	0.69	ug/L		10/31/22 09:45	11/01/22 14:36	1
Arsenic	<0.75		2.0	0.75	ug/L		10/31/22 09:45	11/01/22 14:36	1
Barium	<0.88		2.0	0.88	ug/L		10/31/22 09:45	11/01/22 14:36	1
Beryllium	<0.27		1.0	0.27	ug/L		10/31/22 09:45	11/01/22 14:36	1
Boron	<58		100	58	ug/L		10/31/22 09:45	11/01/22 14:36	1
Cadmium	<0.055		0.10	0.055	ug/L		10/31/22 09:45	11/01/22 14:36	1
Calcium	<0.19		0.50	0.19	mg/L		10/31/22 09:45	11/01/22 14:36	1
Chromium	<1.1		5.0	1.1	ug/L		10/31/22 09:45	11/01/22 14:36	1
Cobalt	<0.19		0.50	0.19	ug/L		10/31/22 09:45	11/01/22 14:36	1
Lead	<0.24		0.50	0.24	ug/L		10/31/22 09:45	11/01/22 14:36	1
Lithium	<2.5		10	2.5	ug/L		10/31/22 09:45	11/01/22 14:36	1
Molybdenum	<1.2		2.0	1.2	ug/L		10/31/22 09:45	11/01/22 14:36	1
Selenium	<0.96		5.0	0.96	ug/L		10/31/22 09:45	11/01/22 14:36	1
Thallium	<0.26		1.0	0.26	ug/L		10/31/22 09:45	11/01/22 14:36	1

Lab Sample ID: LCS 310-370221/2-A
Matrix: Water
Analysis Batch: 370535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370221

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	239		ug/L		120	80 - 120
Arsenic	200	210		ug/L		105	80 - 120
Barium	100	109		ug/L		109	80 - 120
Beryllium	100	111		ug/L		111	80 - 120
Boron	200	204		ug/L		102	80 - 120
Cadmium	100	111		ug/L		111	80 - 120
Calcium	2.00	2.31		mg/L		115	80 - 120
Chromium	100	103		ug/L		103	80 - 120
Cobalt	100	111		ug/L		111	80 - 120

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

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

Lab Sample ID: LCS 310-370221/2-A
 Matrix: Water
 Analysis Batch: 370535

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 370221

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	200	219		ug/L		110	80 - 120
Lithium	200	222		ug/L		111	80 - 120
Molybdenum	200	221		ug/L		110	80 - 120
Selenium	400	412		ug/L		103	80 - 120
Thallium	200	229		ug/L		115	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-370680/1-A
 Matrix: Water
 Analysis Batch: 370843

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 370680

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.11		0.20	0.11	ug/L		11/02/22 17:55	11/03/22 15:30	1

Lab Sample ID: LCS 310-370680/2-A
 Matrix: Water
 Analysis Batch: 370843

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 370680

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.52		ug/L		91	80 - 120

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

Lab Sample ID: MB 310-370266/1
 Matrix: Water
 Analysis Batch: 370266

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<26		50	26	mg/L			10/30/22 05:24	1

Lab Sample ID: LCS 310-370266/2
 Matrix: Water
 Analysis Batch: 370266

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	960		mg/L		96	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-370088/1
 Matrix: Water
 Analysis Batch: 370088

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	7.1		SU		101	98 - 102

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

HPLC/IC

Analysis Batch: 371316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	9056A	
310-243396-2	Field Blank	Total/NA	Water	9056A	
MB 310-371316/3	Method Blank	Total/NA	Water	9056A	
LCS 310-371316/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 370221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	3005A	
310-243396-2	Field Blank	Total/NA	Water	3005A	
MB 310-370221/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-370221/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 370535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-370221/1-A	Method Blank	Total/NA	Water	6020B	370221
LCS 310-370221/2-A	Lab Control Sample	Total/NA	Water	6020B	370221

Prep Batch: 370680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	7470A	
310-243396-2	Field Blank	Total/NA	Water	7470A	
MB 310-370680/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-370680/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 370843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	7470A	370680
310-243396-2	Field Blank	Total/NA	Water	7470A	370680
MB 310-370680/1-A	Method Blank	Total/NA	Water	7470A	370680
LCS 310-370680/2-A	Lab Control Sample	Total/NA	Water	7470A	370680

Analysis Batch: 370897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	6020B	370221
310-243396-2	Field Blank	Total/NA	Water	6020B	370221

Analysis Batch: 371241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	6020B	370221
310-243396-2	Field Blank	Total/NA	Water	6020B	370221

Analysis Batch: 371296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	6020B	370221
310-243396-2	Field Blank	Total/NA	Water	6020B	370221

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

General Chemistry

Analysis Batch: 370088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-243396-2	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-370088/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 370266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	SM 2540C	
310-243396-2	Field Blank	Total/NA	Water	SM 2540C	
MB 310-370266/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-370266/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 370344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	Field Sampling	

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- 2
- 3
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- 13
- 14
- 15

Lab Chronicle

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Client Sample ID: MW-301

Lab Sample ID: 310-243396-1

Date Collected: 10/26/22 08:05

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	371316	J7CK	EET CF	11/07/22 16:08
Total/NA	Prep	3005A			370221	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	370897	A6US	EET CF	11/03/22 20:31
Total/NA	Prep	3005A			370221	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371241	A6US	EET CF	11/07/22 15:20
Total/NA	Prep	3005A			370221	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		7	371296	A6US	EET CF	11/07/22 18:55
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:54
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:44
Total/NA	Analysis	Field Sampling		1	370344	BJ0R	EET CF	10/26/22 08:05

Client Sample ID: Field Blank

Lab Sample ID: 310-243396-2

Date Collected: 10/26/22 07:40

Matrix: Water

Date Received: 10/27/22 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	371316	J7CK	EET CF	11/07/22 16:20
Total/NA	Prep	3005A			370221	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	370897	A6US	EET CF	11/03/22 20:34
Total/NA	Prep	3005A			370221	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		1	371241	A6US	EET CF	11/07/22 15:23
Total/NA	Prep	3005A			370221	DHM5	EET CF	10/31/22 09:45
Total/NA	Analysis	6020B		7	371296	A6US	EET CF	11/07/22 18:58
Total/NA	Prep	7470A			370680	XXW3	EET CF	11/02/22 17:55
Total/NA	Analysis	7470A		1	370843	XXW3	EET CF	11/03/22 15:56
Total/NA	Analysis	SM 2540C		1	370266	WZC8	EET CF	10/30/22 05:24
Total/NA	Analysis	SM 4500 H+ B		1	370088	DN3P	EET CF	10/27/22 20:46

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

- 1
- 2
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- 5
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Method Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET 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:

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





Environment Testing
America



310-243396 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27 22</u>	TIME <u>1700</u>	Received By: <u>[Signature]</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>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(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information		Sampler: <u>Ryan Matzka</u>		Lab PM: <u>Fredrick, Sandie</u>	Carrier Tracking No(s):	COC No: <u>310-75001-17485 1</u>
Client Contact: <u>Meghan Blodgett</u>		Phone: <u>608 400 9597</u>		E-Mail: <u>Sandra.Fredrick@eurofins.com</u>	State of Origin:	Page: <u>Page 1 of 1</u>
Company: <u>SCS Engineers</u>		PWSID		Job #:		
Address: <u>2830 Dairy Drive</u>		Due Date Requested:		Analysis Requested		
City: <u>Madison</u>		TAT Requested (days):		Total Number of Containers		
State Zip: <u>WI 53718</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Preservation Codes		
Phone:		PO #: <u>25222072</u>		A HCL M - Hexane		
Email: <u>mblodgett@scsengineers.com</u>		WO #: <u>31011020</u>		B NaOH N - None		
Project Name: <u>Alliant OGS - 25222072</u>		Project #: <u>31011020</u>		C Zn Acetate O AsNaO2		
Site:		SSOW#:		D - Nitric Acid P - Na2SO3		
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code	Matrix (Water, Spill, On-wastewater, Air)
MW-301		10/26	805	C	N	Water
Field Blank		10/26	740	C	N	Water
						Water
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)						
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: <u>Sean M Szwajgi</u> Date/Time: <u>10/27 1200</u> Company: <u>SCS</u> Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks: _____						



Chain of Custody Record

Client Information Client Contact: Meghan Blodgett Company: SCS Engineers Address: 2830 Dairy Drive City: Madison State: WI Zip: 53718 Phone: 25222072 Email: mblodgett@scsengineers.com Project Name: Alliant OGS - 25222072 Site:		Sampler: <u>Ryan Matzuk</u> Photo: <u>608 Yoc 9517</u> Lab PM: Fredrick Sandie E-Mail: Sandra.Fredrick@eurofins.com Carrier Tracking No(s): State of Origin: Job #:		COC No: 310-75001-17485.1 Page: Page 1 of 1	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: 25222072 WO #: Project #: 31011020 SSOW#:		Analysis Requested			
Sample Identification MW-301 Field Blank		Sample Date 10/26 10/26	Sample Time 305 740	Sample Type (C=comp, G=grab) G G	Matrix (W=Water, S=Soil, O=Organic, ST=Stem, A=Air) Water Water Water
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 900.0 - Radium-226 (GPR) 904.0 - Radium-226 (GPR) 9056A - ORGM_28D - Chloride, Fluoride & Sulfate 6020A, 7470A 2640C_Calcd, SM4500_H+		Total Number of Containers <input checked="" type="checkbox"/>			
Special Instructions/Note: MW-301 Field Blank		Preservation Codes: A HCL B NaOH C Zn Acetate D - Nitric Acid E NaHSO4 F MeOH G Anchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other: M - Hexane N None O - AsNaO2 P - Na2OAS Q Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Tris Z other (specify)			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)					
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: <u>Sean Murzewski</u> Date/Time: 10/27 1200 Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____					
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 10-27-22 1700			



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243396-1

Login Number: 243396

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Table 1. Groundwater Monitoring Results - Field Parameters
Ottumwa Generating Station / SCS Engineers Project No. 25222072.00
October 2022

Sample	Date/Sample Time	Groundwater Elevation (amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity
MW-301	10/26/2022 805	680.68	14.6	6.29	4.74	1036	26.9	0.62
MW-307	10/25/2022 1600	643.46	12.9	6.50	0.22	1604	-36.4	7.21
MW-308	10/26/2022 1025	641.13	12.8	6.50	0.00	1507	-5.7	1.98
MW-309	10/26/2022 905	640.43	12.6	6.89	0.00	1378	4.9	0.79

Abbreviations:

mg/L = milligrams per liter

amsl = above mean sea level

NA = Not Analyzed

NM= Not Measured

Created by: MDB
 Last revision by: RM
 Checked by: DK

Date: 5/1/2017
 Date: 10/28/2022
 Date: 10/28/2022

C:\Users\hld0\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\USG3GGGC\[2210_October - OGS ZLDP_CCR_Field.xlsx]GW Field Parameters



ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Generated 11/30/2022 3:39:42 PM

JOB DESCRIPTION

Alliant OGS - 25222072 Background

JOB NUMBER

310-243396-2

Eurofins Cedar Falls

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
11/30/2022 3:39:42 PM

Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Sample Summary	5
Detection Summary	6
Client Sample Results	7
Definitions	9
QC Sample Results	10
QC Association	11
Chronicle	12
Certification Summary	13
Method Summary	14
Chain of Custody	15
Receipt Checklists	19
Tracer Carrier Summary	21

Case Narrative

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Job ID: 310-243396-2

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-243396-2

Comments

No additional comments.

Receipt

The samples were received on 10/27/2022 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -0.1° C.

RAD

Methods 903.0, 9315: Radium-226 batch 588508

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-243396-1), Field Blank (310-243396-2), (LCS 160-588508/2-A), (MB 160-588508/1-A), (310-243392-D-6-A), (310-243392-C-6-A MS) and (310-243392-C-6-B MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-588509:

The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. (310-243392-D-6-B), (310-243392-C-6-C MS) and (310-243392-C-6-D MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-588509:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-243396-1), Field Blank (310-243396-2), (LCS 160-588509/2-A), (MB 160-588509/1-A), (310-243392-D-6-B), (310-243392-C-6-C MS) and (310-243392-C-6-D MSD)

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

Sample Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-243396-1	MW-301	Water	10/26/22 08:05	10/27/22 17:00
310-243396-2	Field Blank	Water	10/26/22 07:40	10/27/22 17:00

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Detection Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Client Sample ID: MW-301

Lab Sample ID: 310-243396-1

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 310-243396-2

No Detections.

1

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This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Client Sample ID: MW-301
 Date Collected: 10/26/22 08:05
 Date Received: 10/27/22 17:00

Lab Sample ID: 310-243396-1
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.223		0.0903	0.0925	1.00	0.0904	pCi/L	11/04/22 06:23	11/30/22 07:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.2		40 - 110					11/04/22 06:23	11/30/22 07:57	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.750		0.397	0.403	1.00	0.565	pCi/L	11/04/22 06:53	11/18/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.2		40 - 110					11/04/22 06:53	11/18/22 13:54	1
Y Carrier	86.4		40 - 110					11/04/22 06:53	11/18/22 13:54	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.973		0.407	0.413	5.00	0.565	pCi/L		11/30/22 14:45	1

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

Client Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Client Sample ID: Field Blank

Lab Sample ID: 310-243396-2

Date Collected: 10/26/22 07:40

Matrix: Water

Date Received: 10/27/22 17:00

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.00296	U	0.0410	0.0410	1.00	0.0879	pCi/L	11/04/22 06:23	11/30/22 07:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.4		40 - 110					11/04/22 06:23	11/30/22 07:57	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.592		0.390	0.394	1.00	0.587	pCi/L	11/04/22 06:53	11/18/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba	87.4		40 - 110					11/04/22 06:53	11/18/22 13:54	1
Y Carrier	85.2		40 - 110					11/04/22 06:53	11/18/22 13:54	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.595		0.392	0.396	5.00	0.587	pCi/L		11/30/22 14:45	1



Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Qualifiers

Rad

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-588508/1-A
Matrix: Water
Analysis Batch: 591653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 588508

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium 226	0.06780	U	0.0705	0.0708	1.00	0.112	pCi/L	11/04/22 06:23	11/30/22 08:00	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba	89.6		40 - 110			11/04/22 06:23	11/30/22 08:00	1		

Lab Sample ID: LCS 160-588508/2-A
Matrix: Water
Analysis Batch: 591653

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 588508

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium 226	11.3	9.751		1.02	1.00	0.120	pCi/L	86	75 - 125
Carrier	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba	91.3		40 - 110						

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-588509/1-A
Matrix: Water
Analysis Batch: 590568

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 588509

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium 228	0.7488		0.450	0.455	1.00	0.674	pCi/L	11/04/22 06:53	11/18/22 13:48	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba	89.6		40 - 110			11/04/22 06:53	11/18/22 13:48	1		
Y Carrier	81.9		40 - 110			11/04/22 06:53	11/18/22 13:48	1		

Lab Sample ID: LCS 160-588509/2-A
Matrix: Water
Analysis Batch: 590568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 588509

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium 228	8.43	10.25		1.36	1.00	0.561	pCi/L	122	75 - 125
Carrier	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba	91.3		40 - 110						
Y Carrier	82.2		40 - 110						

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Rad

Prep Batch: 588508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	PrecSep-21	
310-243396-2	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-588508/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-588508/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 588509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-243396-1	MW-301	Total/NA	Water	PrecSep_0	
310-243396-2	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-588509/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-588509/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Client Sample ID: MW-301

Date Collected: 10/26/22 08:05

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243396-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:57
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:54
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Client Sample ID: Field Blank

Date Collected: 10/26/22 07:40

Date Received: 10/27/22 17:00

Lab Sample ID: 310-243396-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			588508	BMP	EET SL	11/04/22 06:23
Total/NA	Analysis	903.0		1	591652	FLC	EET SL	11/30/22 07:57
Total/NA	Prep	PrecSep_0			588509	BMP	EET SL	11/04/22 06:53
Total/NA	Analysis	904.0		1	590569	FLC	EET SL	11/18/22 13:54
Total/NA	Analysis	Ra226_Ra228 Pos		1	591701	MLK	EET SL	11/30/22 14:45

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	12-31-22

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

Eurofins Cedar Falls

Method Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228 Pos	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

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

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Environment Testing
America



310-243396 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Madison</u>	STATE <u>WI</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>10 27 22</u>	TIME <u>1700</u>	Received By: <u>[Signature]</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? No	<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? No	<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>T</u>		Correction Factor (°C): <u>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(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

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Client Information

Client Contact: Meghan Blodgett

Company: SCS Engineers

Address: 2830 Dairy Drive

City: Madison

State Zip: WI 53718

Phone:

Email: mblodgett@sscengineers.com

Project Name: Alliant OGS - 25222072

Site:

Sampler: Ryan Matzka

Lab PM: Fredrick, Sandra

Phone: 608 400 9597

E-Mail: Sandra.Fredrick@eurofins.com

PWSID

Carrier Tracking No(s): 310-75001-17485 1

State of Origin:

Job #:

Due Date Requested:

TAT Requested (days):

Compliance Project: Δ Yes Δ No

PO #: 25222072

WO #:

Project #: 31011020

SSOW#:

Analysis Requested

Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)
<input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> N
<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X
<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X

9030 Radium 226 (GFPC)

9040 Radium 228 (GFPC)

9050A ORG/M 289 - Chloride, Fluoride, & Sulfate

6020A, 7470A

2510C Caled. SMA500 HT

Preservation Codes

A HCL
B NaOH
C Zn Acetate
D - Nitric Acid
E NaHSO4
F MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L EDA
Other

M - Hexane
N - None
O AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2SO3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code	Matrix (Water, Soild, Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers		Special Instructions/Note
								D	N	
MW-301	10/26	805	G		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Field Blank	10/26	740	G		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Possible Hazard Identification

Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested I II III IV Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Months

Empty Kit Relinquished by	Time	
	Date/Time	Method of Shipment
	Relinquished by: <u>Sean M Szwajski</u>	Date/Time: <u>10/27 12:00</u>
Relinquished by: <u></u>	Date/Time: <u></u>	Company: <u></u>
Relinquished by: <u></u>	Date/Time: <u></u>	Company: <u></u>

Custody Seals Intact: Δ Yes Δ No

Custody Seal No

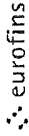
Received by: ML Date/Time: 10 27 22 1700 Company: Company

Received by: Date/Time: Company: Company

Received by: Date/Time: Company: Company

cooler Temperature(s) °C and Other Remarks:

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



Chain of Custody Record

COC No: 310-75001-17485.1
 Page: Page 1 of 1
 Job #:
 Carrier Tracking No(s):
 State of Origin:
 Lab PI#: Fredrick Sandie
 E-Mail: Sandra.Fredrick@et.eurofins.com

Sampler: Ryan Matzuk
 Photos: 608 400 9517
 PWSID
Client Information
 Client Contact: Meghan Blodgett
 Company: SCS Engineers
 Address: 2830 Dairy Drive
 City: Madison
 State: WI
 Zip: 53718
 Phone:
 Due Date Requested:
 TAT Requested (days):
 Compliance Project: Yes No
 PO #: 25222072
 WO #:
 Email: mblodgett@scsengineers.com
 Project Name: Alliant OGS - 25222072
 Site:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soil, Sediment, Air, etc.)	Analysis Requested				Special Instructions/Note
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9040 - Radium-228 (GFPT)	9056 - Radium-286 - Chloride, Fluoride & Sulfate	
MW-301	10/26	305	G	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Field Blank	10/26	740	G	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested I II III IV Other (specify)
 Empty Kit Relinquished by:
 Relinquished by: Sean Marzenga Date: 10/27 1200 Company: SCS
 Relinquished by: Date: Company:
 Relinquished by: Date: Company:
 Relinquished by: Date: Company:
 Custody Seals Intact: Yes No
 Custody Seal No
 Cooler Temperature(s) °C and Other Remarks: 10-27-22 1700
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:
 Method of Shipment:
 Received by: Date/Time:
 Received by: Date/Time:
 Received by: Date/Time:
 Company: Company: Company:
 Ver: 06/08 2021



Chain of Custody Record

Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 13715 Ruler Trail North, Cedar Falls, IA 50613 City: Cedar Falls, IA 50613 State: IA Zip: 50613 Phone: 314-298-8666(Tel) 314-298-8757(Fax) Email: info@testamerica.com		Lab PM: Fredrick, Sandie E-Mail: sandie.fredrick@eurofins.com Accredited: State Program - Iowa State of Origin: Iowa	
One Date Requested: 11/29/2022 TAT Requested (days):		Lab No: 310-55349-1 Page: Page 1 of 1 Job #: 310-243396-2	
Project Name: Alliant OGS - 25222072 Background Site:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - NaOH E - NaHSO ₄ F - MeOH G - Amchlor H - Acetic Acid I - DI Water J - EDTA K - EDTA L - EDTA M - Hexane N - None O - NaOAc P - NaOAc Q - NaOAc R - Na2S2O3 S - H2SO4 T - Acetic Acid U - Acetic Acid V - MCAA W - pH 4.5 X - Thoma Y - Thoma Z - other (specify)	
Sample Date: 10/25/22 Sample Time: 08:05 Sample Date: 10/26/22 Sample Time: 07:40		Analysis Requested: 903.0/Presep, 21 Radium-226 (GFP) 904.0/Presep, 9 Radium-228 (GFP) Radium-228 Radium-226/228	
Sample Identification - Client ID (Lab ID) MW-301 (310-243396-1) Field Blank (310-243396-2)		Matrix (Method, Standard, Other): Water Water	
Special Instructions/Note: 2 DO NOT SHIP ON ICE TO ST. LOUIS 2 DO NOT SHIP ON ICE TO ST. LOUIS		Total Number of Containers: 2	
Note: Since laboratory accreditation is subject to change, Eurofins Environmental Testing North Central, LLC places the responsibility of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory or other instructions, will be provided. Any changes to accreditation status should be brought to Eurofins Environmental Testing North Central, LLC attention immediately. If all requested accreditation are current to date, return the signed Chain of Custody attesting to each competence to Eurofins Environmental Testing North Central, LLC.			
Possible Hazard Identification Unconfirmed			
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: [Signature] Date: 11/30/22		Method of Shipment: FEDEX Received by: [Signature] Date/Time: 11/30/22 08:00	
Relinquished by: [Signature] Date/Time:		Received by: [Signature] Date/Time:	
Relinquished by: [Signature] Date/Time:		Received by: [Signature] Date/Time:	
Custody Seals Intact Yes No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243396-2

Login Number: 243396

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-243396-2

Login Number: 243396

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 10/31/22 12:37 PM

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



Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: Alliant OGS - 25222072 Background

Job ID: 310-243396-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)							
310-243396-1	MW-301	87.2							
310-243396-2	Field Blank	87.4							
LCS 160-588508/2-A	Lab Control Sample	91.3							
MB 160-588508/1-A	Method Blank	89.6							

Tracer/Carrier Legend

Ba = Ba

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)						
310-243396-1	MW-301	87.2	86.4						
310-243396-2	Field Blank	87.4	85.2						
LCS 160-588509/2-A	Lab Control Sample	91.3	82.2						
MB 160-588509/1-A	Method Blank	89.6	81.9						

Tracer/Carrier Legend

Ba = Ba

Y = Y Carrier

C2 Assessment Monitoring, April 2023



ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Generated 5/10/2023 1:02:08 PM

JOB DESCRIPTION

OGS - AshPond III & IV 25223072

JOB NUMBER

310-253118-1

Eurofins Cedar Falls

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Sample Summary	6
Detection Summary	7
Client Sample Results	14
Definitions	34
QC Sample Results	35
QC Association	44
Chronicle	50
Certification Summary	56
Method Summary	57
Chain of Custody	58
Receipt Checklists	70
Tracer Carrier Summary	71
Field Data Sheets	72

Case Narrative

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Job ID: 310-253118-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-253118-1

Comments

No additional comments.

Receipt

The samples were received on 4/7/2023 4:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 2.4° C, 2.9° C, 4.7° C, 5.8° C and 9.3° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-302 (310-253118-1), MW-303 (310-253118-2), MW-304 (310-253118-3), MW-305 (310-253118-4), MW-305A (310-253118-5), MW-306 (310-253118-6), MW-310 (310-253118-7), MW-310A (310-253118-8), MW-311 (310-253118-9), MW-311A (310-253118-10), MW-312 (310-253118-11), MW-313 (310-253118-12), MW-316 (310-253118-13), MW-316A (310-253118-14) and MW-317 (310-253118-15).

HPLC/IC

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MW-303 (310-253118-2) and MW-313 (310-253118-12). Elevated reporting limits (RLs) are provided.

Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-306 (310-253118-6). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

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

Narrative

Job Narrative 310-253121-1

Comments

No additional comments.

Receipt

The samples were received on 4/7/2023 4:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 9 coolers at receipt time were 2.4° C, 2.4° C, 2.9° C, 2.9° C, 4.7° C, 5.8° C, 5.8° C, 9.3° C and 9.3° C.

RAD

Method 903.0: Radium-226 batch 607823

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-302 (310-253121-1), MW-303 (310-253121-2), MW-304 (310-253121-3), MW-305 (310-253121-4), MW-306 (310-253121-5), (LCS 160-607823/2-A), (LCSD 160-607823/3-A) and (MB 160-607823/1-A)

Method 904.0: Radium-228 batch 607829

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-302 (310-253121-1), MW-303 (310-253121-2), MW-304 (310-253121-3), MW-305 (310-253121-4), MW-306 (310-253121-5), (LCS 160-607829/2-A), (LCSD 160-607829/3-A) and (MB 160-607829/1-A)

Case Narrative

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Job ID: 310-253118-1 (Continued)

Laboratory: Eurofins Cedar Falls (Continued)

Method PrecSep_0: Radium-228 Prep Batch 160-607829

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-302 (310-253121-1), MW-303 (310-253121-2), MW-304 (310-253121-3), MW-305 (310-253121-4) and MW-306 (310-253121-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-607823

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-302 (310-253121-1), MW-303 (310-253121-2), MW-304 (310-253121-3), MW-305 (310-253121-4) and MW-306 (310-253121-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

Metals

Method 6020B: The method blank for preparation batch 310-384128 and analytical batch 310-384931 contained Manganese above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

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

General Chemistry

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



Sample Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-253118-1	MW-302	Water	04/05/23 16:45	04/07/23 16:00
310-253118-2	MW-303	Water	04/05/23 15:45	04/07/23 16:00
310-253118-3	MW-304	Water	04/06/23 10:09	04/07/23 16:00
310-253118-4	MW-305	Water	04/04/23 15:55	04/07/23 16:00
310-253118-5	MW-305A	Water	04/06/23 09:09	04/07/23 16:00
310-253118-6	MW-306	Water	04/06/23 10:05	04/07/23 16:00
310-253118-7	MW-310	Water	04/04/23 14:15	04/07/23 16:00
310-253118-8	MW-310A	Water	04/05/23 11:55	04/07/23 16:00
310-253118-9	MW-311	Water	04/04/23 17:07	04/07/23 16:00
310-253118-10	MW-311A	Water	04/06/23 13:10	04/07/23 16:00
310-253118-11	MW-312	Water	04/05/23 14:10	04/07/23 16:00
310-253118-12	MW-313	Water	04/05/23 13:10	04/07/23 16:00
310-253118-13	MW-316	Water	04/06/23 11:07	04/07/23 16:00
310-253118-14	MW-316A	Water	04/06/23 11:05	04/07/23 16:00
310-253118-15	MW-317	Water	04/06/23 12:20	04/07/23 16:00

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- 16

Detection Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-302

Lab Sample ID: 310-253118-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	160		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	820		20	8.0	mg/L	20		9056A	Total/NA
Barium	21		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	1800		100	76	ug/L	1		6020B	Total/NA
Cadmium	0.17	J	0.20	0.10	ug/L	1		6020B	Total/NA
Calcium	200	B	0.50	0.19	mg/L	1		6020B	Total/NA
Chromium	1.6	J	5.0	1.1	ug/L	1		6020B	Total/NA
Cobalt	0.82		0.50	0.17	ug/L	1		6020B	Total/NA
Lithium	11		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	3.0		2.0	0.91	ug/L	1		6020B	Total/NA
Thallium	3.2		1.0	0.26	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1400		50	34	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	653.30				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	97.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.86				mg/L	1		Field Sampling	Total/NA
pH, Field	6.62				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1953				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.2				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.03				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-303

Lab Sample ID: 310-253118-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	22		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	260		5.0	2.0	mg/L	5		9056A	Total/NA
Iron	64	J	100	36	ug/L	1		6020B	Total/NA
Barium	48		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	430		100	76	ug/L	1		6020B	Total/NA
Cadmium	0.11	J	0.20	0.10	ug/L	1		6020B	Total/NA
Calcium	210	B	0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.41	J	0.50	0.17	ug/L	1		6020B	Total/NA
Lithium	4.9	J	10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	2.0		2.0	0.91	ug/L	1		6020B	Total/NA
Selenium	15		5.0	1.4	ug/L	1		6020B	Total/NA
Thallium	0.42	J	1.0	0.26	ug/L	1		6020B	Total/NA
Total Dissolved Solids	880		50	34	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	652.57				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	62.9				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	1.70				mg/L	1		Field Sampling	Total/NA
pH, Field	6.65				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1215				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	8.3				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.54				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304

Lab Sample ID: 310-253118-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	260		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	0.93		0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	270		5.0	2.0	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-304 (Continued)

Lab Sample ID: 310-253118-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.63	J	2.0	0.53	ug/L	1		6020B	Total/NA
Iron	5400		100	36	ug/L	1		6020B	Total/NA
Barium	75		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	930		100	76	ug/L	1		6020B	Total/NA
Calcium	110	B	0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.37	J	0.50	0.17	ug/L	1		6020B	Total/NA
Lithium	3.5	J	10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	1.8	J	2.0	0.91	ug/L	1		6020B	Total/NA
Total Dissolved Solids	1200		50	34	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	650.29				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-93.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	-0.13				mg/L	1		Field Sampling	Total/NA
pH, Field	6.70				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1888				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-253118-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	220		5.0	2.3	mg/L	5		9056A	Total/NA
Fluoride	0.39	J	0.50	0.22	mg/L	5		9056A	Total/NA
Sulfate	250		5.0	2.0	mg/L	5		9056A	Total/NA
Arsenic	0.57	J	2.0	0.53	ug/L	1		6020B	Total/NA
Iron	72	J	100	36	ug/L	1		6020B	Total/NA
Barium	120		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	830		100	76	ug/L	1		6020B	Total/NA
Calcium	120	B	0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	21		0.50	0.17	ug/L	1		6020B	Total/NA
Molybdenum	7.7		2.0	0.91	ug/L	1		6020B	Total/NA
Thallium	0.39	J	1.0	0.26	ug/L	1		6020B	Total/NA
Cobalt	21		0.50	0.17	ug/L	1		6020B	Dissolved
Total Dissolved Solids	1100		50	34	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	655.02				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	166.4				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.63				mg/L	1		Field Sampling	Total/NA
pH, Field	6.70				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1896				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.6				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305A

Lab Sample ID: 310-253118-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	150		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	140		5.0	2.0	mg/L	5		9056A	Total/NA
Cobalt	1.4		0.50	0.17	ug/L	1		6020B	Total/NA
Total Dissolved Solids	770		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	647.70				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	198.2				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-305A (Continued)

Lab Sample ID: 310-253118-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxygen, Dissolved, Client Supplied	0.12				mg/L	1		Field Sampling	Total/NA
pH, Field	6.74				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1224				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-253118-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	310		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	78		5.0	2.0	mg/L	5		9056A	Total/NA
Iron	81	J	100	36	ug/L	1		6020B	Total/NA
Barium	85		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	780		100	76	ug/L	1		6020B	Total/NA
Cadmium	1.2		0.20	0.10	ug/L	1		6020B	Total/NA
Calcium	100	B	0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	7.7		0.50	0.17	ug/L	1		6020B	Total/NA
Molybdenum	13		2.0	0.91	ug/L	1		6020B	Total/NA
Cobalt	8.6		0.50	0.17	ug/L	1		6020B	Dissolved
Total Dissolved Solids	1000		50	34	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Ground Water Elevation	659.12				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	103.1				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.12				mg/L	1		Field Sampling	Total/NA
pH, Field	6.61				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1583				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	13.4				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	3.09				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-310

Lab Sample ID: 310-253118-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	48		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	180		5.0	2.0	mg/L	5		9056A	Total/NA
Cobalt	0.24	J	0.50	0.17	ug/L	1		6020B	Total/NA
Total Dissolved Solids	650		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	641.71				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	252.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	4.34				mg/L	1		Field Sampling	Total/NA
pH, Field	6.91				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	852				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.8				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-310A

Lab Sample ID: 310-253118-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	130		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	1200		20	8.0	mg/L	20		9056A	Total/NA
Iron	69	J	100	36	ug/L	1		6020B	Total/NA
Cobalt	0.51		0.50	0.17	ug/L	1		6020B	Total/NA
Total Dissolved Solids	2300		250	170	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-310A (Continued)

Lab Sample ID: 310-253118-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ground Water Elevation	643.11				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-15.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.49				mg/L	1		Field Sampling	Total/NA
pH, Field	7.46				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	3045				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.97				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-311

Lab Sample ID: 310-253118-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	66		5.0	2.0	mg/L	5		9056A	Total/NA
Cobalt	0.38	J	0.50	0.17	ug/L	1		6020B	Total/NA
Total Dissolved Solids	630		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	641.88				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	257				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.00				mg/L	1		Field Sampling	Total/NA
pH, Field	6.56				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	932				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	10.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-311A

Lab Sample ID: 310-253118-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	140		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	1200		20	8.0	mg/L	20		9056A	Total/NA
Cobalt	0.66		0.50	0.17	ug/L	1		6020B	Total/NA
Total Dissolved Solids	2400		250	170	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	643.59				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	47.7				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	2.47				mg/L	1		Field Sampling	Total/NA
pH, Field	7.54				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	3037				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-312

Lab Sample ID: 310-253118-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	130		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	510		20	8.0	mg/L	20		9056A	Total/NA
Calcium	170000		500	190	ug/L	1		6020B	Total/NA
Iron	370		100	36	ug/L	1		6020B	Total/NA
Magnesium	59000		500	150	ug/L	1		6020B	Total/NA
Manganese	960		10	3.6	ug/L	1		6020B	Total/NA
Potassium	5700		500	150	ug/L	1		6020B	Total/NA
Sodium	140000		1000	460	ug/L	1		6020B	Total/NA
Cobalt	11		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	150		100	36	ug/L	1		6020B	Dissolved
Manganese	930	B	10	3.6	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-312 (Continued)

Lab Sample ID: 310-253118-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bicarbonate Alkalinity as CaCO3	250		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	250		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1200		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	644.08				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	0.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.28				mg/L	1		Field Sampling	Total/NA
pH, Field	7.11				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1576				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	12.0				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	1.32				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-313

Lab Sample ID: 310-253118-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	650		20	8.0	mg/L	20		9056A	Total/NA
Calcium	220000		500	190	ug/L	1		6020B	Total/NA
Iron	810		100	36	ug/L	1		6020B	Total/NA
Magnesium	72000		500	150	ug/L	1		6020B	Total/NA
Manganese	3600		10	3.6	ug/L	1		6020B	Total/NA
Potassium	6100		500	150	ug/L	1		6020B	Total/NA
Sodium	150000		1000	460	ug/L	1		6020B	Total/NA
Cobalt	5.5		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	520		100	36	ug/L	1		6020B	Dissolved
Manganese	3600	B	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	270		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	270		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1400		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	642.02				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-14.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.09				mg/L	1		Field Sampling	Total/NA
pH, Field	6.93				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1878				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.5				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	5.09				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-316

Lab Sample ID: 310-253118-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	140		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	480		5.0	2.0	mg/L	5		9056A	Total/NA
Calcium	210000		500	190	ug/L	1		6020B	Total/NA
Magnesium	65000		500	150	ug/L	1		6020B	Total/NA
Manganese	1200		10	3.6	ug/L	1		6020B	Total/NA
Potassium	1900		500	150	ug/L	1		6020B	Total/NA
Sodium	110000		1000	460	ug/L	1		6020B	Total/NA
Cobalt	2.1		0.50	0.17	ug/L	1		6020B	Total/NA
Manganese	1200	B	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	340		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	340		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1200		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	642.78				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	104.1				millivolts	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-316 (Continued)

Lab Sample ID: 310-253118-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxygen, Dissolved, Client Supplied	-0.16				mg/L	1		Field Sampling	Total/NA
pH, Field	6.70				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1694				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	10.6				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	0.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-316A

Lab Sample ID: 310-253118-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	54		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	730		20	8.0	mg/L	20		9056A	Total/NA
Calcium	74000		500	190	ug/L	1		6020B	Total/NA
Magnesium	30000		500	150	ug/L	1		6020B	Total/NA
Manganese	210		10	3.6	ug/L	1		6020B	Total/NA
Potassium	8000		500	150	ug/L	1		6020B	Total/NA
Sodium	430000		1000	460	ug/L	1		6020B	Total/NA
Cobalt	0.30	J	0.50	0.17	ug/L	1		6020B	Total/NA
Manganese	240	B	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	430		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	430		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1500		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	643.49				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	99.6				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	3.29				mg/L	1		Field Sampling	Total/NA
pH, Field	7.40				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1976				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.2				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	4.77				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-317

Lab Sample ID: 310-253118-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	240		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	130		5.0	2.0	mg/L	5		9056A	Total/NA
Calcium	200000		500	190	ug/L	1		6020B	Total/NA
Iron	1600		100	36	ug/L	1		6020B	Total/NA
Magnesium	44000		500	150	ug/L	1		6020B	Total/NA
Manganese	1800		10	3.6	ug/L	1		6020B	Total/NA
Potassium	3400		500	150	ug/L	1		6020B	Total/NA
Sodium	130000		1000	460	ug/L	1		6020B	Total/NA
Cobalt	5.6		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	1400		100	36	ug/L	1		6020B	Dissolved
Manganese	1700	B	10	3.6	ug/L	1		6020B	Dissolved
Bicarbonate Alkalinity as CaCO3	540		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	540		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1200		50	34	mg/L	1		SM 2540C	Total/NA
Ground Water Elevation	642.84				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-24.0				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	0.12				mg/L	1		Field Sampling	Total/NA
pH, Field	6.57				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	1561				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	11.5				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-317 (Continued)

Lab Sample ID: 310-253118-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Turbidity, Field	3.89				NTU	1		Field Sampling	Total/NA

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This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-302
Date Collected: 04/05/23 16:45
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-1
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		5.0	2.3	mg/L			04/15/23 00:56	5
Fluoride	<0.22		0.50	0.22	mg/L			04/15/23 00:56	5
Sulfate	820		20	8.0	mg/L			04/17/23 12:16	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/13/23 07:55	04/20/23 01:30	1
Arsenic	<0.53		2.0	0.53	ug/L		04/13/23 07:55	04/20/23 01:30	1
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 18:14	1
Barium	21		2.0	0.64	ug/L		04/13/23 07:55	04/20/23 01:30	1
Beryllium	<0.33		1.0	0.33	ug/L		04/13/23 07:55	04/20/23 14:53	1
Boron	1800		100	76	ug/L		04/13/23 07:55	04/20/23 01:30	1
Cadmium	0.17	J	0.20	0.10	ug/L		04/13/23 07:55	04/20/23 01:30	1
Calcium	200	B	0.50	0.19	mg/L		04/13/23 07:55	04/20/23 01:30	1
Chromium	1.6	J	5.0	1.1	ug/L		04/13/23 07:55	04/20/23 01:30	1
Cobalt	0.82		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 01:30	1
Lead	<0.24		0.50	0.24	ug/L		04/13/23 07:55	04/20/23 01:30	1
Lithium	11		10	2.5	ug/L		04/13/23 07:55	04/20/23 14:53	1
Molybdenum	3.0		2.0	0.91	ug/L		04/13/23 07:55	04/20/23 14:53	1
Selenium	<1.4		5.0	1.4	ug/L		04/13/23 07:55	04/20/23 01:30	1
Thallium	3.2		1.0	0.26	ug/L		04/13/23 07:55	04/20/23 14:53	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/17/23 11:13	04/18/23 12:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1400		50	34	mg/L			04/10/23 11:52	1
pH (SM 4500 H+ B)	6.8	HF	0.1	0.1	SU			04/08/23 11:11	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.178	U	0.191	0.191	1.00	0.305	pCi/L	04/17/23 12:36	05/09/23 21:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	97.5		30 - 110					04/17/23 12:36	05/09/23 21:48	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	-0.215	U	0.213	0.214	1.00	0.481	pCi/L	04/17/23 13:10	05/09/23 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	97.5		30 - 110					04/17/23 13:10	05/09/23 13:09	1
Y Carrier	79.3		30 - 110					04/17/23 13:10	05/09/23 13:09	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-302
 Date Collected: 04/05/23 16:45
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-1
 Matrix: Water

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.178	U	0.286	0.287	5.00	0.481	pCi/L		05/10/23 12:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	653.30				ft			04/05/23 16:45	1
Oxidation Reduction Potential	97.0				millivolts			04/05/23 16:45	1
Oxygen, Dissolved, Client Supplied	1.86				mg/L			04/05/23 16:45	1
pH, Field	6.62				SU			04/05/23 16:45	1
Specific Conductance, Field	1953				umhos/cm			04/05/23 16:45	1
Temperature, Field	11.2				Degrees C			04/05/23 16:45	1
Turbidity, Field	2.03				NTU			04/05/23 16:45	1

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Client Sample Results

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-303

Lab Sample ID: 310-253118-2

Date Collected: 04/05/23 15:45

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22		5.0	2.3	mg/L			04/15/23 01:43	5
Fluoride	<0.22		0.50	0.22	mg/L			04/15/23 01:43	5
Sulfate	260		5.0	2.0	mg/L			04/17/23 12:31	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/13/23 07:55	04/20/23 01:32	1
Arsenic	<0.53		2.0	0.53	ug/L		04/13/23 07:55	04/20/23 01:32	1
Iron	64	J	100	36	ug/L		04/10/23 16:36	04/11/23 18:29	1
Barium	48		2.0	0.64	ug/L		04/13/23 07:55	04/20/23 01:32	1
Beryllium	<0.33		1.0	0.33	ug/L		04/13/23 07:55	04/20/23 14:56	1
Boron	430		100	76	ug/L		04/13/23 07:55	04/20/23 01:32	1
Cadmium	0.11	J	0.20	0.10	ug/L		04/13/23 07:55	04/20/23 01:32	1
Calcium	210	B	0.50	0.19	mg/L		04/13/23 07:55	04/20/23 01:32	1
Chromium	<1.1		5.0	1.1	ug/L		04/13/23 07:55	04/20/23 01:32	1
Cobalt	0.41	J	0.50	0.17	ug/L		04/13/23 07:55	04/20/23 01:32	1
Lead	<0.24		0.50	0.24	ug/L		04/13/23 07:55	04/20/23 01:32	1
Lithium	4.9	J	10	2.5	ug/L		04/13/23 07:55	04/20/23 14:56	1
Molybdenum	2.0		2.0	0.91	ug/L		04/13/23 07:55	04/20/23 14:56	1
Selenium	15		5.0	1.4	ug/L		04/13/23 07:55	04/20/23 01:32	1
Thallium	0.42	J	1.0	0.26	ug/L		04/13/23 07:55	04/20/23 14:56	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/17/23 11:13	04/18/23 12:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	880		50	34	mg/L			04/10/23 14:30	1
pH (SM 4500 H+ B)	6.9	HF	0.1	0.1	SU			04/08/23 11:09	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	-0.0263	U	0.160	0.160	1.00	0.334	pCi/L	04/17/23 12:36	05/09/23 21:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	86.0		30 - 110					04/17/23 12:36	05/09/23 21:48	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.145	U	0.367	0.367	1.00	0.645	pCi/L	04/17/23 13:10	05/09/23 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	86.0		30 - 110					04/17/23 13:10	05/09/23 13:09	1
Y Carrier	79.6		30 - 110					04/17/23 13:10	05/09/23 13:09	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-303
 Date Collected: 04/05/23 15:45
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-2
 Matrix: Water

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.145	U	0.400	0.400	5.00	0.645	pCi/L		05/10/23 12:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	652.57				ft			04/05/23 15:45	1
Oxidation Reduction Potential	62.9				millivolts			04/05/23 15:45	1
Oxygen, Dissolved, Client Supplied	1.70				mg/L			04/05/23 15:45	1
pH, Field	6.65				SU			04/05/23 15:45	1
Specific Conductance, Field	1215				umhos/cm			04/05/23 15:45	1
Temperature, Field	8.3				Degrees C			04/05/23 15:45	1
Turbidity, Field	3.54				NTU			04/05/23 15:45	1



Client Sample Results

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-304

Lab Sample ID: 310-253118-3

Date Collected: 04/06/23 10:09

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	260		5.0	2.3	mg/L			04/14/23 15:04	5
Fluoride	0.93		0.50	0.22	mg/L			04/14/23 15:04	5
Sulfate	270		5.0	2.0	mg/L			04/14/23 15:04	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/13/23 07:55	04/20/23 01:35	1
Arsenic	0.63	J	2.0	0.53	ug/L		04/13/23 07:55	04/20/23 01:35	1
Iron	5400		100	36	ug/L		04/10/23 16:36	04/11/23 18:32	1
Barium	75		2.0	0.64	ug/L		04/13/23 07:55	04/20/23 01:35	1
Beryllium	<0.33		1.0	0.33	ug/L		04/13/23 07:55	04/20/23 15:14	1
Boron	930		100	76	ug/L		04/13/23 07:55	04/20/23 01:35	1
Cadmium	<0.10		0.20	0.10	ug/L		04/13/23 07:55	04/20/23 01:35	1
Calcium	110	B	0.50	0.19	mg/L		04/13/23 07:55	04/20/23 01:35	1
Chromium	<1.1		5.0	1.1	ug/L		04/13/23 07:55	04/20/23 01:35	1
Cobalt	0.37	J	0.50	0.17	ug/L		04/13/23 07:55	04/20/23 01:35	1
Lead	<0.24		0.50	0.24	ug/L		04/13/23 07:55	04/20/23 01:35	1
Lithium	3.5	J	10	2.5	ug/L		04/13/23 07:55	04/20/23 15:14	1
Molybdenum	1.8	J	2.0	0.91	ug/L		04/13/23 07:55	04/20/23 15:14	1
Selenium	<1.4		5.0	1.4	ug/L		04/13/23 07:55	04/20/23 01:35	1
Thallium	<0.26		1.0	0.26	ug/L		04/13/23 07:55	04/20/23 15:14	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/17/23 11:13	04/18/23 12:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1200		50	34	mg/L			04/10/23 14:30	1
pH (SM 4500 H+ B)	7.1	HF	0.1	0.1	SU			04/08/23 11:06	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.863		0.326	0.335	1.00	0.368	pCi/L	04/17/23 12:36	05/09/23 21:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.4		30 - 110					04/17/23 12:36	05/09/23 21:48	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	1.23		0.476	0.489	1.00	0.596	pCi/L	04/17/23 13:10	05/09/23 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.4		30 - 110					04/17/23 13:10	05/09/23 13:09	1
Y Carrier	73.3		30 - 110					04/17/23 13:10	05/09/23 13:09	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-304
 Date Collected: 04/06/23 10:09
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-3
 Matrix: Water

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	2.10		0.577	0.593	5.00	0.596	pCi/L		05/10/23 12:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	650.29				ft			04/06/23 10:09	1
Oxidation Reduction Potential	-93.7				millivolts			04/06/23 10:09	1
Oxygen, Dissolved, Client Supplied	-0.13				mg/L			04/06/23 10:09	1
pH, Field	6.70				SU			04/06/23 10:09	1
Specific Conductance, Field	1888				umhos/cm			04/06/23 10:09	1
Temperature, Field	13.1				Degrees C			04/06/23 10:09	1
Turbidity, Field	0.02				NTU			04/06/23 10:09	1



Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-305
 Date Collected: 04/04/23 15:55
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-4
 Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		5.0	2.3	mg/L			04/14/23 14:25	5
Fluoride	0.39	J	0.50	0.22	mg/L			04/14/23 14:25	5
Sulfate	250		5.0	2.0	mg/L			04/14/23 14:25	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/13/23 07:55	04/20/23 01:53	1
Arsenic	0.57	J	2.0	0.53	ug/L		04/13/23 07:55	04/20/23 01:53	1
Iron	72	J	100	36	ug/L		04/10/23 16:36	04/11/23 18:35	1
Barium	120		2.0	0.64	ug/L		04/13/23 07:55	04/20/23 01:53	1
Beryllium	<0.33		1.0	0.33	ug/L		04/13/23 07:55	04/20/23 15:17	1
Boron	830		100	76	ug/L		04/13/23 07:55	04/20/23 01:53	1
Cadmium	<0.10		0.20	0.10	ug/L		04/13/23 07:55	04/20/23 01:53	1
Calcium	120	B	0.50	0.19	mg/L		04/13/23 07:55	04/20/23 01:53	1
Chromium	<1.1		5.0	1.1	ug/L		04/13/23 07:55	04/20/23 01:53	1
Cobalt	21		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 01:53	1
Lead	<0.24		0.50	0.24	ug/L		04/13/23 07:55	04/20/23 01:53	1
Lithium	<2.5		10	2.5	ug/L		04/13/23 07:55	04/20/23 15:17	1
Molybdenum	7.7		2.0	0.91	ug/L		04/13/23 07:55	04/20/23 15:17	1
Selenium	<1.4		5.0	1.4	ug/L		04/13/23 07:55	04/20/23 01:53	1
Thallium	0.39	J	1.0	0.26	ug/L		04/13/23 07:55	04/20/23 15:17	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	21		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 02:21	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/17/23 11:13	04/18/23 12:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1100		50	34	mg/L			04/10/23 11:52	1
pH (SM 4500 H+ B)	7.1	HF	0.1	0.1	SU			04/08/23 11:05	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.345	U	0.243	0.245	1.00	0.350	pCi/L	04/17/23 12:36	05/09/23 21:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.6		30 - 110					04/17/23 12:36	05/09/23 21:48	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.361	U	0.344	0.345	1.00	0.548	pCi/L	04/17/23 13:10	05/09/23 13:09	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-305
Date Collected: 04/04/23 15:55
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-4
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	93.6		30 - 110	04/17/23 13:10	05/09/23 13:09	1
Y Carrier	77.4		30 - 110	04/17/23 13:10	05/09/23 13:09	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
Radium 226 and 228	0.706		0.421	0.423	5.00	0.548	pCi/L		05/10/23 12:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	655.02				ft			04/04/23 15:55	1
Oxidation Reduction Potential	166.4				millivolts			04/04/23 15:55	1
Oxygen, Dissolved, Client Supplied	0.63				mg/L			04/04/23 15:55	1
pH, Field	6.70				SU			04/04/23 15:55	1
Specific Conductance, Field	1896				umhos/cm			04/04/23 15:55	1
Temperature, Field	13.6				Degrees C			04/04/23 15:55	1
Turbidity, Field	0.02				NTU			04/04/23 15:55	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-305A

Lab Sample ID: 310-253118-5

Date Collected: 04/06/23 09:09

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		5.0	2.3	mg/L			04/14/23 15:20	5
Sulfate	140		5.0	2.0	mg/L			04/14/23 15:20	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 18:49	1
Cobalt	1.4		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 01:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	770		50	34	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	647.70				ft			04/06/23 09:09	1
Oxidation Reduction Potential	198.2				millivolts			04/06/23 09:09	1
Oxygen, Dissolved, Client Supplied	0.12				mg/L			04/06/23 09:09	1
pH, Field	6.74				SU			04/06/23 09:09	1
Specific Conductance, Field	1224				umhos/cm			04/06/23 09:09	1
Temperature, Field	11.1				Degrees C			04/06/23 09:09	1
Turbidity, Field	0.02				NTU			04/06/23 09:09	1



Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-306
 Date Collected: 04/06/23 10:05
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-6
 Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	310		5.0	2.3	mg/L			04/14/23 15:35	5
Fluoride	<0.22		0.50	0.22	mg/L			04/14/23 15:35	5
Sulfate	78		5.0	2.0	mg/L			04/14/23 15:35	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/13/23 07:55	04/20/23 01:58	1
Arsenic	<0.53		2.0	0.53	ug/L		04/13/23 07:55	04/20/23 01:58	1
Iron	81	J	100	36	ug/L		04/10/23 16:36	04/11/23 18:52	1
Barium	85		2.0	0.64	ug/L		04/13/23 07:55	04/20/23 01:58	1
Beryllium	<0.33		1.0	0.33	ug/L		04/13/23 07:55	04/20/23 15:20	1
Boron	780		100	76	ug/L		04/13/23 07:55	04/20/23 01:58	1
Cadmium	1.2		0.20	0.10	ug/L		04/13/23 07:55	04/20/23 01:58	1
Calcium	100	B	0.50	0.19	mg/L		04/13/23 07:55	04/20/23 01:58	1
Chromium	<1.1		5.0	1.1	ug/L		04/13/23 07:55	04/20/23 01:58	1
Cobalt	7.7		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 01:58	1
Lead	<0.24		0.50	0.24	ug/L		04/13/23 07:55	04/20/23 01:58	1
Lithium	<2.5		10	2.5	ug/L		04/13/23 07:55	04/20/23 15:20	1
Molybdenum	13		2.0	0.91	ug/L		04/13/23 07:55	04/20/23 15:20	1
Selenium	<1.4		5.0	1.4	ug/L		04/13/23 07:55	04/20/23 01:58	1
Thallium	<0.26		1.0	0.26	ug/L		04/13/23 07:55	04/20/23 15:20	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	8.6		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 02:43	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/17/23 11:13	04/18/23 12:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1000		50	34	mg/L			04/10/23 14:30	1
pH (SM 4500 H+ B)	6.9	HF	0.1	0.1	SU			04/08/23 11:01	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium 226	0.190	U	0.197	0.197	1.00	0.312	pCi/L	04/17/23 12:36	05/09/23 21:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.1		30 - 110					04/17/23 12:36	05/09/23 21:48	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium 228	0.266	U	0.369	0.369	1.00	0.618	pCi/L	04/17/23 13:10	05/09/23 13:09	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-306
Date Collected: 04/06/23 10:05
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-6
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Barium	95.1		30 - 110	04/17/23 13:10	05/09/23 13:09	1
Y Carrier	78.1		30 - 110	04/17/23 13:10	05/09/23 13:09	1

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
Radium 226 and 228	0.455	U	(2σ+/-) 0.418	(2σ+/-) 0.418	5.00	0.618	pCi/L		05/10/23 12:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	659.12				ft			04/06/23 10:05	1
Oxidation Reduction Potential	103.1				millivolts			04/06/23 10:05	1
Oxygen, Dissolved, Client Supplied	0.12				mg/L			04/06/23 10:05	1
pH, Field	6.61				SU			04/06/23 10:05	1
Specific Conductance, Field	1583				umhos/cm			04/06/23 10:05	1
Temperature, Field	13.4				Degrees C			04/06/23 10:05	1
Turbidity, Field	3.09				NTU			04/06/23 10:05	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-310
 Date Collected: 04/04/23 14:15
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-7
 Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	48		5.0	2.3	mg/L			04/14/23 14:41	5
Sulfate	180		5.0	2.0	mg/L			04/14/23 14:41	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 18:55	1
Cobalt	0.24	J	0.50	0.17	ug/L		04/13/23 07:55	04/20/23 02:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	650		50	34	mg/L			04/10/23 11:52	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	641.71				ft			04/04/23 14:15	1
Oxidation Reduction Potential	252.5				millivolts			04/04/23 14:15	1
Oxygen, Dissolved, Client Supplied	4.34				mg/L			04/04/23 14:15	1
pH, Field	6.91				SU			04/04/23 14:15	1
Specific Conductance, Field	852				umhos/cm			04/04/23 14:15	1
Temperature, Field	11.8				Degrees C			04/04/23 14:15	1
Turbidity, Field	0.02				NTU			04/04/23 14:15	1



Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-310A

Lab Sample ID: 310-253118-8

Date Collected: 04/05/23 11:55

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130		5.0	2.3	mg/L			04/15/23 01:59	5
Sulfate	1200		20	8.0	mg/L			04/17/23 12:47	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	69	J	100	36	ug/L		04/10/23 16:36	04/11/23 18:58	1
Cobalt	0.51		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 02:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2300		250	170	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	643.11				ft			04/05/23 11:55	1
Oxidation Reduction Potential	-15.5				millivolts			04/05/23 11:55	1
Oxygen, Dissolved, Client Supplied	0.49				mg/L			04/05/23 11:55	1
pH, Field	7.46				SU			04/05/23 11:55	1
Specific Conductance, Field	3045				umhos/cm			04/05/23 11:55	1
Temperature, Field	12.1				Degrees C			04/05/23 11:55	1
Turbidity, Field	1.97				NTU			04/05/23 11:55	1



Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-311

Lab Sample ID: 310-253118-9

Date Collected: 04/04/23 17:07

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		5.0	2.3	mg/L			04/14/23 14:57	5
Sulfate	66		5.0	2.0	mg/L			04/14/23 14:57	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 19:01	1
Cobalt	0.38	J	0.50	0.17	ug/L		04/13/23 07:55	04/20/23 02:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	630		50	34	mg/L			04/10/23 11:52	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	641.88				ft			04/04/23 17:07	1
Oxidation Reduction Potential	257				millivolts			04/04/23 17:07	1
Oxygen, Dissolved, Client Supplied	0.00				mg/L			04/04/23 17:07	1
pH, Field	6.56				SU			04/04/23 17:07	1
Specific Conductance, Field	932				umhos/cm			04/04/23 17:07	1
Temperature, Field	10.5				Degrees C			04/04/23 17:07	1
Turbidity, Field	0.02				NTU			04/04/23 17:07	1



Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-311A

Lab Sample ID: 310-253118-10

Date Collected: 04/06/23 13:10

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140		5.0	2.3	mg/L			04/14/23 16:22	5
Sulfate	1200		20	8.0	mg/L			04/17/23 10:26	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 19:03	1
Cobalt	0.66		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 19:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2400		250	170	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	643.59				ft			04/06/23 13:10	1
Oxidation Reduction Potential	47.7				millivolts			04/06/23 13:10	1
Oxygen, Dissolved, Client Supplied	2.47				mg/L			04/06/23 13:10	1
pH, Field	7.54				SU			04/06/23 13:10	1
Specific Conductance, Field	3037				umhos/cm			04/06/23 13:10	1
Temperature, Field	11.5				Degrees C			04/06/23 13:10	1
Turbidity, Field	0.02				NTU			04/06/23 13:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-312

Lab Sample ID: 310-253118-11

Date Collected: 04/05/23 14:10

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130		5.0	2.3	mg/L			04/15/23 02:14	5
Sulfate	510		20	8.0	mg/L			04/17/23 13:34	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	170000		500	190	ug/L		04/10/23 16:36	04/11/23 19:06	1
Iron	370		100	36	ug/L		04/10/23 16:36	04/11/23 19:06	1
Magnesium	59000		500	150	ug/L		04/10/23 16:36	04/11/23 19:06	1
Manganese	960		10	3.6	ug/L		04/10/23 16:36	04/11/23 19:06	1
Potassium	5700		500	150	ug/L		04/10/23 16:36	04/11/23 19:06	1
Sodium	140000		1000	460	ug/L		04/10/23 16:36	04/11/23 19:06	1
Cobalt	11		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 19:59	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	150		100	36	ug/L		04/13/23 07:55	04/20/23 02:46	1
Manganese	930	B	10	3.6	ug/L		04/13/23 07:55	04/20/23 02:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	250		5.0	2.5	mg/L			04/14/23 19:38	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/14/23 19:38	1
Total Alkalinity as CaCO3 (SM 2320B)	250		5.0	2.5	mg/L			04/14/23 19:38	1
Total Dissolved Solids (SM 2540C)	1200		50	34	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	644.08				ft			04/05/23 14:10	1
Oxidation Reduction Potential	0.5				millivolts			04/05/23 14:10	1
Oxygen, Dissolved, Client Supplied	0.28				mg/L			04/05/23 14:10	1
pH, Field	7.11				SU			04/05/23 14:10	1
Specific Conductance, Field	1576				umhos/cm			04/05/23 14:10	1
Temperature, Field	12.0				Degrees C			04/05/23 14:10	1
Turbidity, Field	1.32				NTU			04/05/23 14:10	1

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-313

Lab Sample ID: 310-253118-12

Date Collected: 04/05/23 13:10

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.3		5.0	2.3	mg/L			04/15/23 02:30	5
Sulfate	650		20	8.0	mg/L			04/17/23 13:49	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	220000		500	190	ug/L		04/10/23 16:36	04/11/23 19:12	1
Iron	810		100	36	ug/L		04/10/23 16:36	04/11/23 19:12	1
Magnesium	72000		500	150	ug/L		04/10/23 16:36	04/11/23 19:12	1
Manganese	3600		10	3.6	ug/L		04/10/23 16:36	04/11/23 19:12	1
Potassium	6100		500	150	ug/L		04/10/23 16:36	04/11/23 19:12	1
Sodium	150000		1000	460	ug/L		04/10/23 16:36	04/11/23 19:12	1
Cobalt	5.5		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 20:13	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	520		100	36	ug/L		04/13/23 07:55	04/20/23 02:49	1
Manganese	3600	B	10	3.6	ug/L		04/13/23 07:55	04/20/23 02:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	270		5.0	2.5	mg/L			04/14/23 19:48	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/14/23 19:48	1
Total Alkalinity as CaCO3 (SM 2320B)	270		5.0	2.5	mg/L			04/14/23 19:48	1
Total Dissolved Solids (SM 2540C)	1400		50	34	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	642.02				ft			04/05/23 13:10	1
Oxidation Reduction Potential	-14.5				millivolts			04/05/23 13:10	1
Oxygen, Dissolved, Client Supplied	0.09				mg/L			04/05/23 13:10	1
pH, Field	6.93				SU			04/05/23 13:10	1
Specific Conductance, Field	1878				umhos/cm			04/05/23 13:10	1
Temperature, Field	11.5				Degrees C			04/05/23 13:10	1
Turbidity, Field	5.09				NTU			04/05/23 13:10	1

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-316

Lab Sample ID: 310-253118-13

Date Collected: 04/06/23 11:07

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140		5.0	2.3	mg/L			04/14/23 16:37	5
Sulfate	480		5.0	2.0	mg/L			04/14/23 16:37	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210000		500	190	ug/L		04/10/23 16:36	04/11/23 19:15	1
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 19:15	1
Magnesium	65000		500	150	ug/L		04/10/23 16:36	04/11/23 19:15	1
Manganese	1200		10	3.6	ug/L		04/10/23 16:36	04/11/23 19:15	1
Potassium	1900		500	150	ug/L		04/10/23 16:36	04/11/23 19:15	1
Sodium	110000		1000	460	ug/L		04/10/23 16:36	04/11/23 19:15	1
Cobalt	2.1		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 20:16	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		04/13/23 07:55	04/20/23 02:52	1
Manganese	1200	B	10	3.6	ug/L		04/13/23 07:55	04/20/23 02:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	340		5.0	2.5	mg/L			04/14/23 19:58	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/14/23 19:58	1
Total Alkalinity as CaCO3 (SM 2320B)	340		5.0	2.5	mg/L			04/14/23 19:58	1
Total Dissolved Solids (SM 2540C)	1200		50	34	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	642.78				ft			04/06/23 11:07	1
Oxidation Reduction Potential	104.1				millivolts			04/06/23 11:07	1
Oxygen, Dissolved, Client Supplied	-0.16				mg/L			04/06/23 11:07	1
pH, Field	6.70				SU			04/06/23 11:07	1
Specific Conductance, Field	1694				umhos/cm			04/06/23 11:07	1
Temperature, Field	10.6				Degrees C			04/06/23 11:07	1
Turbidity, Field	0.02				NTU			04/06/23 11:07	1

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-316A

Lab Sample ID: 310-253118-14

Date Collected: 04/06/23 11:05

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54		5.0	2.3	mg/L			04/14/23 16:53	5
Sulfate	730		20	8.0	mg/L			04/17/23 10:42	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	74000		500	190	ug/L		04/10/23 16:36	04/11/23 19:29	1
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 19:29	1
Magnesium	30000		500	150	ug/L		04/10/23 16:36	04/11/23 19:29	1
Manganese	210		10	3.6	ug/L		04/10/23 16:36	04/11/23 19:29	1
Potassium	8000		500	150	ug/L		04/10/23 16:36	04/11/23 19:29	1
Sodium	430000		1000	460	ug/L		04/10/23 16:36	04/11/23 19:29	1
Cobalt	0.30	J	0.50	0.17	ug/L		04/11/23 09:20	04/11/23 20:19	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		04/13/23 07:55	04/20/23 02:55	1
Manganese	240	B	10	3.6	ug/L		04/13/23 07:55	04/20/23 02:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	430		5.0	2.5	mg/L			04/14/23 20:09	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/14/23 20:09	1
Total Alkalinity as CaCO3 (SM 2320B)	430		5.0	2.5	mg/L			04/14/23 20:09	1
Total Dissolved Solids (SM 2540C)	1500		50	34	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	643.49				ft			04/06/23 11:05	1
Oxidation Reduction Potential	99.6				millivolts			04/06/23 11:05	1
Oxygen, Dissolved, Client Supplied	3.29				mg/L			04/06/23 11:05	1
pH, Field	7.40				SU			04/06/23 11:05	1
Specific Conductance, Field	1976				umhos/cm			04/06/23 11:05	1
Temperature, Field	11.2				Degrees C			04/06/23 11:05	1
Turbidity, Field	4.77				NTU			04/06/23 11:05	1

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-317

Lab Sample ID: 310-253118-15

Date Collected: 04/06/23 12:20

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	240		5.0	2.3	mg/L			04/14/23 17:09	5
Sulfate	130		5.0	2.0	mg/L			04/14/23 17:09	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200000		500	190	ug/L		04/10/23 16:36	04/11/23 19:32	1
Iron	1600		100	36	ug/L		04/10/23 16:36	04/11/23 19:32	1
Magnesium	44000		500	150	ug/L		04/10/23 16:36	04/11/23 19:32	1
Manganese	1800		10	3.6	ug/L		04/10/23 16:36	04/11/23 19:32	1
Potassium	3400		500	150	ug/L		04/10/23 16:36	04/11/23 19:32	1
Sodium	130000		1000	460	ug/L		04/10/23 16:36	04/11/23 19:32	1
Cobalt	5.6		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 20:22	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1400		100	36	ug/L		04/13/23 07:55	04/20/23 02:58	1
Manganese	1700	B	10	3.6	ug/L		04/13/23 07:55	04/20/23 02:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	540		5.0	2.5	mg/L			04/14/23 20:20	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/14/23 20:20	1
Total Alkalinity as CaCO3 (SM 2320B)	540		5.0	2.5	mg/L			04/14/23 20:20	1
Total Dissolved Solids (SM 2540C)	1200		50	34	mg/L			04/10/23 14:30	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	642.84				ft			04/06/23 12:20	1
Oxidation Reduction Potential	-24.0				millivolts			04/06/23 12:20	1
Oxygen, Dissolved, Client Supplied	0.12				mg/L			04/06/23 12:20	1
pH, Field	6.57				SU			04/06/23 12:20	1
Specific Conductance, Field	1561				umhos/cm			04/06/23 12:20	1
Temperature, Field	11.5				Degrees C			04/06/23 12:20	1
Turbidity, Field	3.89				NTU			04/06/23 12:20	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Qualifiers

HPLC/IC

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

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
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.

Rad

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

Glossary

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

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-384531/3
Matrix: Water
Analysis Batch: 384531

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			04/14/23 10:16	1
Fluoride	<0.044		0.10	0.044	mg/L			04/14/23 10:16	1
Sulfate	<0.40		1.0	0.40	mg/L			04/14/23 10:16	1

Lab Sample ID: LCS 310-384531/4
Matrix: Water
Analysis Batch: 384531

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	9.92		mg/L		99	90 - 110
Fluoride	2.00	2.07		mg/L		103	90 - 110
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: MB 310-384671/3
Matrix: Water
Analysis Batch: 384671

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			04/14/23 13:46	1
Fluoride	<0.044		0.10	0.044	mg/L			04/14/23 13:46	1
Sulfate	<0.40		1.0	0.40	mg/L			04/14/23 13:46	1

Lab Sample ID: LCS 310-384671/4
Matrix: Water
Analysis Batch: 384671

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	9.85		mg/L		99	90 - 110
Fluoride	2.00	2.09		mg/L		105	90 - 110
Sulfate	10.0	9.96		mg/L		100	90 - 110

Lab Sample ID: MB 310-384675/3
Matrix: Water
Analysis Batch: 384675

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			04/14/23 21:03	1
Fluoride	<0.044		0.10	0.044	mg/L			04/14/23 21:03	1
Sulfate	<0.40		1.0	0.40	mg/L			04/14/23 21:03	1

Lab Sample ID: LCS 310-384675/35
Matrix: Water
Analysis Batch: 384675

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.80		mg/L		98	90 - 110

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 310-384675/4
Matrix: Water
Analysis Batch: 384675

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	9.96		mg/L		100	90 - 110
Fluoride	2.00	2.07		mg/L		104	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-383824/1-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383824

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<190		500	190	ug/L		04/10/23 16:36	04/11/23 18:08	1
Iron	<36		100	36	ug/L		04/10/23 16:36	04/11/23 18:08	1
Magnesium	<150		500	150	ug/L		04/10/23 16:36	04/11/23 18:08	1
Manganese	<3.6		10	3.6	ug/L		04/10/23 16:36	04/11/23 18:08	1
Potassium	<150		500	150	ug/L		04/10/23 16:36	04/11/23 18:08	1
Sodium	<460		1000	460	ug/L		04/10/23 16:36	04/11/23 18:08	1

Lab Sample ID: LCS 310-383824/2-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383824

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	2000	1920		ug/L		96	80 - 120
Iron	200	199		ug/L		100	80 - 120
Magnesium	2000	1960		ug/L		98	80 - 120
Manganese	100	95.6		ug/L		96	80 - 120
Potassium	2000	1880		ug/L		94	80 - 120
Sodium	2000	2290		ug/L		115	80 - 120

Lab Sample ID: 310-253118-1 MS
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 383824

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	200000		2000	197000	4	ug/L		-224	75 - 125
Iron	<36		200	234		ug/L		117	75 - 125
Magnesium	54000		2000	55300	4	ug/L		70	75 - 125
Manganese	16		100	117		ug/L		101	75 - 125
Potassium	1600		2000	3900		ug/L		115	75 - 125
Sodium	240000		2000	231000	4	ug/L		-474	75 - 125

Lab Sample ID: 310-253118-1 MSD
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 383824

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	200000		2000	197000	4	ug/L		-208	75 - 125	0	20
Iron	<36		200	237		ug/L		119	75 - 125	1	20
Magnesium	54000		2000	55100	4	ug/L		58	75 - 125	0	20
Manganese	16		100	120		ug/L		104	75 - 125	2	20

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

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

Lab Sample ID: 310-253118-1 MSD
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 383824

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Potassium	1600		2000	3950		ug/L		117	75 - 125	1	20
Sodium	240000		2000	232000	4	ug/L		-418	75 - 125	0	20

Lab Sample ID: 310-253118-11 DU
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-312
Prep Type: Total/NA
Prep Batch: 383824

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	170000		176000		ug/L		2	20
Iron	370		388		ug/L		5	20
Magnesium	59000		61300		ug/L		3	20
Manganese	960		1000		ug/L		4	20
Potassium	5700		5820		ug/L		2	20
Sodium	140000		142000		ug/L		1	20

Lab Sample ID: MB 310-383825/1-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383825

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.17		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 19:38	1

Lab Sample ID: LCS 310-383825/2-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383825

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	100	104		ug/L		104	80 - 120

Lab Sample ID: 310-253118-10 MS
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-311A
Prep Type: Total/NA
Prep Batch: 383825

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.66		100	96.2		ug/L		96	75 - 125

Lab Sample ID: 310-253118-10 MSD
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-311A
Prep Type: Total/NA
Prep Batch: 383825

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cobalt	0.66		100	95.3		ug/L		95	75 - 125	1	20

Lab Sample ID: MB 310-384127/1-A
Matrix: Water
Analysis Batch: 384931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/13/23 07:55	04/20/23 00:50	1
Arsenic	<0.53		2.0	0.53	ug/L		04/13/23 07:55	04/20/23 00:50	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

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

Lab Sample ID: MB 310-384127/1-A
Matrix: Water
Analysis Batch: 384931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384127

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Barium	<0.64		2.0	0.64	ug/L		04/13/23 07:55	04/20/23 00:50	1
Boron	<76		100	76	ug/L		04/13/23 07:55	04/20/23 00:50	1
Cadmium	<0.10		0.20	0.10	ug/L		04/13/23 07:55	04/20/23 00:50	1
Calcium	0.363	J	0.50	0.19	mg/L		04/13/23 07:55	04/20/23 00:50	1
Chromium	<1.1		5.0	1.1	ug/L		04/13/23 07:55	04/20/23 00:50	1
Lead	<0.24		0.50	0.24	ug/L		04/13/23 07:55	04/20/23 00:50	1
Selenium	<1.4		5.0	1.4	ug/L		04/13/23 07:55	04/20/23 00:50	1
Thallium	<0.26		1.0	0.26	ug/L		04/13/23 07:55	04/20/23 00:50	1
Cobalt	<0.17		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 00:50	1

Lab Sample ID: MB 310-384127/1-A
Matrix: Water
Analysis Batch: 385075

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384127

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Beryllium	<0.33		1.0	0.33	ug/L		04/13/23 07:55	04/20/23 14:39	1
Lithium	<2.5		10	2.5	ug/L		04/13/23 07:55	04/20/23 14:39	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/13/23 07:55	04/20/23 14:39	1

Lab Sample ID: LCS 310-384127/2-A
Matrix: Water
Analysis Batch: 384931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384127

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Antimony	200	226		ug/L		113	80 - 120
Arsenic	200	190		ug/L		95	80 - 120
Barium	100	95.2		ug/L		95	80 - 120
Boron	200	200		ug/L		100	80 - 120
Cadmium	100	90.3		ug/L		90	80 - 120
Calcium	2.00	2.12		mg/L		106	80 - 120
Chromium	100	90.6		ug/L		91	80 - 120
Lead	200	198		ug/L		99	80 - 120
Selenium	400	370		ug/L		93	80 - 120
Cobalt	100	102		ug/L		102	80 - 120

Lab Sample ID: LCS 310-384127/2-A
Matrix: Water
Analysis Batch: 385075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384127

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Beryllium	100	100		ug/L		100	80 - 120
Lithium	200	202		ug/L		101	80 - 120
Molybdenum	200	204		ug/L		102	80 - 120
Thallium	200	166		ug/L		83	80 - 120

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

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

Lab Sample ID: 310-253118-6 DU
Matrix: Water
Analysis Batch: 384931

Client Sample ID: MW-306
Prep Type: Total/NA
Prep Batch: 384127

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Antimony	<1.0		<1.0		ug/L		NC	20
Arsenic	<0.53		0.538	J	ug/L		NC	20
Barium	85		89.7		ug/L		5	20
Boron	780		823		ug/L		5	20
Cadmium	1.2		1.33		ug/L		6	20
Calcium	100	B	104		mg/L		5	20
Chromium	<1.1		<1.1		ug/L		NC	20
Lead	<0.24		<0.24		ug/L		NC	20
Lithium	2.7	J ^+	<2.5	^+	ug/L		NC	20
Selenium	<1.4		<1.4		ug/L		NC	20
Cobalt	7.7		8.10		ug/L		5	20

Lab Sample ID: 310-253118-6 DU
Matrix: Water
Analysis Batch: 385075

Client Sample ID: MW-306
Prep Type: Total/NA
Prep Batch: 384127

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Beryllium	<0.33		<0.33		ug/L		NC	20
Lithium	<2.5		<2.5		ug/L		NC	20
Molybdenum	13		12.9		ug/L		0.9	20
Thallium	<0.26		<0.26		ug/L		NC	20

Lab Sample ID: MB 310-384128/1-A
Matrix: Water
Analysis Batch: 384931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384128

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cobalt	<0.17		0.50	0.17	ug/L		04/13/23 07:55	04/20/23 02:16	1
Iron	<36		100	36	ug/L		04/13/23 07:55	04/20/23 02:16	1
Manganese	14.3		10	3.6	ug/L		04/13/23 07:55	04/20/23 02:16	1

Lab Sample ID: LCS 310-384128/2-A
Matrix: Water
Analysis Batch: 384931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	200	218		ug/L		109	80 - 120
Manganese	100	102		ug/L		102	80 - 120

Lab Sample ID: 310-253127-4 MS
Matrix: Water
Analysis Batch: 384931

Client Sample ID: MW-305
Prep Type: Dissolved
Prep Batch: 384128

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Cobalt	21		100	127		ug/L		106	75 - 125
Iron	62	J	200	288		ug/L		113	75 - 125
Manganese	3800	B	100	3900	4	ug/L		78	75 - 125

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

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

Lab Sample ID: 310-253127-4 MSD
Matrix: Water
Analysis Batch: 384931

Client Sample ID: MW-305
Prep Type: Dissolved
Prep Batch: 384128

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Cobalt	21		100	134		ug/L		114	75 - 125	6	20
Iron	62	J	200	299		ug/L		118	75 - 125	4	20
Manganese	3800	B	100	4170	4	ug/L		344	75 - 125	7	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-384507/1-A
Matrix: Water
Analysis Batch: 384665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384507

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.14		0.20	0.14	ug/L		04/17/23 11:13	04/18/23 12:06	1

Lab Sample ID: LCS 310-384507/2-A
Matrix: Water
Analysis Batch: 384665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384507

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier				Limits	
Mercury	1.67	1.60		ug/L		96	80 - 120	

Lab Sample ID: 310-253118-1 MS
Matrix: Water
Analysis Batch: 384665

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 384507

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				Limits	
Mercury	<0.14		1.67	1.68		ug/L		101	80 - 120	

Lab Sample ID: 310-253118-1 MSD
Matrix: Water
Analysis Batch: 384665

Client Sample ID: MW-302
Prep Type: Total/NA
Prep Batch: 384507

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Mercury	<0.14		1.67	1.67		ug/L		100	80 - 120	1	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-384409/2
Matrix: Water
Analysis Batch: 384409

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bicarbonate Alkalinity as CaCO3	<2.5		5.0	2.5	mg/L			04/14/23 17:08	1
Carbonate Alkalinity as CaCO3	<2.5		5.0	2.5	mg/L			04/14/23 17:08	1
Total Alkalinity as CaCO3	<2.5		5.0	2.5	mg/L			04/14/23 17:08	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 310-384409/50
 Matrix: Water
 Analysis Batch: 384409

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	1000	1010		mg/L		101	90 - 110

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

Lab Sample ID: MB 310-383763/1
 Matrix: Water
 Analysis Batch: 383763

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	<34		50	34	mg/L			04/10/23 11:52	1

Lab Sample ID: LCS 310-383763/2
 Matrix: Water
 Analysis Batch: 383763

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	972		mg/L		97	90 - 110

Lab Sample ID: 310-253118-1 DU
 Matrix: Water
 Analysis Batch: 383763

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1400		1450		mg/L		0.8	20

Lab Sample ID: MB 310-383809/1
 Matrix: Water
 Analysis Batch: 383809

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	<34		50	34	mg/L			04/10/23 14:30	1

Lab Sample ID: LCS 310-383809/2
 Matrix: Water
 Analysis Batch: 383809

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	968		mg/L		97	90 - 110

Lab Sample ID: 310-253118-11 DU
 Matrix: Water
 Analysis Batch: 383809

Client Sample ID: MW-312
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1200		1150		mg/L		1	20

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QC Sample Results

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-383669/1
Matrix: Water
Analysis Batch: 383669

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

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

Lab Sample ID: LCS 310-383669/29
Matrix: Water
Analysis Batch: 383669

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		101	98 - 102

Lab Sample ID: 310-253118-2 DU
Matrix: Water
Analysis Batch: 383669

Client Sample ID: MW-303
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.9	HF	6.8		SU		1	20

Lab Sample ID: 310-253118-C-12 DU
Matrix: Water
Analysis Batch: 383669

Client Sample ID: 310-253118-C-12 DU
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.4	HF	7.4		SU		1	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-607823/1-A
Matrix: Water
Analysis Batch: 610675

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607823

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	-0.01689	U	0.118	0.118	1.00	0.267	pCi/L	04/17/23 12:36	05/09/23 20:25	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	92.9		30 - 110					04/17/23 12:36	05/09/23 20:25	1

Lab Sample ID: LCS 160-607823/2-A
Matrix: Water
Analysis Batch: 610675

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607823

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium 226	11.3	9.953		1.28	1.00	0.317	pCi/L	88	75 - 113
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	94.1		30 - 110						

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

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

Lab Sample ID: LCSD 160-607823/3-A
Matrix: Water
Analysis Batch: 610675

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 607823

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER	Limit	
Radium 226	11.3	9.398		1.23	1.00	0.270	pCi/L	83	75 - 113	0.22		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Barium	95.1											30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-607829/1-A
Matrix: Water
Analysis Batch: 610676

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607829

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	92.9		30 - 110					04/17/23 13:10	05/09/23 13:05	1
Y Carrier	80.4		30 - 110					04/17/23 13:10	05/09/23 13:05	1

Lab Sample ID: LCS 160-607829/2-A
Matrix: Water
Analysis Batch: 610676

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607829

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Radium 228	7.97	8.541		1.21	1.00	0.560	pCi/L	107	75 - 125	
Carrier	%Yield	Qualifier	Limits							
Barium	94.1		30 - 110							
Y Carrier	81.5		30 - 110							

Lab Sample ID: LCSD 160-607829/3-A
Matrix: Water
Analysis Batch: 610676

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 607829

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER	Limit	
Radium 228	7.97	9.136		1.26	1.00	0.508	pCi/L	115	75 - 125	0.24		1
Carrier	%Yield	Qualifier	Limits									
Barium	95.1		30 - 110									30 - 110
Y Carrier	83.4		30 - 110									30 - 110

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QC Association Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

HPLC/IC

Analysis Batch: 384531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-4	MW-305	Total/NA	Water	9056A	
310-253118-7	MW-310	Total/NA	Water	9056A	
310-253118-9	MW-311	Total/NA	Water	9056A	
MB 310-384531/3	Method Blank	Total/NA	Water	9056A	
LCS 310-384531/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 384671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-3	MW-304	Total/NA	Water	9056A	
310-253118-5	MW-305A	Total/NA	Water	9056A	
310-253118-6	MW-306	Total/NA	Water	9056A	
310-253118-10	MW-311A	Total/NA	Water	9056A	
310-253118-10	MW-311A	Total/NA	Water	9056A	
310-253118-13	MW-316	Total/NA	Water	9056A	
310-253118-14	MW-316A	Total/NA	Water	9056A	
310-253118-14	MW-316A	Total/NA	Water	9056A	
310-253118-15	MW-317	Total/NA	Water	9056A	
MB 310-384671/3	Method Blank	Total/NA	Water	9056A	
LCS 310-384671/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 384675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	9056A	
310-253118-1	MW-302	Total/NA	Water	9056A	
310-253118-2	MW-303	Total/NA	Water	9056A	
310-253118-2	MW-303	Total/NA	Water	9056A	
310-253118-8	MW-310A	Total/NA	Water	9056A	
310-253118-8	MW-310A	Total/NA	Water	9056A	
310-253118-11	MW-312	Total/NA	Water	9056A	
310-253118-11	MW-312	Total/NA	Water	9056A	
310-253118-12	MW-313	Total/NA	Water	9056A	
310-253118-12	MW-313	Total/NA	Water	9056A	
MB 310-384675/3	Method Blank	Total/NA	Water	9056A	
LCS 310-384675/35	Lab Control Sample	Total/NA	Water	9056A	
LCS 310-384675/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 383824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	3005A	
310-253118-2	MW-303	Total/NA	Water	3005A	
310-253118-3	MW-304	Total/NA	Water	3005A	
310-253118-4	MW-305	Total/NA	Water	3005A	
310-253118-5	MW-305A	Total/NA	Water	3005A	
310-253118-6	MW-306	Total/NA	Water	3005A	
310-253118-7	MW-310	Total/NA	Water	3005A	
310-253118-8	MW-310A	Total/NA	Water	3005A	
310-253118-9	MW-311	Total/NA	Water	3005A	
310-253118-10	MW-311A	Total/NA	Water	3005A	
310-253118-11	MW-312	Total/NA	Water	3005A	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Metals (Continued)

Prep Batch: 383824 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-12	MW-313	Total/NA	Water	3005A	
310-253118-13	MW-316	Total/NA	Water	3005A	
310-253118-14	MW-316A	Total/NA	Water	3005A	
310-253118-15	MW-317	Total/NA	Water	3005A	
MB 310-383824/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-383824/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-253118-1 MS	MW-302	Total/NA	Water	3005A	
310-253118-1 MSD	MW-302	Total/NA	Water	3005A	
310-253118-11 DU	MW-312	Total/NA	Water	3005A	

Prep Batch: 383825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-10	MW-311A	Total/NA	Water	3005A	
310-253118-11	MW-312	Total/NA	Water	3005A	
310-253118-12	MW-313	Total/NA	Water	3005A	
310-253118-13	MW-316	Total/NA	Water	3005A	
310-253118-14	MW-316A	Total/NA	Water	3005A	
310-253118-15	MW-317	Total/NA	Water	3005A	
MB 310-383825/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-383825/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-253118-10 MS	MW-311A	Total/NA	Water	3005A	
310-253118-10 MSD	MW-311A	Total/NA	Water	3005A	

Analysis Batch: 384024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	6020B	383824
310-253118-2	MW-303	Total/NA	Water	6020B	383824
310-253118-3	MW-304	Total/NA	Water	6020B	383824
310-253118-4	MW-305	Total/NA	Water	6020B	383824
310-253118-5	MW-305A	Total/NA	Water	6020B	383824
310-253118-6	MW-306	Total/NA	Water	6020B	383824
310-253118-7	MW-310	Total/NA	Water	6020B	383824
310-253118-8	MW-310A	Total/NA	Water	6020B	383824
310-253118-9	MW-311	Total/NA	Water	6020B	383824
310-253118-10	MW-311A	Total/NA	Water	6020B	383824
310-253118-10	MW-311A	Total/NA	Water	6020B	383825
310-253118-11	MW-312	Total/NA	Water	6020B	383824
310-253118-11	MW-312	Total/NA	Water	6020B	383825
310-253118-12	MW-313	Total/NA	Water	6020B	383824
310-253118-12	MW-313	Total/NA	Water	6020B	383825
310-253118-13	MW-316	Total/NA	Water	6020B	383824
310-253118-13	MW-316	Total/NA	Water	6020B	383825
310-253118-14	MW-316A	Total/NA	Water	6020B	383824
310-253118-14	MW-316A	Total/NA	Water	6020B	383825
310-253118-15	MW-317	Total/NA	Water	6020B	383824
310-253118-15	MW-317	Total/NA	Water	6020B	383825
MB 310-383824/1-A	Method Blank	Total/NA	Water	6020B	383824
MB 310-383825/1-A	Method Blank	Total/NA	Water	6020B	383825
LCS 310-383824/2-A	Lab Control Sample	Total/NA	Water	6020B	383824
LCS 310-383825/2-A	Lab Control Sample	Total/NA	Water	6020B	383825
310-253118-1 MS	MW-302	Total/NA	Water	6020B	383824

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Metals (Continued)

Analysis Batch: 384024 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1 MSD	MW-302	Total/NA	Water	6020B	383824
310-253118-10 MS	MW-311A	Total/NA	Water	6020B	383825
310-253118-10 MSD	MW-311A	Total/NA	Water	6020B	383825
310-253118-11 DU	MW-312	Total/NA	Water	6020B	383824

Prep Batch: 384127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	3005A	
310-253118-2	MW-303	Total/NA	Water	3005A	
310-253118-3	MW-304	Total/NA	Water	3005A	
310-253118-4	MW-305	Total/NA	Water	3005A	
310-253118-5	MW-305A	Total/NA	Water	3005A	
310-253118-6	MW-306	Total/NA	Water	3005A	
310-253118-7	MW-310	Total/NA	Water	3005A	
310-253118-8	MW-310A	Total/NA	Water	3005A	
310-253118-9	MW-311	Total/NA	Water	3005A	
MB 310-384127/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-384127/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-253118-6 DU	MW-306	Total/NA	Water	3005A	

Prep Batch: 384128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-4	MW-305	Dissolved	Water	3005A	
310-253118-6	MW-306	Dissolved	Water	3005A	
310-253118-11	MW-312	Dissolved	Water	3005A	
310-253118-12	MW-313	Dissolved	Water	3005A	
310-253118-13	MW-316	Dissolved	Water	3005A	
310-253118-14	MW-316A	Dissolved	Water	3005A	
310-253118-15	MW-317	Dissolved	Water	3005A	
MB 310-384128/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-384128/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-253127-4 MS	MW-305	Dissolved	Water	3005A	
310-253127-4 MSD	MW-305	Dissolved	Water	3005A	

Prep Batch: 384507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	7470A	
310-253118-2	MW-303	Total/NA	Water	7470A	
310-253118-3	MW-304	Total/NA	Water	7470A	
310-253118-4	MW-305	Total/NA	Water	7470A	
310-253118-6	MW-306	Total/NA	Water	7470A	
MB 310-384507/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-384507/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-253118-1 MS	MW-302	Total/NA	Water	7470A	
310-253118-1 MSD	MW-302	Total/NA	Water	7470A	

Analysis Batch: 384665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	7470A	384507
310-253118-2	MW-303	Total/NA	Water	7470A	384507
310-253118-3	MW-304	Total/NA	Water	7470A	384507

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Metals (Continued)

Analysis Batch: 384665 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-4	MW-305	Total/NA	Water	7470A	384507
310-253118-6	MW-306	Total/NA	Water	7470A	384507
MB 310-384507/1-A	Method Blank	Total/NA	Water	7470A	384507
LCS 310-384507/2-A	Lab Control Sample	Total/NA	Water	7470A	384507
310-253118-1 MS	MW-302	Total/NA	Water	7470A	384507
310-253118-1 MSD	MW-302	Total/NA	Water	7470A	384507

Analysis Batch: 384931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	6020B	384127
310-253118-2	MW-303	Total/NA	Water	6020B	384127
310-253118-3	MW-304	Total/NA	Water	6020B	384127
310-253118-4	MW-305	Dissolved	Water	6020B	384128
310-253118-4	MW-305	Total/NA	Water	6020B	384127
310-253118-5	MW-305A	Total/NA	Water	6020B	384127
310-253118-6	MW-306	Dissolved	Water	6020B	384128
310-253118-6	MW-306	Total/NA	Water	6020B	384127
310-253118-7	MW-310	Total/NA	Water	6020B	384127
310-253118-8	MW-310A	Total/NA	Water	6020B	384127
310-253118-9	MW-311	Total/NA	Water	6020B	384127
310-253118-11	MW-312	Dissolved	Water	6020B	384128
310-253118-12	MW-313	Dissolved	Water	6020B	384128
310-253118-13	MW-316	Dissolved	Water	6020B	384128
310-253118-14	MW-316A	Dissolved	Water	6020B	384128
310-253118-15	MW-317	Dissolved	Water	6020B	384128
MB 310-384127/1-A	Method Blank	Total/NA	Water	6020B	384127
MB 310-384128/1-A	Method Blank	Total/NA	Water	6020B	384128
LCS 310-384127/2-A	Lab Control Sample	Total/NA	Water	6020B	384127
LCS 310-384128/2-A	Lab Control Sample	Total/NA	Water	6020B	384128
310-253127-4 MS	MW-305	Dissolved	Water	6020B	384128
310-253127-4 MSD	MW-305	Dissolved	Water	6020B	384128
310-253118-6 DU	MW-306	Total/NA	Water	6020B	384127

Analysis Batch: 385075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	6020B	384127
310-253118-2	MW-303	Total/NA	Water	6020B	384127
310-253118-3	MW-304	Total/NA	Water	6020B	384127
310-253118-4	MW-305	Total/NA	Water	6020B	384127
310-253118-6	MW-306	Total/NA	Water	6020B	384127
MB 310-384127/1-A	Method Blank	Total/NA	Water	6020B	384127
LCS 310-384127/2-A	Lab Control Sample	Total/NA	Water	6020B	384127
310-253118-6 DU	MW-306	Total/NA	Water	6020B	384127

General Chemistry

Analysis Batch: 383669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	SM 4500 H+ B	
310-253118-2	MW-303	Total/NA	Water	SM 4500 H+ B	
310-253118-3	MW-304	Total/NA	Water	SM 4500 H+ B	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

General Chemistry (Continued)

Analysis Batch: 383669 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-4	MW-305	Total/NA	Water	SM 4500 H+ B	
310-253118-6	MW-306	Total/NA	Water	SM 4500 H+ B	
LCS 310-383669/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-383669/29	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-253118-2 DU	MW-303	Total/NA	Water	SM 4500 H+ B	
310-253118-C-12 DU	310-253118-C-12 DU	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 383763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	SM 2540C	
310-253118-4	MW-305	Total/NA	Water	SM 2540C	
310-253118-7	MW-310	Total/NA	Water	SM 2540C	
310-253118-9	MW-311	Total/NA	Water	SM 2540C	
MB 310-383763/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-383763/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-253118-1 DU	MW-302	Total/NA	Water	SM 2540C	

Analysis Batch: 383809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-2	MW-303	Total/NA	Water	SM 2540C	
310-253118-3	MW-304	Total/NA	Water	SM 2540C	
310-253118-5	MW-305A	Total/NA	Water	SM 2540C	
310-253118-6	MW-306	Total/NA	Water	SM 2540C	
310-253118-8	MW-310A	Total/NA	Water	SM 2540C	
310-253118-10	MW-311A	Total/NA	Water	SM 2540C	
310-253118-11	MW-312	Total/NA	Water	SM 2540C	
310-253118-12	MW-313	Total/NA	Water	SM 2540C	
310-253118-13	MW-316	Total/NA	Water	SM 2540C	
310-253118-14	MW-316A	Total/NA	Water	SM 2540C	
310-253118-15	MW-317	Total/NA	Water	SM 2540C	
MB 310-383809/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-383809/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-253118-11 DU	MW-312	Total/NA	Water	SM 2540C	

Analysis Batch: 384409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-11	MW-312	Total/NA	Water	SM 2320B	
310-253118-12	MW-313	Total/NA	Water	SM 2320B	
310-253118-13	MW-316	Total/NA	Water	SM 2320B	
310-253118-14	MW-316A	Total/NA	Water	SM 2320B	
310-253118-15	MW-317	Total/NA	Water	SM 2320B	
MB 310-384409/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-384409/50	Lab Control Sample	Total/NA	Water	SM 2320B	

Rad

Prep Batch: 607823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	PrecSep-21	
310-253118-2	MW-303	Total/NA	Water	PrecSep-21	
310-253118-3	MW-304	Total/NA	Water	PrecSep-21	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Rad (Continued)

Prep Batch: 607823 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-4	MW-305	Total/NA	Water	PrecSep-21	
310-253118-6	MW-306	Total/NA	Water	PrecSep-21	
MB 160-607823/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-607823/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-607823/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 607829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	PrecSep_0	
310-253118-2	MW-303	Total/NA	Water	PrecSep_0	
310-253118-3	MW-304	Total/NA	Water	PrecSep_0	
310-253118-4	MW-305	Total/NA	Water	PrecSep_0	
310-253118-6	MW-306	Total/NA	Water	PrecSep_0	
MB 160-607829/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-607829/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-607829/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Field Service / Mobile Lab

Analysis Batch: 385536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253118-1	MW-302	Total/NA	Water	Field Sampling	
310-253118-2	MW-303	Total/NA	Water	Field Sampling	
310-253118-3	MW-304	Total/NA	Water	Field Sampling	
310-253118-4	MW-305	Total/NA	Water	Field Sampling	
310-253118-5	MW-305A	Total/NA	Water	Field Sampling	
310-253118-6	MW-306	Total/NA	Water	Field Sampling	
310-253118-7	MW-310	Total/NA	Water	Field Sampling	
310-253118-8	MW-310A	Total/NA	Water	Field Sampling	
310-253118-9	MW-311	Total/NA	Water	Field Sampling	
310-253118-10	MW-311A	Total/NA	Water	Field Sampling	
310-253118-11	MW-312	Total/NA	Water	Field Sampling	
310-253118-12	MW-313	Total/NA	Water	Field Sampling	
310-253118-13	MW-316	Total/NA	Water	Field Sampling	
310-253118-14	MW-316A	Total/NA	Water	Field Sampling	
310-253118-15	MW-317	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-302
Date Collected: 04/05/23 16:45
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/15/23 00:56
Total/NA	Analysis	9056A		20	384675	QTZ5	EET CF	04/17/23 12:16
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:14
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 01:30
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	385075	ZRI4	EET CF	04/20/23 14:53
Total/NA	Prep	7470A			384507	XXW3	EET CF	04/17/23 11:13
Total/NA	Analysis	7470A		1	384665	XXW3	EET CF	04/18/23 12:13
Total/NA	Analysis	SM 2540C		1	383763	ENB7	EET CF	04/10/23 11:52
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 11:11
Total/NA	Prep	PrecSep-21			607823	KAC	EET SL	04/17/23 12:36
Total/NA	Analysis	903.0		1	610695	SCB	EET SL	05/09/23 21:48
Total/NA	Prep	PrecSep_0			607829	KAC	EET SL	04/17/23 13:10
Total/NA	Analysis	904.0		1	610695	SCB	EET SL	05/09/23 13:09
Total/NA	Analysis	Ra226_Ra228 Pos		1	610879	SCB	EET SL	05/10/23 12:19
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/05/23 16:45

Client Sample ID: MW-303
Date Collected: 04/05/23 15:45
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/15/23 01:43
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/17/23 12:31
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:29
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 01:32
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	385075	ZRI4	EET CF	04/20/23 14:56
Total/NA	Prep	7470A			384507	XXW3	EET CF	04/17/23 11:13
Total/NA	Analysis	7470A		1	384665	XXW3	EET CF	04/18/23 12:19
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 11:09
Total/NA	Prep	PrecSep-21			607823	KAC	EET SL	04/17/23 12:36
Total/NA	Analysis	903.0		1	610695	SCB	EET SL	05/09/23 21:48
Total/NA	Prep	PrecSep_0			607829	KAC	EET SL	04/17/23 13:10
Total/NA	Analysis	904.0		1	610695	SCB	EET SL	05/09/23 13:09
Total/NA	Analysis	Ra226_Ra228 Pos		1	610879	SCB	EET SL	05/10/23 12:19
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/05/23 15:45

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-304
Date Collected: 04/06/23 10:09
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 15:04
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:32
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 01:35
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	385075	ZRI4	EET CF	04/20/23 15:14
Total/NA	Prep	7470A			384507	XXW3	EET CF	04/17/23 11:13
Total/NA	Analysis	7470A		1	384665	XXW3	EET CF	04/18/23 12:21
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 11:06
Total/NA	Prep	PrecSep-21			607823	KAC	EET SL	04/17/23 12:36
Total/NA	Analysis	903.0		1	610695	SCB	EET SL	05/09/23 21:48
Total/NA	Prep	PrecSep_0			607829	KAC	EET SL	04/17/23 13:10
Total/NA	Analysis	904.0		1	610695	SCB	EET SL	05/09/23 13:09
Total/NA	Analysis	Ra226_Ra228 Pos		1	610879	SCB	EET SL	05/10/23 12:19
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/06/23 10:09

Client Sample ID: MW-305
Date Collected: 04/04/23 15:55
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384531	QTZ5	EET CF	04/14/23 14:25
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:21
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:35
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 01:53
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	385075	ZRI4	EET CF	04/20/23 15:17
Total/NA	Prep	7470A			384507	XXW3	EET CF	04/17/23 11:13
Total/NA	Analysis	7470A		1	384665	XXW3	EET CF	04/18/23 12:28
Total/NA	Analysis	SM 2540C		1	383763	ENB7	EET CF	04/10/23 11:52
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 11:05
Total/NA	Prep	PrecSep-21			607823	KAC	EET SL	04/17/23 12:36
Total/NA	Analysis	903.0		1	610695	SCB	EET SL	05/09/23 21:48
Total/NA	Prep	PrecSep_0			607829	KAC	EET SL	04/17/23 13:10
Total/NA	Analysis	904.0		1	610695	SCB	EET SL	05/09/23 13:09
Total/NA	Analysis	Ra226_Ra228 Pos		1	610879	SCB	EET SL	05/10/23 12:19
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/04/23 15:55

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-305A
Date Collected: 04/06/23 09:09
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 15:20
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:49
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 01:55
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/06/23 09:09

Client Sample ID: MW-306
Date Collected: 04/06/23 10:05
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 15:35
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:43
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:52
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 01:58
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	385075	ZRI4	EET CF	04/20/23 15:20
Total/NA	Prep	7470A			384507	XXW3	EET CF	04/17/23 11:13
Total/NA	Analysis	7470A		1	384665	XXW3	EET CF	04/18/23 12:30
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 11:01
Total/NA	Prep	PrecSep-21			607823	KAC	EET SL	04/17/23 12:36
Total/NA	Analysis	903.0		1	610695	SCB	EET SL	05/09/23 21:48
Total/NA	Prep	PrecSep_0			607829	KAC	EET SL	04/17/23 13:10
Total/NA	Analysis	904.0		1	610695	SCB	EET SL	05/09/23 13:09
Total/NA	Analysis	Ra226_Ra228 Pos		1	610879	SCB	EET SL	05/10/23 12:19
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/06/23 10:05

Client Sample ID: MW-310
Date Collected: 04/04/23 14:15
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384531	QTZ5	EET CF	04/14/23 14:41
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:55
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:04
Total/NA	Analysis	SM 2540C		1	383763	ENB7	EET CF	04/10/23 11:52

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Lab Chronicle

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-310
Date Collected: 04/04/23 14:15
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/04/23 14:15

Client Sample ID: MW-310A
Date Collected: 04/05/23 11:55
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/15/23 01:59
Total/NA	Analysis	9056A		20	384675	QTZ5	EET CF	04/17/23 12:47
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 18:58
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:07
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/05/23 11:55

Client Sample ID: MW-311
Date Collected: 04/04/23 17:07
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384531	QTZ5	EET CF	04/14/23 14:57
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:01
Total/NA	Prep	3005A			384127	DHM5	EET CF	04/13/23 07:55
Total/NA	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:10
Total/NA	Analysis	SM 2540C		1	383763	ENB7	EET CF	04/10/23 11:52
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/04/23 17:07

Client Sample ID: MW-311A
Date Collected: 04/06/23 13:10
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 16:22
Total/NA	Analysis	9056A		20	384671	QTZ5	EET CF	04/17/23 10:26
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:03
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:44
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/06/23 13:10

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-312
Date Collected: 04/05/23 14:10
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/15/23 02:14
Total/NA	Analysis	9056A		20	384675	QTZ5	EET CF	04/17/23 13:34
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:46
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:06
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:59
Total/NA	Analysis	SM 2320B		1	384409	MAQ3	EET CF	04/14/23 19:38
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/05/23 14:10

Client Sample ID: MW-313
Date Collected: 04/05/23 13:10
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/15/23 02:30
Total/NA	Analysis	9056A		20	384675	QTZ5	EET CF	04/17/23 13:49
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:49
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:12
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:13
Total/NA	Analysis	SM 2320B		1	384409	MAQ3	EET CF	04/14/23 19:48
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/05/23 13:10

Client Sample ID: MW-316
Date Collected: 04/06/23 11:07
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 16:37
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:52
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:15
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:16
Total/NA	Analysis	SM 2320B		1	384409	MAQ3	EET CF	04/14/23 19:58
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Client Sample ID: MW-316
Date Collected: 04/06/23 11:07
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/06/23 11:07

Client Sample ID: MW-316A
Date Collected: 04/06/23 11:05
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 16:53
Total/NA	Analysis	9056A		20	384671	QTZ5	EET CF	04/17/23 10:42
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:55
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:29
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:19
Total/NA	Analysis	SM 2320B		1	384409	MAQ3	EET CF	04/14/23 20:09
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/06/23 11:05

Client Sample ID: MW-317
Date Collected: 04/06/23 12:20
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253118-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384671	QTZ5	EET CF	04/14/23 17:09
Dissolved	Prep	3005A			384128	DHM5	EET CF	04/13/23 07:55
Dissolved	Analysis	6020B		1	384931	ZRI4	EET CF	04/20/23 02:58
Total/NA	Prep	3005A			383824	QTZ5	EET CF	04/10/23 16:36
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 19:32
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:22
Total/NA	Analysis	SM 2320B		1	384409	MAQ3	EET CF	04/14/23 20:20
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	Field Sampling		1	385536	BJOR	EET CF	04/06/23 12:20

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Method Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET 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:

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





Environment Testing
America



310-253118 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SLS</u>			
City/State:	CITY	STATE	Project:
		<u>WI</u>	<u>Ash Pond III # IV</u>
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>4-7-23</u>	<u>1600</u>	<u>MW</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>5</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>W</u>	Correction Factor (°C):	<u>0</u>
Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.9</u>	Corrected Temp (°C):	<u>2.9</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			
<u>MW-302</u>			
<u>MW-303</u>			
<u>MW-311A</u>			



Environment Testing
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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>WE</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>4-7-23</u>	<u>1600</u>	<u>MC Ash Pond III + IV</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"/> Cab 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>5</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 type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> NONE	
Thermometer ID:	<u>W</u>	Correction Factor (°C):	<u>0</u>
Temp Blank Temperature: If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>9.3</u>	Corrected Temp (°C):	<u>9.3</u>
Sample Container Temperature			
Container(s) used:	CONTAINER 1 <u>250 mL plastic</u>	CONTAINER 2 <u>250 mL plastic</u>	
Uncorrected Temp (°C):	<u>10.8</u>	<u>8.9</u>	
Corrected Temp (°C):	<u>10.8</u>	<u>8.9</u>	
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			
<u>MW 304 MW 305A</u>			
<u>Field Blank</u>			
<u>MW 301</u>			



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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State: <u>Madison</u>	CITY	STATE <u>WI</u>	Project: <u>Ash Pond III + IV</u>
Receipt Information			
Date/Time Received:	DATE <u>4-7-23</u>	TIME <u>1600</u>	Received By: <u>CC</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>3</u> of <u>5</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>T</u>		Correction Factor (°C): <u>0.1</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>2.3</u>		Corrected Temp (°C): <u>2.4</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			
<u>MW305</u>			
<u>MW310</u>			
<u>MW311</u>			



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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>WI</u>	<u>Ash Pond III + IV</u>
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>4-7-23</u>	<u>1600</u>	<u>MC</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>4</u> of <u>5</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>W</u>	Correction Factor (°C): <u>0</u>	
Temp Blank Temperature: If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>5.8</u>	Corrected Temp (°C): <u>5.8</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			
<u>MW-306</u>			
<u>MW-310A</u>			
<u>MW-312</u>			



Environment Testing
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Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>WI</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>9-7-23</u>	<u>1600</u>	<u>MU</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 type="checkbox"/> No	If yes: Cooler # <u>5</u> of <u>5</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>W</u>		Correction Factor (°C): <u>0</u>	
Temp Blank Temperature If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>4.7</u>		Corrected Temp (°C): <u>4.7</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			
<u>MW 313 MW 317</u>			
<u>MW 316</u>			
<u>MW 316A</u>			

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Environment Testing

Bottle Order Information

Bottle Order: OGS- AshPond III & IV
 Bottle Order #: 22377
 Request From Client: 3/23/2023
 Date Order Posted: 3/21/2023 3:01:04PM
 Order Status: Shipped
 Prepared By: Meredith Liechti
 Deliver By Date: 3/30/2023 11:59:00PM

When To Ship: 3/30/2023

Shipping Summary

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



S 3 1 0 - 8 0 1 1 0

Project/Event Information

Project Manager: Sandie Fredrick
 Tel: (920) 261-1660 Em: Sandra.Fredrick@et.eurofinsus.com
 Lab Project Number: 31011020
 Project Ref: IA CCR Monitoring
 Event Desc:

Client Samples: MW-305A, MW-310, MW-310A, MW-311, MW-311A, MW-312, MW-313, MW-316, MW-316A, MW-317

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
10	1	Plastic 250ml - unpreserved		None	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	Water	C/1/F/S
10	1	Plastic 250ml - with Nitric Acid		Nitric Acid	6020B - Metals --Colbalt	Water	Colbalt
10	1	Plastic 1 liter - unpreserved		None	SM4500_H+ - pH 2540C_Calcd - Total Dissolved Solids	Water Water	TDS/pH
10	2	Plastic Bag		None		Water	

MLC 4-7-23 1600

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Shipping Summary

Client Samples: MW-302, MW-303, MW-304, MW-305, MW-306

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
6	1	Plastic 250ml - with Nitric Acid		Nitric Acid	6020B - Metals (14) 7470A - Mercury	Water Water	Metals + Hg
6	1	Plastic 1 liter - unpreserved		None	SM4500_H+ - pH 2540C_Calcd - Total Dissolved Solids	Water Water	TDS + pH
6	1	Plastic 250ml - unpreserved		None	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	Water	CL+F+S
6	2	Plastic Bag		None		Water	

MU 4-7-23 1600

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Shipping Summary

Total Bottle Summary	
Bottle Type Description	Bottle Count
Plastic 1 liter - unpreserved	16
Plastic 250ml - unpreserved	16
Plastic 250ml - with Nitric Acid	16
Plastic Bag	32
Total Bottles: 80	

Notes to Field Staff:



Scan QR code for field sampler instructions

Health and Safety Notes:

Preservative Comment

Nitric Acid

CAUTION! STRONG OXIDIZER! CONTAINS 1:1 NITRIC ACID. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.

Relinquished By	Company	Date	Time	Received By	Company	Seal #:
		4-7-23	1600	MC		
Relinquished By	Company	Date	Time	Received By	Company	Seal #:

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Client Information		Lab PM: Sandie Fredrick		Carrier Tracking No(s)		COC No.	
Client Contact: Meghan Blodgett		E-Mail: Sandria.Fredrick@eurofins.com		State of Origin:		Page: 1 of 2	
Company: SCS Engineers		PWSID:		Job #:		25223072	
Address: 2830 Dairy Drive		City: Madison		State:		WI, 53718	
Phone: 608-224-2830		PO #:		TAT Requested (days):		25223072	
Email: mblodgett@scsengineers.com		Project #:		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		25223072	
Project Name: Ottumwa Generating Station 25223072		Site:		SSOW#:		Ottumwa, IA	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Other)	Preservation Code	Analysis Requested												Special Instructions/Note:
						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 Metals, total (Sb, As, Ba, Be, B, Ca, Cd, Cr, Co, Fe, Pb, Li, Mo, Se, Ti, and Hg)	TDS and pH	Chloride, Fluoride, Sulfate	EPA 903/904 Radium 226 + 228	Bicarbonate & carbonate alkalinity	6020 Metals, total (Ca, Mg, Mn, K, Na)	6020 Metals, dissolved (Co)	6020 Metals, dissolved (Fe, Mn)	Total Number of containers		
MW-302	4/5/23	4:45	G	W	NY	X	X	X	X	X	X	X	X	X	X	X		
MW-303	4/5/23	3:45	G	W	NY	X	X	X	X	X	X	X	X	X	X	X		
MW-304	4/6/23	10:00	G	W	NY	X	X	X	X	X	X	X	X	X	X	X		
MW-305	4/4/23	3:55	G	W	NY	X	X	X	X	X	X	X	X	X	X	X		
MW-305A	4/6/23	9:00	G	W	N													
MW-306	4/6/23	10:05	G	W	NY	X	X	X	X	X	X	X	X	X	X	X		
MW-310	4/4/23	2:15	G	W	N													
MW-310A	4/5/23	11:55	G	W	N													
MW-311	4/4/23	5:07	G	W	N													
MW-311A	4/6/23	1:10	G	W	N													
MW-312	4/5/23	2:10	G	W	NY	X	X	X	X	X	X	X	X	X	X	X		

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (Specify)

Empty Kit Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: *Tyler Stirling* Date: 4/7/23 Company: SCS
 Relinquished by: _____ Date: _____ Company: _____
 Relinquished by: _____ Date: _____ Company: _____

Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks: 4-7-23 1600

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

Special Instructions/QC Requirements:



Sample Login Analytes / Limits

Job 310-253118-1

Client Job Description:	OGS - AshPond III & IV 25223072	Report To:	SCS Engineers
Purchase Order #:	25223072		Meghan Blodgett
Work Order #:			2830 Dairy Drive
Project Manager:	Sandie Fredrick		Madison, WI 53718
Job Due Date:	4/21/2023		
Job TAT:	10 Days		
Max Deliverable Level:	II	Bill To:	SCS Engineers
			Ashley Radunzel
Earliest Deliverable Due:	4/21/2023		2830 Dairy Drive
			Madison, WI 53718

Login 310-253118

Sample Receipt:	4/7/2023 4:00:00 PM	Number of Coolers:	5
Method of Delivery:	Lab Courier	Cooler Temperature(s) (C°):	2.4; 2.9; 4.7; 5.8; 9.3;

Method	Rpt Basis	MDL	RL	Units	Sample #s Applicable
Method Description					
2540C_Calcd	Total	MDL	RL		1,2,3,4,5,6,7,8,9,10,11,12,13,1,15
Total Dissolved Solids					
Total Dissolved Solids		34	50	mg/L	
6020B	Total	MDL	RL		1,2,3,4,6
Metals (14)					
Antimony		1	2	ug/L	
Arsenic		0.53	2	ug/L	
Barium		0.64	2	ug/L	
Beryllium		0.33	1	ug/L	
Boron		76	100	ug/L	
Cadmium		0.1	0.2	ug/L	
Calcium		0.19	0.5	mg/L	
Chromium		1.1	5	ug/L	
Cobalt		0.17	0.5	ug/L	
Lead		0.24	0.5	ug/L	
Lithium		2.5	10	ug/L	
Molybdenum		0.91	2	ug/L	
Selenium		1.4	5	ug/L	
Thallium		0.26	1	ug/L	
6020B	Total	MDL	RL		5,7,8,9,10,11,12,13,14,15
Metals (2)					
Cobalt		0.17	0.5	ug/L	
Iron		36	100	ug/L	
7470A	Total	MDL	RL		1,2,3,4,6
Mercury					
Mercury		0.14	0.2	ug/L	
9056A_ORGFM_28D	Total	MDL	RL		1,2,3,4,5,6,7,8,9,10,11,12,13,1,15
Chloride, Fluoride & Sulfate					
Chloride		0.45	1	mg/L	
Fluoride		0.044	0.1	mg/L	
Sulfate		0.4	1	mg/L	
FieldSampling	Total	RL	RL		1,2,3,4,5,6,7,8,9,10,11,12,13,1,15
Field Parameters					
Ground Water Elevation				ft	
Oxidation Reduction Potential				millivolts	
Oxygen, Dissolved, Client Supplied				mg/L	
pH, Field		0.1	0.1	SU	
Specific Conductance, Field				umhos/cm	
Temperature, Field		0.1	0.1	Degrees C	
Turbidity, Field				NTU	

Sample Login Analytes / Limits

Method	Rpt Basis		Units		Sample #s Applicable
Method Description					
SM4500_H+	Total	RL	RL		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15
pH		0.1	0.1	SU	
	pH				

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Table 1. Sampling Points and Parameters - CCR Rule Sampling Program
 Groundwater Monitoring - Ottumwa Generating Station / SCS Engineers Project #25222072

	Parameter	COC #1 (Background)		COC #2 (Ash Pond)													COC #3 (ZLDP)				Surface Water Points			Water Levels Only				TOTAL			
		MW-301	Field Blank	MW-302	MW-303	MW-304	MW-305	MW-305A	MW-306	MW-310	MW-310A	MW-311	MW-311A	MW-312	MW-313	MW-316	MW-316A	MW-317	MW-307	MW-308	MW-309	MW-315	Piling near MW-310	Avery Creek Gauge 1	Avery Creek Gauge 2	MW-302WT	MW-304WT		MW-306WT	MW-314	MW-314WT
Appendix III Parameters	Boron	x	x	x	x	x	x		x										x	x	x	x									10
	Calcium	x	x	x	x	x	x		x					x	x	x	x	x		x	x	x	x								15
	Chloride	x	x	x	x	x	x		x											x	x	x	x								10
	Fluoride	x	x	x	x	x	x		x											x	x	x	x								10
	pH	x	x	x	x	x	x		x											x	x	x	x								10
	Sulfate	x	x	x	x	x	x		x											x	x	x	x								10
	TDS	x	x	x	x	x	x		x											x	x	x	x								10
Appendix IV Parameters	Antimony	x	x	x	x	x	x		x										x	x	x	x								10	
	Arsenic	x	x	x	x	x	x		x											x	x	x	x								10
	Barium	x	x	x	x	x	x		x											x	x	x	x								10
	Beryllium	x	x	x	x	x	x		x											x	x	x	x								10
	Cadmium	x	x	x	x	x	x		x											x	x	x	x								10
	Chromium	x	x	x	x	x	x		x											x	x	x	x								10
	Cobalt	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x								20
	Fluoride	x	x	x	x	x	x		x											x	x	x	x								10
	Lead	x	x	x	x	x	x		x											x	x	x	x								10
	Lithium	x	x	x	x	x	x		x											x	x	x	x								10
	Mercury	x	x	x	x	x	x		x											x	x	x	x								10
	Molybdenum	x	x	x	x	x	x		x											x	x	x	x								10
	Selenium	x	x	x	x	x	x		x											x	x	x	x								10
	Thallium	x	x	x	x	x	x		x											x	x	x	x								10
	Radium	x	x	x	x	x	x		x											x	x	x	x								10
Additional Lab Parameters	Bicarbonate (total)													x	x	x	x	x													5
	Carbonate (total)													x	x	x	x	x													5
	Iron (total)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									20
	Magnesium (total)													x	x	x	x	x													5
	Manganese (total)													x	x	x	x	x													5
	Potassium (total)													x	x	x	x	x													5
	Sodium (total)													x	x	x	x	x													5
	Cobalt (filtered)						x		x											x											3
Iron (filtered)													x	x	x	x	x													5	
Manganese (filtered)													x	x	x	x	x													5	
Field Parameters	Groundwater Elevation	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									25
	Surface Water Elevation																							x	x	x					1
	pH (field)	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	Specific Conductance	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	Dissolved Oxygen	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	ORP	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	Temperature	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	Turbidity	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	Color	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19
	Odor	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									19

Notes: All samples are unfiltered (total).

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Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-253118-1

Login Number: 253118

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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



Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: OGS - AshPond III & IV 25223072

Job ID: 310-253118-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
310-253118-1	MW-302	97.5
310-253118-2	MW-303	86.0
310-253118-3	MW-304	93.4
310-253118-4	MW-305	93.6
310-253118-6	MW-306	95.1
LCS 160-607823/2-A	Lab Control Sample	94.1
LCSD 160-607823/3-A	Lab Control Sample Dup	95.1
MB 160-607823/1-A	Method Blank	92.9

Tracer/Carrier Legend

Ba = Barium

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-253118-1	MW-302	97.5	79.3
310-253118-2	MW-303	86.0	79.6
310-253118-3	MW-304	93.4	73.3
310-253118-4	MW-305	93.6	77.4
310-253118-6	MW-306	95.1	78.1
LCS 160-607829/2-A	Lab Control Sample	94.1	81.5
LCSD 160-607829/3-A	Lab Control Sample Dup	95.1	83.4
MB 160-607829/1-A	Method Blank	92.9	80.4

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier

**Table 1. Groundwater Monitoring Results - Field Parameters
Ottumwa Generating Station / SCS Engineers Project No. 25223072.00
April 2023**

	Sample	Date/Sample Time	Groundwater Elevation (amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity
Background	MW-301	4/6/2023 0845	682.05	7.1	6.25	5.05	832	124.5	2.37
Ash Pond	MW-302	4/5/2023 1645	653.30	11.2	6.62	1.86	1953	97.0	2.03
	MW-303	4/5/2023 1545	652.57	8.3	6.65	1.70	1215	62.9	3.54
	MW-304	4/6/2023 1009	650.29	13.1	6.70	-0.13	1888	-93.7	0.02
	MW-305	4/4/2023 1555	655.02	13.6	6.70	0.63	1896	166.4	0.02
	MW-305A	4/6/2023 0909	647.70	11.1	6.74	0.12	1224	198.2	0.02
	MW-306	4/6/2023 1005	659.12	13.4	6.61	0.12	1583	103.1	3.09
	MW-310	4/4/2023 1415	641.71	11.8	6.91	4.34	852	252.5	0.02
	MW-310A	4/5/2023 1155	643.11	12.1	7.46	0.49	3045	-15.5	1.97
	MW-311	4/4/2023 1707	641.88	10.5	6.56	0.00	932	257	0.02
	MW-311A	4/6/2023 1310	643.59	11.5	7.54	2.47	3037	47.7	0.02
	MW-312	4/5/2023 1410	644.08	12.0	7.11	0.28	1576	0.5	1.32
	MW-313	4/5/2023 1310	642.02	11.5	6.93	0.09	1878	-14.5	5.09
	MW-316	4/6/2023 1107	642.78	10.6	6.70	-0.16	1694	104.1	0.02
	MW-316A	4/6/2023 1105	643.49	11.2	7.40	3.29	1976	99.6	4.77
	MW-317	4/6/2023 1220	642.84	11.5	6.57	0.12	1561	-24.0	3.89
ZLDP	MW-307	4/5/2023 1611	647.28	11.9	6.62	0.00	1776	31.9	0.02
	MW-308	4/5/2023 1502	645.16	11.7	6.70	0.18	1634	7.3	1.55
	MW-309	4/5/2023 1150	644.41	11.7	7.10	0.42	1511	-7.0	0.02
	MW-315	4/5/2023 1308	645.12	11.8	6.96	0.32	1523	-45.7	0.02

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

Created by: EMS _____ Date: 4/13/2023 _____
 Last revision by: EMS _____ Date: 4/13/2023 _____
 Checked by: MDB _____ Date: 4/21/2023 _____

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ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

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JOB DESCRIPTION

OGS - Background III&IV - 25223072

JOB NUMBER

310-253119-1

Eurofins Cedar Falls

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Sample Summary	6
Detection Summary	7
Client Sample Results	8
Definitions	12
QC Sample Results	13
QC Association	17
Chronicle	19
Certification Summary	20
Method Summary	21
Chain of Custody	22
Receipt Checklists	27
Tracer Carrier Summary	28
Field Data Sheets	29

Case Narrative

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Job ID: 310-253119-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-253119-1

Comments

No additional comments.

Receipt

The samples were received on 4/7/2023 4:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 9.3° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-301 (310-253119-1) and Field Blank (310-253119-2).

HPLC/IC

Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-301 (310-253119-1). Elevated reporting limits (RLs) are provided.

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

Metals

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.

Narrative

Job Narrative 310-253122-1

Comments

No additional comments.

Receipt

The samples were received on 4/7/2023 4:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 9.3° C and 9.3° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-301 (310-253122-1) and Field Blank (310-253122-2).

RAD

Methods 903.0, 9315: Radium-226 batch 607419

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-301 (310-253122-1), Field Blank (310-253122-2), (LCS 160-607419/2-A), (LCSD 160-607419/3-A) and (MB 160-607419/1-A)

Methods 904.0, 9320: Radium-228 batch 607425

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date MW-301 (310-253122-1), Field Blank (310-253122-2), (LCS 160-607425/2-A), (LCSD 160-607425/3-A) and (MB 160-607425/1-A)

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

Case Narrative

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Job ID: 310-253119-1 (Continued)

Laboratory: Eurofins Cedar Falls (Continued)

Metals

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

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Sample Summary

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-253119-1	MW-301	Water	04/06/23 08:45	04/07/23 16:00
310-253119-2	Field Blank	Water	04/06/23 11:55	04/07/23 16:00

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Detection Summary

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Client Sample ID: MW-301

Lab Sample ID: 310-253119-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	120		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	160		5.0	2.0	mg/L	5		9056A	Total/NA
Iron	58	J	100	36	ug/L	1		6020B	Total/NA
Barium	31		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	530		100	76	ug/L	1		6020B	Total/NA
Calcium	76		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.21	J	0.50	0.17	ug/L	1		6020B	Total/NA
Lithium	17		10	2.5	ug/L	1		6020B	Total/NA
Selenium	4.7	J	5.0	1.4	ug/L	1		6020B	Total/NA
Total Dissolved Solids	580		50	34	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	682.05				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	124.5				millivolts	1		Field Sampling	Total/NA
Oxygen, Dissolved, Client Supplied	5.05				mg/L	1		Field Sampling	Total/NA
pH, Field	6.25				SU	1		Field Sampling	Total/NA
Specific Conductance, Field	832				umhos/cm	1		Field Sampling	Total/NA
Temperature, Field	7.1				Degrees C	1		Field Sampling	Total/NA
Turbidity, Field	2.37				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-253119-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	0.48	J	0.50	0.19	mg/L	1		6020B	Total/NA
pH	6.0	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Client Sample ID: MW-301
 Date Collected: 04/06/23 08:45
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253119-1
 Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120		5.0	2.3	mg/L			04/15/23 02:46	5
Fluoride	<0.22		0.50	0.22	mg/L			04/15/23 02:46	5
Sulfate	160		5.0	2.0	mg/L			04/17/23 14:05	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/11/23 09:20	04/11/23 20:25	1
Iron	58	J	100	36	ug/L		04/11/23 09:20	04/11/23 20:54	1
Arsenic	<0.53		2.0	0.53	ug/L		04/11/23 09:20	04/11/23 20:25	1
Barium	31		2.0	0.64	ug/L		04/11/23 09:20	04/11/23 20:25	1
Beryllium	<0.33		1.0	0.33	ug/L		04/11/23 09:20	04/11/23 20:25	1
Boron	530		100	76	ug/L		04/11/23 09:20	04/11/23 20:25	1
Cadmium	<0.10		0.20	0.10	ug/L		04/11/23 09:20	04/11/23 20:25	1
Calcium	76		0.50	0.19	mg/L		04/11/23 09:20	04/11/23 20:25	1
Chromium	<1.1		5.0	1.1	ug/L		04/11/23 09:20	04/11/23 20:25	1
Cobalt	0.21	J	0.50	0.17	ug/L		04/11/23 09:20	04/11/23 20:25	1
Lead	<0.24		0.50	0.24	ug/L		04/11/23 09:20	04/11/23 20:25	1
Lithium	17		10	2.5	ug/L		04/11/23 09:20	04/11/23 20:25	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/11/23 09:20	04/11/23 20:25	1
Selenium	4.7	J	5.0	1.4	ug/L		04/11/23 09:20	04/11/23 20:25	1
Thallium	<0.26		1.0	0.26	ug/L		04/11/23 09:20	04/11/23 20:25	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/12/23 11:59	04/12/23 17:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	580		50	34	mg/L			04/10/23 14:30	1
pH (SM 4500 H+ B)	6.7	HF	0.1	0.1	SU			04/08/23 10:44	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count		RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Total						
			(2σ+/-)	(2σ+/-)						
Radium 226	0.0491	U	0.147	0.147	1.00	0.279	pCi/L	04/14/23 10:13	05/09/23 07:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	84.6		30 - 110					04/14/23 10:13	05/09/23 07:58	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count		RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Total						
			(2σ+/-)	(2σ+/-)						
Radium 228	-0.135	U	0.325	0.325	1.00	0.634	pCi/L	04/14/23 10:41	05/08/23 14:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	84.6		30 - 110					04/14/23 10:41	05/08/23 14:57	1
Y Carrier	89.0		30 - 110					04/14/23 10:41	05/08/23 14:57	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Client Sample ID: MW-301
 Date Collected: 04/06/23 08:45
 Date Received: 04/07/23 16:00

Lab Sample ID: 310-253119-1
 Matrix: Water

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.0491	U	0.357	0.357	5.00	0.634	pCi/L		05/09/23 14:13	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ground Water Elevation	682.05				ft			04/06/23 08:45	1
Oxidation Reduction Potential	124.5				millivolts			04/06/23 08:45	1
Oxygen, Dissolved, Client Supplied	5.05				mg/L			04/06/23 08:45	1
pH, Field	6.25				SU			04/06/23 08:45	1
Specific Conductance, Field	832				umhos/cm			04/06/23 08:45	1
Temperature, Field	7.1				Degrees C			04/06/23 08:45	1
Turbidity, Field	2.37				NTU			04/06/23 08:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Client Sample ID: Field Blank

Lab Sample ID: 310-253119-2

Date Collected: 04/06/23 11:55

Matrix: Water

Date Received: 04/07/23 16:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			04/15/23 03:02	1
Fluoride	<0.044		0.10	0.044	mg/L			04/15/23 03:02	1
Sulfate	<0.40		1.0	0.40	mg/L			04/17/23 14:20	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/11/23 09:20	04/11/23 20:27	1
Iron	<36		100	36	ug/L		04/11/23 09:20	04/11/23 20:59	1
Arsenic	<0.53		2.0	0.53	ug/L		04/11/23 09:20	04/11/23 20:27	1
Barium	<0.64		2.0	0.64	ug/L		04/11/23 09:20	04/11/23 20:27	1
Beryllium	<0.33		1.0	0.33	ug/L		04/11/23 09:20	04/11/23 20:27	1
Boron	<76		100	76	ug/L		04/11/23 09:20	04/11/23 20:27	1
Cadmium	<0.10		0.20	0.10	ug/L		04/11/23 09:20	04/11/23 20:27	1
Calcium	0.48	J	0.50	0.19	mg/L		04/11/23 09:20	04/11/23 20:27	1
Chromium	<1.1		5.0	1.1	ug/L		04/11/23 09:20	04/11/23 20:27	1
Cobalt	<0.17		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 20:27	1
Lead	<0.24		0.50	0.24	ug/L		04/11/23 09:20	04/11/23 20:27	1
Lithium	<2.5		10	2.5	ug/L		04/11/23 09:20	04/11/23 20:27	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/11/23 09:20	04/11/23 20:27	1
Selenium	<1.4		5.0	1.4	ug/L		04/11/23 09:20	04/11/23 20:27	1
Thallium	<0.26		1.0	0.26	ug/L		04/11/23 09:20	04/11/23 20:27	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/12/23 11:59	04/12/23 17:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<34		50	34	mg/L			04/10/23 14:30	1
pH (SM 4500 H+ B)	6.0	HF	0.1	0.1	SU			04/08/23 10:43	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	0.0777	U	0.163	0.163	1.00	0.295	pCi/L	04/14/23 10:13	05/09/23 07:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	79.5		30 - 110					04/14/23 10:13	05/09/23 07:58	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 228	0.123	U	0.301	0.302	1.00	0.535	pCi/L	04/14/23 10:41	05/08/23 14:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	79.5		30 - 110					04/14/23 10:41	05/08/23 14:57	1
Y Carrier	89.3		30 - 110					04/14/23 10:41	05/08/23 14:57	1

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Client Sample Results

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Client Sample ID: Field Blank

Lab Sample ID: 310-253119-2

Date Collected: 04/06/23 11:55

Matrix: Water

Date Received: 04/07/23 16:00

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228	0.201	U	0.342	0.343	5.00	0.535	pCi/L		05/09/23 14:13	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Definitions/Glossary

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Qualifiers

Metals

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

General Chemistry

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

Rad

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

Glossary

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

QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-384675/3
Matrix: Water
Analysis Batch: 384675

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			04/14/23 21:03	1
Fluoride	<0.044		0.10	0.044	mg/L			04/14/23 21:03	1
Sulfate	<0.40		1.0	0.40	mg/L			04/14/23 21:03	1

Lab Sample ID: LCS 310-384675/35
Matrix: Water
Analysis Batch: 384675

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.80		mg/L		98	90 - 110

Lab Sample ID: LCS 310-384675/4
Matrix: Water
Analysis Batch: 384675

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	9.96		mg/L		100	90 - 110
Fluoride	2.00	2.07		mg/L		104	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-383825/1-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383825

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/11/23 09:20	04/11/23 19:38	1
Arsenic	<0.53		2.0	0.53	ug/L		04/11/23 09:20	04/11/23 19:38	1
Barium	<0.64		2.0	0.64	ug/L		04/11/23 09:20	04/11/23 19:38	1
Beryllium	<0.33		1.0	0.33	ug/L		04/11/23 09:20	04/11/23 19:38	1
Boron	<76		100	76	ug/L		04/11/23 09:20	04/11/23 19:38	1
Cadmium	<0.10		0.20	0.10	ug/L		04/11/23 09:20	04/11/23 19:38	1
Calcium	<0.19		0.50	0.19	mg/L		04/11/23 09:20	04/11/23 19:38	1
Chromium	<1.1		5.0	1.1	ug/L		04/11/23 09:20	04/11/23 19:38	1
Cobalt	<0.17		0.50	0.17	ug/L		04/11/23 09:20	04/11/23 19:38	1
Lead	<0.24		0.50	0.24	ug/L		04/11/23 09:20	04/11/23 19:38	1
Lithium	<2.5		10	2.5	ug/L		04/11/23 09:20	04/11/23 19:38	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/11/23 09:20	04/11/23 19:38	1
Selenium	<1.4		5.0	1.4	ug/L		04/11/23 09:20	04/11/23 19:38	1
Thallium	<0.26		1.0	0.26	ug/L		04/11/23 09:20	04/11/23 19:38	1

Lab Sample ID: LCS 310-383825/2-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383825

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	213		ug/L		106	80 - 120
Arsenic	200	202		ug/L		101	80 - 120
Barium	100	104		ug/L		104	80 - 120
Beryllium	100	105		ug/L		105	80 - 120

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

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

Lab Sample ID: LCS 310-383825/2-A
Matrix: Water
Analysis Batch: 384024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383825

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	200	208		ug/L		104	80 - 120
Cadmium	100	104		ug/L		104	80 - 120
Calcium	2.00	1.97		mg/L		99	80 - 120
Chromium	100	105		ug/L		105	80 - 120
Cobalt	100	104		ug/L		104	80 - 120
Lead	200	216		ug/L		108	80 - 120
Lithium	200	219		ug/L		110	80 - 120
Molybdenum	200	205		ug/L		103	80 - 120
Selenium	400	408		ug/L		102	80 - 120
Thallium	200	174		ug/L		87	80 - 120

Lab Sample ID: 310-253123-1 DU
Matrix: Water
Analysis Batch: 384024

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 383825

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	58	J	47.9	J	ug/L		19	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-384072/1-A
Matrix: Water
Analysis Batch: 384132

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384072

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/12/23 11:59	04/12/23 17:27	1

Lab Sample ID: LCS 310-384072/2-A
Matrix: Water
Analysis Batch: 384132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384072

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.36		ug/L		82	80 - 120

Lab Sample ID: 310-253119-1 MS
Matrix: Water
Analysis Batch: 384132

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 384072

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.14		1.67	1.51		ug/L		91	80 - 120

Lab Sample ID: 310-253119-1 MSD
Matrix: Water
Analysis Batch: 384132

Client Sample ID: MW-301
Prep Type: Total/NA
Prep Batch: 384072

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.14		1.67	1.66		ug/L		99	80 - 120	9	20

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

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

Lab Sample ID: MB 310-383809/1
 Matrix: Water
 Analysis Batch: 383809

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	<34		50	34	mg/L			04/10/23 14:30	1

Lab Sample ID: LCS 310-383809/2
 Matrix: Water
 Analysis Batch: 383809

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	968		mg/L		97	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-383669/1
 Matrix: Water
 Analysis Batch: 383669

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

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-607419/1-A
 Matrix: Water
 Analysis Batch: 610675

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 607419

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	-0.09402	U	0.0762	0.0766	1.00	0.248	pCi/L	04/14/23 10:13	05/09/23 07:50	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.8		30 - 110					04/14/23 10:13	05/09/23 07:50	1

Lab Sample ID: LCS 160-607419/2-A
 Matrix: Water
 Analysis Batch: 610675

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 607419

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium 226	11.3	10.42		1.33	1.00	0.385	pCi/L	92	75 - 113
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	81.8		30 - 110						

Lab Sample ID: LCSD 160-607419/3-A
 Matrix: Water
 Analysis Batch: 610675

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 607419

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium 226	11.3	9.644		1.24	1.00	0.308	pCi/L	85	75 - 113	0.30	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

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

Lab Sample ID: LCSD 160-607419/3-A
Matrix: Water
Analysis Batch: 610675

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 607419

Carrier	LCS D %Yield	LCS D Qualifier	Limits
Barium	82.5		30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-607425/1-A
Matrix: Water
Analysis Batch: 610622

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607425

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium 228	0.1857	U	0.304	0.305	1.00	0.520	pCi/L	04/14/23 10:41	05/08/23 14:47	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Barium	85.8		30 - 110		04/14/23 10:41	05/08/23 14:47	1			
Y Carrier	91.6		30 - 110		04/14/23 10:41	05/08/23 14:47	1			

Lab Sample ID: LCS 160-607425/2-A
Matrix: Water
Analysis Batch: 610622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607425

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	81.8		30 - 110						
Y Carrier	84.1		30 - 110						

Lab Sample ID: LCSD 160-607425/3-A
Matrix: Water
Analysis Batch: 610622

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 607425

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
											Radium 228
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Barium	82.5		30 - 110								
Y Carrier	84.1		30 - 110								

QC Association Summary

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

HPLC/IC

Analysis Batch: 384675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	9056A	
310-253119-1	MW-301	Total/NA	Water	9056A	
310-253119-2	Field Blank	Total/NA	Water	9056A	
310-253119-2	Field Blank	Total/NA	Water	9056A	
MB 310-384675/3	Method Blank	Total/NA	Water	9056A	
LCS 310-384675/35	Lab Control Sample	Total/NA	Water	9056A	
LCS 310-384675/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 383825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	3005A	
310-253119-1	MW-301	Total/NA	Water	3005A	
310-253119-2	Field Blank	Total/NA	Water	3005A	
310-253119-2	Field Blank	Total/NA	Water	3005A	
MB 310-383825/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-383825/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-253123-1 DU	MW-301	Total/NA	Water	3005A	

Analysis Batch: 384024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	6020B	383825
310-253119-1	MW-301	Total/NA	Water	6020B	383825
310-253119-2	Field Blank	Total/NA	Water	6020B	383825
310-253119-2	Field Blank	Total/NA	Water	6020B	383825
MB 310-383825/1-A	Method Blank	Total/NA	Water	6020B	383825
LCS 310-383825/2-A	Lab Control Sample	Total/NA	Water	6020B	383825
310-253123-1 DU	MW-301	Total/NA	Water	6020B	383825

Prep Batch: 384072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	7470A	
310-253119-2	Field Blank	Total/NA	Water	7470A	
MB 310-384072/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-384072/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-253119-1 MS	MW-301	Total/NA	Water	7470A	
310-253119-1 MSD	MW-301	Total/NA	Water	7470A	

Analysis Batch: 384132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	7470A	384072
310-253119-2	Field Blank	Total/NA	Water	7470A	384072
MB 310-384072/1-A	Method Blank	Total/NA	Water	7470A	384072
LCS 310-384072/2-A	Lab Control Sample	Total/NA	Water	7470A	384072
310-253119-1 MS	MW-301	Total/NA	Water	7470A	384072
310-253119-1 MSD	MW-301	Total/NA	Water	7470A	384072

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

General Chemistry

Analysis Batch: 383669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-253119-2	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-383669/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 383809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	SM 2540C	
310-253119-2	Field Blank	Total/NA	Water	SM 2540C	
MB 310-383809/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-383809/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 607419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	PrecSep-21	
310-253119-2	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-607419/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-607419/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-607419/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 607425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	PrecSep_0	
310-253119-2	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-607425/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-607425/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-607425/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Field Service / Mobile Lab

Analysis Batch: 385536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253119-1	MW-301	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Client Sample ID: MW-301
Date Collected: 04/06/23 08:45
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253119-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/15/23 02:46
Total/NA	Analysis	9056A		5	384675	QTZ5	EET CF	04/17/23 14:05
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:25
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:54
Total/NA	Prep	7470A			384072	XXW3	EET CF	04/12/23 11:59
Total/NA	Analysis	7470A		1	384132	XXW3	EET CF	04/12/23 17:34
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 10:44
Total/NA	Prep	PrecSep-21			607419	KAC	EET SL	04/14/23 10:13
Total/NA	Analysis	903.0		1	610676	FLC	EET SL	05/09/23 07:58
Total/NA	Prep	PrecSep_0			607425	KAC	EET SL	04/14/23 10:41
Total/NA	Analysis	904.0		1	610612	FLC	EET SL	05/08/23 14:57
Total/NA	Analysis	Ra226_Ra228 Pos		1	610749	SCB	EET SL	05/09/23 14:13
Total/NA	Analysis	Field Sampling		1	385536	BJ0R	EET CF	04/06/23 08:45

Client Sample ID: Field Blank
Date Collected: 04/06/23 11:55
Date Received: 04/07/23 16:00

Lab Sample ID: 310-253119-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	384675	QTZ5	EET CF	04/15/23 03:02
Total/NA	Analysis	9056A		1	384675	QTZ5	EET CF	04/17/23 14:20
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:27
Total/NA	Prep	3005A			383825	QTZ5	EET CF	04/11/23 09:20
Total/NA	Analysis	6020B		1	384024	ZRI4	EET CF	04/11/23 20:59
Total/NA	Prep	7470A			384072	XXW3	EET CF	04/12/23 11:59
Total/NA	Analysis	7470A		1	384132	XXW3	EET CF	04/12/23 17:40
Total/NA	Analysis	SM 2540C		1	383809	ENB7	EET CF	04/10/23 14:30
Total/NA	Analysis	SM 4500 H+ B		1	383669	A3GU	EET CF	04/08/23 10:43
Total/NA	Prep	PrecSep-21			607419	KAC	EET SL	04/14/23 10:13
Total/NA	Analysis	903.0		1	610676	FLC	EET SL	05/09/23 07:58
Total/NA	Prep	PrecSep_0			607425	KAC	EET SL	04/14/23 10:41
Total/NA	Analysis	904.0		1	610612	FLC	EET SL	05/08/23 14:57
Total/NA	Analysis	Ra226_Ra228 Pos		1	610749	SCB	EET SL	05/09/23 14:13

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
 Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Method Summary

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET 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:

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





Environment Testing
America



310-253119 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SES</u>			
City/State:	CITY	STATE	Project: <u>OGS - Background III + IV</u>
Receipt Information			
Date/Time Received:	DATE <u>4/7/23</u>	TIME <u>1600</u>	Received By: <u>Am</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 type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> NONE	
Thermometer ID:	<u>W</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>9.3</u>	Corrected Temp (°C):	<u>9.3</u>
• Sample Container Temperature			
Container(s) used:	CONTAINER 1 <u>250 mL plastic</u>	CONTAINER 2 <u>250 mL plastic</u>	
Uncorrected Temp (°C):	<u>10.8</u>	<u>8.9</u>	
Corrected Temp (°C):	<u>10.8</u>	<u>8.9</u>	
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			
<u>MW 304 MW 305A</u>			
<u>Field Blank</u>			
<u>MW 301</u>			

Document: CED-P-SAM-FRM45521
Revision: 26
Date: 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

Shipping Summary



Environment Testing

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



S 3 1 0 - 8 0 2 7 0

Bottle Order Information

Bottle Order: OGS-Background III&IV
Bottle Order #: 22380
Request From Client: 3/23/2023
Date Order Posted: 3/21/2023 3:56:13PM
Order Status: Shipped
Prepared By: Meredith Liechti
Deliver By Date: 3/30/2023 11:59:00PM
When To Ship: 3/30/2023

Project/Event Information

Project Manager: Sandie Fredrick
Tel: (920) 261-1660 **Em:** Sandra.Fredrick@et.eurofinsus.com
Lab Project Number: 31011020
Project Ref: IA CCR Monitoring
Event Desc:

Client Samples: MW-301

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
2	1	Plastic 250ml - unpreserved		None	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	Water	Cl/F/S
2	1	Plastic 250ml - with Nitric Acid		Nitric Acid	7470A - Mercury 6020B - Metals (14)	Water Water	METALS + Hg
2	1	Plastic 1 liter - unpreserved		None	2540C_Calcd - Total Dissolved Solids	Water	TDS + pH
2	1	Plastic Bag		None		Water	

MC 4-7-23 1600

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Shipping Summary

Client Samples: Field Blank

Sets	Bottles/Set	Bottle Type Description	Field Filtered	Preservative	Method	Matrix	Comments
1	1	Plastic 1 liter - unpreserved		None	2540C_Calcd - Total Dissolved Solids	Water	TDS + pH
1	1	Plastic 250ml - unpreserved		None	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	Water	CLF/S
1	1	Plastic 250ml - with Nitric Acid		Nitric Acid	7470A - Mercury 6020B - Metals (14)	Water Water	Metals 14 +Hg
1	1	Plastic Bag		None		Water	

MC 4-7-23 1600

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Shipping Summary

Total Bottle Summary	
Bottle Type Description	Bottle Count
Plastic 1 liter - unpreserved	3
Plastic 250ml - unpreserved	3
Plastic 250ml - with Nitric Acid	3
Plastic Bag	3
Total Bottles: <u>12</u>	

Notes to Field Staff:



Scan QR code for field sampler instructions

Health and Safety Notes:

Preservative Comment

Nitric Acid

CAUTION! STRONG OXIDIZER! CONTAINS 1:1 NITRIC ACID. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.

Relinquished By	Company	Date	Time	Received By	Company	Seal #:
		4-7-23	1600	<i>ML</i>		
Relinquished By	Company	Date	Time	Received By	Company	Seal #:

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Chain of Custody Record

Client Information		Sampler: Tyler Stirling		Lab PW: Sandie Fredrick	Carrier Tracking No(s):	COC No:
Client Contact: Meghan Blodgett		Phone: 515-505-2716		E-Mail: Sandie.Fredrick@eurofins.com	State of Origin:	Page: 1 of 1
Company: SCS Engineers		PWSID:		Job #: 25223072		
Address: 2830 Dairy Drive		Due Date Requested:		Analysis Requested		
City: Madison		TAT Requested (days):		EPA 903/904 Radium 226 + 228		
State: WI, 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Chloride, Fluoride, Sulfate		
Phone: 608-224-2830		PO #: 25223072		TDS and pH		
Email: mblodgett@scsengineers.com		WO #: 25223072		Mo, Se, Ti, and Hg		
Project Name: Ottumwa Generating Station 25223072		Project #: 25223072		6020 Metals, total (Sb, As, Ba, Be, B, Ca, Cd, Cr, Co, Fe, Pb, Li)		
Site: Ottumwa, IA		SSOW#:		6020 Metals, total (Fe, Mg, Mn, K, Na)		
				6020 Metals, dissolved (Fe, Mn)		
				6020 Metals, dissolved (Co, Fe, Mn)		
				Bicarbonate & carbonate alkalinity		
				Field Filtered Sample (Yes or No)		
				Perform MS/MSD (Yes or No)		
				Total Number of Containers		
				Special Instructions/Note:		
				Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: 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 X - other (specify) Z - other (specify)		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (W=water, S=solid, O=waterfall, AT=As, AsAP)
MW-301	4/6/23	8:45	G	W	
Field Blank	4/6/23	11:55	G	W	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: _____ Date: _____ Time: _____

Relinquished by: **Tyler Stirling** Date/Time: **4/7/23** Company: **SCS**

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No
 Custody Seal No.: _____

Special Instructions/Note: **Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**
 Return To Client Disposal By Lab Archive For _____ Months

Method of Shipment: _____
 Received by: _____ Date/Time: **4-7-23 1600** Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: _____



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-253119-1

Login Number: 253119

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	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.	False	9.3
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Tracer/Carrier Summary

Client: SCS Engineers
Project/Site: OGS - Background III&IV - 25223072

Job ID: 310-253119-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
310-253119-1	MW-301	84.6	
310-253119-2	Field Blank	79.5	
LCS 160-607419/2-A	Lab Control Sample	81.8	
LCSD 160-607419/3-A	Lab Control Sample Dup	82.5	
MB 160-607419/1-A	Method Blank	85.8	

Tracer/Carrier Legend
Ba = Barium

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-253119-1	MW-301	84.6	89.0
310-253119-2	Field Blank	79.5	89.3
LCS 160-607425/2-A	Lab Control Sample	81.8	84.1
LCSD 160-607425/3-A	Lab Control Sample Dup	82.5	84.1
MB 160-607425/1-A	Method Blank	85.8	91.6

Tracer/Carrier Legend
Ba = Barium
Y = Y Carrier


**Table 1. Groundwater Monitoring Results - Field Parameters
Ottumwa Generating Station / SCS Engineers Project No. 25223072.00
April 2023**

	Sample	Date/Sample Time	Groundwater Elevation (amsl)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity
Background	MW-301	4/6/2023 0845	682.05	7.1	6.25	5.05	832	124.5	2.37
Ash Pond	MW-302	4/5/2023 1645	653.30	11.2	6.62	1.86	1953	97.0	2.03
	MW-303	4/5/2023 1545	652.57	8.3	6.65	1.70	1215	62.9	3.54
	MW-304	4/6/2023 1009	650.29	13.1	6.70	-0.13	1888	-93.7	0.02
	MW-305	4/4/2023 1555	655.02	13.6	6.70	0.63	1896	166.4	0.02
	MW-305A	4/6/2023 0909	647.70	11.1	6.74	0.12	1224	198.2	0.02
	MW-306	4/6/2023 1005	659.12	13.4	6.61	0.12	1583	103.1	3.09
	MW-310	4/4/2023 1415	641.71	11.8	6.91	4.34	852	252.5	0.02
	MW-310A	4/5/2023 1155	643.11	12.1	7.46	0.49	3045	-15.5	1.97
	MW-311	4/4/2023 1707	641.88	10.5	6.56	0.00	932	257	0.02
	MW-311A	4/6/2023 1310	643.59	11.5	7.54	2.47	3037	47.7	0.02
	MW-312	4/5/2023 1410	644.08	12.0	7.11	0.28	1576	0.5	1.32
	MW-313	4/5/2023 1310	642.02	11.5	6.93	0.09	1878	-14.5	5.09
	MW-316	4/6/2023 1107	642.78	10.6	6.70	-0.16	1694	104.1	0.02
	MW-316A	4/6/2023 1105	643.49	11.2	7.40	3.29	1976	99.6	4.77
	MW-317	4/6/2023 1220	642.84	11.5	6.57	0.12	1561	-24.0	3.89
ZLDP	MW-307	4/5/2023 1611	647.28	11.9	6.62	0.00	1776	31.9	0.02
	MW-308	4/5/2023 1502	645.16	11.7	6.70	0.18	1634	7.3	1.55
	MW-309	4/5/2023 1150	644.41	11.7	7.10	0.42	1511	-7.0	0.02
	MW-315	4/5/2023 1308	645.12	11.8	6.96	0.32	1523	-45.7	0.02

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

Created by: EMS _____ Date: 4/13/2023 _____
Last revision by: EMS _____ Date: 4/13/2023 _____
Checked by: MDB _____ Date: 4/21/2023 _____

C:\Users\hld0\AppData\Local\Microsoft\Windows\NetCache\Content.Outlook\USG3GGGC\2304_April - OGS combined_CCR_Field.xlsx\GW Field Parameters



Appendix D

Historical Monitoring Results

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-301
Number of Sampling Dates: 25

Parameter Name	Units	4/26/2016	6/23/2016	8/10/2016	10/26/2016	1/18/2017	4/19/2017	6/20/2017	8/23/2017
Boron	ug/L	574	612	597	620	599	565	657	779
Calcium	mg/L	66.9	62.5	65.6	71.9	74.1	61.5	59.3	66.8
Chloride	mg/L	63.4	66.9	73.3	76.3	71.6	54.8	69.8	73.5
Fluoride	mg/L	0.22	0.2	0.44	0.27	0.17	0.24	0.26	0.34
Field pH	Std. Units	6.54	6.06	6.08	6.26	6.47	6.64	6.31	6.16
Sulfate	mg/L	150	157	159	169	171	190	166	162
Total Dissolved Solids	mg/L	500	531	576	545	545	499	490	557
Antimony	ug/L	<0.058	0.13	0.12	<0.058	0.11	<0.026	0.054	0.063
Arsenic	ug/L	0.38	0.38	0.26	0.14	0.23	0.22	0.15	0.14
Barium	ug/L	51.6	55.8	52.3	53.3	42.4	35.5	39.9	44
Beryllium	ug/L	<0.08	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	<0.012
Cadmium	ug/L	<0.029	<0.029	0.12	0.038	<0.029	0.035	0.044	0.037
Chromium	ug/L	0.59	0.74	0.64	<0.34	0.59	0.49	0.25	0.39
Cobalt	ug/L	4.1	3.1	1.8	1.8	1.3	0.97	1	0.96
Lead	ug/L	<0.19	<0.19	<0.19	<0.19	<0.19	0.06	0.1	0.049
Lithium	ug/L	22.8	28.7	27.6	25.5	20.1	21.8	24.9	27.9
Mercury	ug/L	<0.039	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046
Molybdenum	ug/L	1.2	1.2	0.89	1	0.76	0.54	0.79	1.3
Selenium	ug/L	4.7	5.4	6.1	6.5	5.9	4.2	5.5	7.2
Thallium	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.14	<0.036	0.067
Total Radium	pCi/L	0.51	0.614	1.56	1.24	0.143	0.631	1.06	0.725
Radium-226	pCi/L	0.084	0	0.831	-0.13	0.143	0.139	0.501	0.123
Radium-228	pCi/L	0.426	0.614	0.732	1.24	-0.403	0.492	0.562	0.602
Collected By		--	--	0	--	0	0	0	0
Field Specific Conductance	umhos/cm	572	777	807	853	834	742	758	1107
Field Temperature	deg C	10.5	17.1	19.9	16.3	6.8	10.8	17.3	19.7
Groundwater Elevation	feet	682.8	682.58	682.27	682.04	681.67	682.15	681.91	681.28
Oxygen, Dissolved	mg/L	4.04	2.55	3.43	3.72	4.87	5.74	4.34	2.88
Turbidity	NTU	1.82	1.51	0.52	0.9	0.6	0.47	0.38	0.79
pH at 25 Degrees C	Std. Units	6.5	6.4	6.5	6.7	6.8	6.7	6.5	6.4
Field Oxidation Potential	millivolts	244.1	74.6	58.6	91.3	30.2	148	67.2	41.4
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--
Lithium, dissolved	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-301
Number of Sampling Dates: 25

Parameter Name	Units	11/8/2017	4/18/2018	8/14/2018	8/29/2018	10/16/2018	1/8/2019	4/8/2019	10/24/2019
Boron	ug/L	488	480	735	--	410	--	380	680
Calcium	mg/L	65.2	63	72.5	--	47.2	--	43	78
Chloride	mg/L	59.8	63.4	--	63.1	33.9	--	50	110
Fluoride	mg/L	0.27	0.22	--	0.27	0.3	--	0.44	<0.23
Field pH	Std. Units	6.41	6.41	6.26	6.31	6.27	5.68	6.61	6.33
Sulfate	mg/L	178	186	--	181	164	--	81	130
Total Dissolved Solids	mg/L	448	514	--	532	392	--	340	510
Antimony	ug/L	--	<0.026	0.2	--	<0.078	--	<0.53	<0.53
Arsenic	ug/L	--	0.074	0.29	--	0.16	--	<0.75	<0.75
Barium	ug/L	--	31.6	44.5	--	28.1	--	25	56
Beryllium	ug/L	--	<0.012	0.14	--	<0.089	--	<0.27	<0.27
Cadmium	ug/L	--	0.023	0.16	--	<0.033	--	<0.077	0.04
Chromium	ug/L	--	<0.054	0.25	--	0.11	--	<0.98	<0.98
Cobalt	ug/L	--	0.46	1.4	--	0.36	--	0.44	0.6
Lead	ug/L	--	0.041	0.18	--	<0.13	--	<0.27	<0.27
Lithium	ug/L	--	19.1	26.5	--	19.4	--	15	24
Mercury	ug/L	--	<0.09	<0.083	--	--	<0.09	<0.1	<0.1
Molybdenum	ug/L	--	0.67	1.3	--	0.72	--	<1.1	1.1
Selenium	ug/L	--	4.3	6.3	--	3.4	--	3.1	6.2
Thallium	ug/L	--	<0.036	0.16	--	<0.099	--	<0.27	<0.27
Total Radium	pCi/L	--	0.513	1.19	--	1.16	--	0.0956	0.956
Radium-226	pCi/L	--	0.145	0.417	--	0.529	--	0.0726	0.15
Radium-228	pCi/L	--	0.368	0.773	--	0.627	--	0.023	0.753
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	743	770	867	781	599	310	501	902
Field Temperature	deg C	13.9	7.2	20.4	20.6	16.6	7.88	7.27	13.71
Groundwater Elevation	feet	681.54	681.53	680.91	681.09	682.5	682.22	682.69	683.07
Oxygen, Dissolved	mg/L	4.16	6.52	3.18	4.71	4.12	5.68	8.32	4.94
Turbidity	NTU	1.03	0.66	0.52	0.63	2.91	0.77	1.87	1.6
pH at 25 Degrees C	Std. Units	6.4	6.6	--	6.5	6.6	--	7.1	7.1
Field Oxidation Potential	millivolts	200.7	105.5	-55.5	--	119.7	118.3	37.6	9.9
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--
Lithium, dissolved	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-301
Number of Sampling Dates: 25

Parameter Name	Units	2/5/2020	3/12/2020	4/14/2020	10/8/2020	4/14/2021	10/7/2021	4/12/2022	10/26/2022
Boron	ug/L	540	--	700	650	690	800	640	780
Calcium	mg/L	68	--	84	94	96	100	92	110
Chloride	mg/L	120	--	140	170	150	180	140	160
Fluoride	mg/L	--	--	<0.23	<0.23	<0.28	<0.28	<0.22	<0.22
Field pH	Std. Units	6.39	6.48	6.58	6.22	6.26	6.26	6.37	6.29
Sulfate	mg/L	130	--	140	140	140	180	160	180
Total Dissolved Solids	mg/L	570	--	550	660	620	670	610	690
Antimony	ug/L	--	--	<0.58	<0.51	<1.1	<1.1	<0.69	<0.69
Arsenic	ug/L	<0.88	--	<0.88	<0.88	<0.75	<0.75	<0.75	<0.75
Barium	ug/L	43	--	54	58	52	61	40	44
Beryllium	ug/L	--	--	<0.27	--	<0.27	<0.27	<0.27	<0.27
Cadmium	ug/L	<0.039	--	<0.039	0.075	<0.051	0.057	<0.055	0.055
Chromium	ug/L	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	1.2
Cobalt	ug/L	1.1	0.43	0.52	0.41	0.29	0.48	0.23	0.29
Lead	ug/L	<0.27	--	<0.27	<0.11	<0.21	<0.21	<0.24	<0.24
Lithium	ug/L	17	21	24	23	23	26	19	30
Mercury	ug/L	--	--	<0.1	--	<0.15	<0.15	<0.11	<0.11
Molybdenum	ug/L	--	--	1.2	<1.1	<1.3	<1.3	<1.2	<8.4
Selenium	ug/L	--	--	6.8	7.7	6.5	7.5	6	6.9
Thallium	ug/L	--	--	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Total Radium	pCi/L	0.228	--	0.315	0.407	0.598	1.04	0.378	0.973
Radium-226	pCi/L	0.049	--	0.0921	0.324	0.133	<0.339	0.149	0.223
Radium-228	pCi/L	0.179	--	0.223	0.0831	0.465	0.744	0.229	0.75
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	966	962	939	1035	1062	1062	976	1036
Field Temperature	deg C	5.38	6.9	8.7	15.4	9.1	17.9	7.4	14.6
Groundwater Elevation	feet	683.3	682.82	683.25	682.34	682.94	681.95	682.08	680.68
Oxygen, Dissolved	mg/L	7.28	5.31	5.14	4.2	5.99	4.17	3.26	4.74
Turbidity	NTU	1.43	1.33	0.87	0.02	1.61	8.9	5.03	0.62
pH at 25 Degrees C	Std. Units	6.7	--	6.6	6.4	6.8	6.5	6.6	6.7
Field Oxidation Potential	millivolts	68	258.5	176.3	163.6	232.5	207.3	117.6	26.9
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	150	160	170	210	190	250
Carbonate Alkalinity as CaCO3	mg/L	--	--	<1.9	<3.8	<4.6	<4.6	<4.6	<4.6
Total Alkalinity as CaCO3	mg/L	--	--	150	160	170	210	190	250
Iron, total	ug/L	--	--	50	<50	49	<36	<36	<36
Magnesium, total	ug/L	--	--	33000	38000	34000	36000	36000	28000
Manganese, dissolved	ug/L	--	17	16	13	10	15	5	7.9
Potassium, total	ug/L	--	--	1500	1500	1200	1300	1100	980
Sodium, total	ug/L	--	--	77000	87000	78000	88000	89000	73000
Cobalt, dissolved	ug/L	--	0.32	0.44	--	--	--	--	--
Iron, dissolved	ug/L	--	<50	<50	<50	<36	<36	<36	<36
Manganese, total	ug/L	--	16	19	14	14	18	8.1	8
Lithium, dissolved	ug/L	--	22	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-301
 Number of Sampling Dates: 25

Parameter Name	Units	4/6/2023							
Boron	ug/L	530							
Calcium	mg/L	76							
Chloride	mg/L	120							
Fluoride	mg/L	<0.22							
Field pH	Std. Units	6.25							
Sulfate	mg/L	160							
Total Dissolved Solids	mg/L	580							
Antimony	ug/L	<1							
Arsenic	ug/L	<0.53							
Barium	ug/L	31							
Beryllium	ug/L	<0.33							
Cadmium	ug/L	<0.1							
Chromium	ug/L	<1.1							
Cobalt	ug/L	0.21							
Lead	ug/L	<0.24							
Lithium	ug/L	17							
Mercury	ug/L	<0.14							
Molybdenum	ug/L	<0.91							
Selenium	ug/L	4.7							
Thallium	ug/L	<0.26							
Total Radium	pCi/L	0.0491							
Radium-226	pCi/L	0.0491							
Radium-228	pCi/L	-0.135							
Collected By		--							
Field Specific Conductance	umhos/cm	832							
Field Temperature	deg C	7.1							
Groundwater Elevation	feet	682.05							
Oxygen, Dissolved	mg/L	5.05							
Turbidity	NTU	2.37							
pH at 25 Degrees C	Std. Units	6.7							
Field Oxidation Potential	millivolts	124.5							
Bicarbonate Alkalinity as CaCO3	mg/L	--							
Carbonate Alkalinity as CaCO3	mg/L	--							
Total Alkalinity as CaCO3	mg/L	--							
Iron, total	ug/L	58							
Magnesium, total	ug/L	--							
Manganese, dissolved	ug/L	--							
Potassium, total	ug/L	--							
Sodium, total	ug/L	--							
Cobalt, dissolved	ug/L	--							
Iron, dissolved	ug/L	--							
Manganese, total	ug/L	--							
Lithium, dissolved	ug/L	--							

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-302
 Number of Sampling Dates: 23

Parameter Name	Units	4/26/2016	6/23/2016	8/10/2016	10/26/2016	1/18/2017	4/19/2017	6/20/2017	8/22/2017
Boron	ug/L	1110	1130	1110	1180	1250	1200	1180	1250
Calcium	mg/L	193	177	171	184	188	184	175	179
Chloride	mg/L	258	258	276	270	259	281	253	264
Fluoride	mg/L	0.22	0.17	0.21	0.21	0.21	0.2	0.26	0.27
Field pH	Std. Units	6.82	6.46	8.72	6.45	6.62	6.78	6.67	6.75
Sulfate	mg/L	752	865	835	819	777	907	858	858
Total Dissolved Solids	mg/L	1680	1480	1770	1650	1660	1670	1670	1620
Antimony	ug/L	0.088	0.12	0.1	<0.058	0.11	<0.026	0.052	0.036
Arsenic	ug/L	1.7	0.69	0.17	<0.1	0.23	0.25	0.083	0.19
Barium	ug/L	31.5	23	20.7	21.2	20.4	19.4	18.2	18.5
Beryllium	ug/L	<0.08	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	<0.012
Cadmium	ug/L	0.25	0.21	0.28	0.24	0.15	0.2	0.19	0.21
Chromium	ug/L	2.1	0.82	0.64	0.64	0.58	1	0.58	0.7
Cobalt	ug/L	2.6	1.4	1.1	1	0.94	0.95	0.86	0.88
Lead	ug/L	1.1	0.2	<0.19	<0.19	<0.19	0.2	0.081	<0.033
Lithium	ug/L	11.3	14.1	12.2	11.9	9.7	10.1	9.7	13.8
Mercury	ug/L	<0.039	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046
Molybdenum	ug/L	0.68	0.6	0.46	0.46	0.5	0.44	0.38	0.51
Selenium	ug/L	0.23	<0.18	<0.18	<0.18	<0.18	<0.086	<0.086	<0.086
Thallium	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.049	<0.036	<0.036
Total Radium	pCi/L	1.03	0.527	0.606	0.211	0.136	0.776	1.29	1.61
Radium-226	pCi/L	0.4	0.375	0.26	0.211	0.136	0.342	0.13	0.406
Radium-228	pCi/L	0.631	0.152	0.346	-0.0147	-0.0781	0.434	1.16	1.2
Collected By		--	--	0	--	0	0	0	0
Field Specific Conductance	umhos/cm	1747	2228	2222	2279	2247	2220	2085	2991
Field Temperature	deg C	11.9	13.2	14.4	13.9	12.9	12.8	13.4	14
Groundwater Elevation	feet	655.63	655.65	655.52	655.67	655.46	656.35	655.65	655.13
Oxygen, Dissolved	mg/L	0.16	0.08	0.07	0.43	0.18	0.18	0.12	0.08
Turbidity	NTU	40.23	6.78	3.41	1.54	3.11	2.32	2.63	1.32
pH at 25 Degrees C	Std. Units	6.7	6.6	6.7	6.7	6.8	6.8	6.6	6.6
Field Oxidation Potential	millivolts	230.2	25	6.7	92.6	38.7	121.1	21	20.8
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-302
Number of Sampling Dates: 23

Parameter Name	Units	11/8/2017	4/18/2018	8/14/2018	8/29/2018	10/16/2018	1/8/2019	4/8/2019	10/24/2019
Boron	ug/L	1320	1200	1240	--	1100	--	1300	1200
Calcium	mg/L	183	177	185	--	146	--	200	180
Chloride	mg/L	254	246	--	259	214	--	240	220
Fluoride	mg/L	0.2	0.26	--	0.26	0.24	--	<0.23	<0.23
Field pH	Std. Units	6.55	6.47	6.76	6.77	6.37	6.58	6.61	6.55
Sulfate	mg/L	786	899	--	847	785	--	840	810
Total Dissolved Solids	mg/L	1620	1690	--	1840	1400	--	1600	1600
Antimony	ug/L	--	<0.026	<0.15	--	0.26	--	<0.53	<0.53
Arsenic	ug/L	--	0.16	0.3	--	1.9	--	<0.75	<0.75
Barium	ug/L	--	17.7	18.3	--	28.9	--	19	21
Beryllium	ug/L	--	<0.012	<0.12	--	0.22	--	<0.27	<0.27
Cadmium	ug/L	--	0.22	0.21	--	0.67	--	0.21	0.2
Chromium	ug/L	--	0.46	0.48	--	1.6	--	<0.98	<0.98
Cobalt	ug/L	--	0.9	1.5	--	4	--	1.2	2.7
Lead	ug/L	--	0.098	0.12	--	3.9	--	<0.27	0.29
Lithium	ug/L	--	7.5	6.9	--	8.6	--	10	10
Mercury	ug/L	--	0.096	<0.083	--	--	<0.09	<0.1	<0.1
Molybdenum	ug/L	--	0.59	0.54	--	<0.57	--	<1.1	<1.1
Selenium	ug/L	--	<0.086	<0.16	--	0.84	--	<1	<1
Thallium	ug/L	--	<0.036	<0.14	--	0.16	--	<0.27	<0.27
Total Radium	pCi/L	--	0.746	1.12	--	0.299	--	0.116	0.752
Radium-226	pCi/L	--	0.251	0.624	--	0.191	--	0.116	0.134
Radium-228	pCi/L	--	0.495	0.499	--	0.108	--	-0.0591	0.619
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	2274	2248	2304	2357	1912	1473	2159	2184
Field Temperature	deg C	13.8	10.7	14.3	14.6	14.1	12.21	12.27	12.91
Groundwater Elevation	feet	655.4	655.71	656.05	655.89	656.91	656.03	657.23	660.14
Oxygen, Dissolved	mg/L	0.4	0.2	0.17	0.23	0.26	6.4	0.86	0.35
Turbidity	NTU	1.63	2.41	4.01	1.42	88.24	4.39	26.9	11.9
pH at 25 Degrees C	Std. Units	6.5	6.7	--	6.7	6.6	--	6.9	7.2
Field Oxidation Potential	millivolts	191.7	82.6	-336.6	--	114.2	70.2	68.3	-0.5
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-302
 Number of Sampling Dates: 23

Parameter Name	Units	4/14/2020	10/8/2020	4/13/2021	10/7/2021	4/12/2022	10/26/2022	4/5/2023	
Boron	ug/L	1200	1300	1300	1200	1300	1700	1800	
Calcium	mg/L	180	180	180	170	170	220	200	
Chloride	mg/L	220	230	190	200	170	200	160	
Fluoride	mg/L	<0.23	<0.23	0.33	<0.28	<0.22	<0.22	<0.22	
Field pH	Std. Units	6.7	7	6.44	6.49	6.43	6.56	6.62	
Sulfate	mg/L	790	840	360	850	750	920	820	
Total Dissolved Solids	mg/L	1500	1700	1500	1300	1100	1600	1400	
Antimony	ug/L	<0.58	<0.51	<1.1	<1.1	<0.69	<0.69	<1	
Arsenic	ug/L	<0.88	<0.88	<0.75	<0.75	<0.75	<0.75	<0.53	
Barium	ug/L	23	18	22	18	17	21	21	
Beryllium	ug/L	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.33	
Cadmium	ug/L	0.23	0.2	0.26	0.23	0.21	0.28	0.17	
Chromium	ug/L	1.4	<1.1	3	1.3	1.4	8.8	1.6	
Cobalt	ug/L	5.3	1.5	5.5	2.2	1.3	1.8	0.82	
Lead	ug/L	1	<0.11	0.59	0.22	<0.24	<0.24	<0.24	
Lithium	ug/L	11	9.6	10	11	9.1	11	11	
Mercury	ug/L	<0.1	--	<0.15	<0.15	<0.11	<0.11	<0.14	
Molybdenum	ug/L	<1.1	<1.1	<1.3	1.7	2.6	4.9	3	
Selenium	ug/L	<1	<1	<0.96	1.2	2.4	<0.96	<1.4	
Thallium	ug/L	<0.26	<0.26	<0.26	0.56	<0.26	<0.26	3.2	
Total Radium	pCi/L	1.26	0.447	0.901	1.45	0.294	0.627	0.178	
Radium-226	pCi/L	0.499	0.158	0.486	1.32	0.202	0.182	0.178	
Radium-228	pCi/L	0.759	0.289	0.415	<0.744	0.0914	0.445	-0.215	
Collected By		--	--	--	--	--	--	--	
Field Specific Conductance	umhos/cm	1971	2100	2087	1920	1741	2051	1953	
Field Temperature	deg C	10.5	14.4	11.9	14.9	11.4	12.8	11.2	
Groundwater Elevation	feet	656.45	655.8	656.05	654.86	654.77	652.95	653.3	
Oxygen, Dissolved	mg/L	0.22	0.14	0.37	0.3	0.41	2.13	1.86	
Turbidity	NTU	31.1	18.7	22.9	15.6	5.13	8.02	2.03	
pH at 25 Degrees C	Std. Units	6.7	6.8	7.5	6.6	6.6	6.9	6.8	
Field Oxidation Potential	millivolts	135.6	34.5	198.2	211.5	145.2	-27.1	97	
Bicarbonate Alkalinity as CaCO3	mg/L	61	72	72	120	100	87	--	
Carbonate Alkalinity as CaCO3	mg/L	<1.9	<1.9	<3.2	<4.6	<4.6	<4.6	--	
Total Alkalinity as CaCO3	mg/L	61	72	72	120	100	87	--	
Iron, total	ug/L	500	100	350	65	45	80	<36	
Magnesium, total	ug/L	50000	57000	50000	46000	49000	43000	--	
Manganese, dissolved	ug/L	110	130	110	110	91	91	--	
Potassium, total	ug/L	1500	1900	1500	1400	1600	1500	--	
Sodium, total	ug/L	250000	280000	240000	220000	240000	210000	--	
Cobalt, dissolved	ug/L	0.81	--	--	--	--	--	--	
Iron, dissolved	ug/L	<50	<50	<36	<36	<36	49	--	
Manganese, total	ug/L	200	140	200	120	110	90	--	

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-303
 Number of Sampling Dates: 23

Parameter Name	Units	4/26/2016	6/23/2016	8/10/2016	10/26/2016	1/18/2017	4/19/2017	6/20/2017	8/22/2017
Boron	ug/L	417	579	726	811	738	577	834	1180
Calcium	mg/L	179	172	180	204	173	226	210	200
Chloride	mg/L	109	155	234	230	190	141	186	268
Fluoride	mg/L	0.21	0.17	0.42	0.23	0.21	0.19	0.23	0.3
Field pH	Std. Units	7.08	7.08	6.51	6.62	6.77	7.02	6.81	6.53
Sulfate	mg/L	183	190	200	208	168	333	284	215
Total Dissolved Solids	mg/L	856	988	1170	1120	1030	1170	1210	1220
Antimony	ug/L	0.23	0.32	0.25	0.14	0.19	0.16	0.19	0.3
Arsenic	ug/L	0.89	0.91	0.51	0.46	0.54	0.47	0.33	0.61
Barium	ug/L	68.2	78.5	88.1	98.8	75.3	79.1	76.4	83.8
Beryllium	ug/L	<0.08	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	0.015
Cadmium	ug/L	0.24	0.28	0.47	0.59	0.31	0.81	0.52	0.57
Chromium	ug/L	0.74	0.83	0.73	<0.34	0.52	0.27	0.37	0.61
Cobalt	ug/L	2.2	2.5	2.6	3.1	2.6	1.8	1.9	2.8
Lead	ug/L	0.31	<0.19	<0.19	0.2	<0.19	0.068	0.07	0.19
Lithium	ug/L	<4.9	8.3	5	5.8	<4.9	<2.9	3.4	8.1
Mercury	ug/L	<0.039	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046
Molybdenum	ug/L	3.3	3.6	0.77	0.87	0.64	3.9	0.81	0.64
Selenium	ug/L	0.38	0.43	0.36	0.28	0.8	1.1	0.47	0.52
Thallium	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.16	<0.036	<0.036
Total Radium	pCi/L	0.806	0.426	1.56	0.944	0.805	1.62	1.62	2.36
Radium-226	pCi/L	0.163	0.0636	0.716	0	0.145	1.06	0.556	1.4
Radium-228	pCi/L	0.643	0.362	0.842	0.944	0.66	0.556	1.06	0.958
Collected By		--	--	0	--	0	0	0	0
Field Specific Conductance	umhos/cm	965	1176	1655	1730	1611	1687	1670	2474
Field Temperature	deg C	9.7	14.4	17.7	16.3	10.6	10.6	14.1	16.8
Groundwater Elevation	feet	652.42	652.89	651.76	652.17	651.74	654.57	652.42	650.58
Oxygen, Dissolved	mg/L	0.07	0.05	0.05	0.42	0.17	0.56	0.08	0.08
Turbidity	NTU	27.66	4.48	4.42	2.32	3.3	2.2	2.77	14.62
pH at 25 Degrees C	Std. Units	7	6.8	6.8	6.9	7.1	7.2	6.8	6.8
Field Oxidation Potential	millivolts	181.1	-20.5	31.5	14.8	21.3	99.5	8.6	20.9
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-303
Number of Sampling Dates: 23

Parameter Name	Units	11/8/2017	4/18/2018	8/14/2018	8/29/2018	10/16/2018	1/8/2019	4/8/2019	10/24/2019
Boron	ug/L	1070	987	1010	--	549	--	290	440
Calcium	mg/L	234	212	213	--	195	--	170	170
Chloride	mg/L	185	198	--	64.8	57	--	22	35
Fluoride	mg/L	0.19	0.22	--	0.31	0.24	--	<0.23	<0.23
Field pH	Std. Units	6.6	6.63	6.83	7.03	6.66	6.83	7	6.83
Sulfate	mg/L	348	328	--	164	389	--	260	180
Total Dissolved Solids	mg/L	1290	1300	--	832	1150	--	890	810
Antimony	ug/L	--	0.098	0.16	--	0.2	--	<0.53	<0.53
Arsenic	ug/L	--	0.43	0.6	--	0.55	--	<0.75	<0.75
Barium	ug/L	--	69.5	77.3	--	95.2	--	54	77
Beryllium	ug/L	--	0.017	<0.12	--	<0.089	--	<0.27	<0.27
Cadmium	ug/L	--	0.44	0.36	--	0.24	--	0.092	0.21
Chromium	ug/L	--	0.12	0.19	--	0.15	--	<0.98	<0.98
Cobalt	ug/L	--	2.1	2.2	--	1.7	--	0.42	1.2
Lead	ug/L	--	0.069	0.13	--	<0.13	--	<0.27	<0.27
Lithium	ug/L	--	<4.6	6.9	--	<4.6	--	<2.7	<2.7
Mercury	ug/L	--	<0.09	<0.083	--	--	<0.09	<0.1	<0.1
Molybdenum	ug/L	--	0.61	0.98	--	5.5	--	7.5	5.2
Selenium	ug/L	--	0.23	0.35	--	0.37	--	2.1	<1
Thallium	ug/L	--	<0.036	<0.14	--	<0.099	--	<0.27	<0.27
Total Radium	pCi/L	--	0.529	1.82	--	2.04	--	0.391	0.321
Radium-226	pCi/L	--	-0.088	1.02	--	0.478	--	0.172	0.0551
Radium-228	pCi/L	--	0.529	0.799	--	1.56	--	0.22	0.265
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	1896	1862	1833	1161	1573	750	1181	1287
Field Temperature	deg C	15.2	8.2	17.2	18.7	17.1	9.11	8.51	15.34
Groundwater Elevation	feet	651.34	652.47	652.57	655.07	656.17	654.65	655.55	653.86
Oxygen, Dissolved	mg/L	0.48	0.17	0.19	1.92	0.29	3.19	2.29	0.28
Turbidity	NTU	3.67	3.69	1.51	10.13	5.99	14.2	3.49	4.24
pH at 25 Degrees C	Std. Units	6.7	6.9	--	7.1	6.9	--	7.5	7.5
Field Oxidation Potential	millivolts	176.8	3.2	-307.9	--	32.8	73.7	51.7	-5.1
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-303
Number of Sampling Dates: 23

Parameter Name	Units	4/14/2020	10/8/2020	4/13/2021	10/7/2021	4/12/2022	10/26/2022	4/5/2023
Boron	ug/L	420	1100	420	860	620	--	430
Calcium	mg/L	170	210	160	190	190	--	210
Chloride	mg/L	47	210	29	140	58	--	22
Fluoride	mg/L	<0.23	0.26	<0.28	<0.28	<0.22	--	<0.22
Field pH	Std. Units	6.98	8.28	6.67	6.7	6.71	6.7	6.65
Sulfate	mg/L	180	190	140	170	200	--	260
Total Dissolved Solids	mg/L	810	1100	720	720	630	--	880
Antimony	ug/L	<0.58	<0.51	<1.1	<1.1	<0.69	--	<1
Arsenic	ug/L	<0.88	<0.88	<0.75	<0.75	<0.75	--	<0.53
Barium	ug/L	64	94	63	80	64	--	48
Beryllium	ug/L	<0.27	--	<0.27	<0.27	<0.27	--	<0.33
Cadmium	ug/L	0.18	0.46	0.12	0.28	0.15	--	0.11
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1
Cobalt	ug/L	0.87	2.4	0.43	4	1.6	--	0.41
Lead	ug/L	<0.27	<0.11	<0.21	<0.21	<0.24	--	<0.24
Lithium	ug/L	4.7	5.6	4.1	5.8	4	--	4.9
Mercury	ug/L	<0.1	--	<0.15	<0.15	<0.11	--	<0.14
Molybdenum	ug/L	3.6	<1.1	2.9	1.4	2.7	--	2
Selenium	ug/L	5	<1	5.1	<0.96	8.3	--	15
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	0.26	--	0.42
Total Radium	pCi/L	0.229	0.654	0.51	0.916	0.619	--	0.145
Radium-226	pCi/L	0.149	0.147	0.178	0.639	0.156	--	-0.0263
Radium-228	pCi/L	0.0801	0.507	0.333	<0.514	0.463	--	0.145
Collected By		--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	1097	1602	1118	1343	1245	1660	1215
Field Temperature	deg C	8.9	17	9.7	17.6	9	15.9	8.3
Groundwater Elevation	feet	654.08	650.37	653.82	649.8	652.95	648.22	652.57
Oxygen, Dissolved	mg/L	1.94	0.13	2.83	0.32	1.19	0.65	1.7
Turbidity	NTU	12.1	30.2	4.31	11.1	6.2	574.1	3.54
pH at 25 Degrees C	Std. Units	6.9	7	7	6.8	7	--	6.9
Field Oxidation Potential	millivolts	104.3	-0.4	184.7	66.5	158.2	-40.9	62.9
Bicarbonate Alkalinity as CaCO3	mg/L	440	470	440	490	520	--	--
Carbonate Alkalinity as CaCO3	mg/L	<1.9	<3.8	<4.6	<4.6	<4.6	--	--
Total Alkalinity as CaCO3	mg/L	440	470	440	490	520	--	--
Iron, total	ug/L	280	310	44	120	<36	--	64
Magnesium, total	ug/L	23000	31000	22000	26000	26000	--	--
Manganese, dissolved	ug/L	220	1600	340	1800	410	--	--
Potassium, total	ug/L	960	1100	800	800	930	--	--
Sodium, total	ug/L	100000	150000	89000	94000	110000	--	--
Cobalt, dissolved	ug/L	0.37	--	--	--	--	--	--
Iron, dissolved	ug/L	<50	<50	<36	100	<36	--	--
Manganese, total	ug/L	260	1600	330	1900	490	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-304
Number of Sampling Dates: 23

Parameter Name	Units	4/26/2016	6/23/2016	8/11/2016	10/27/2016	1/18/2017	4/19/2017	6/21/2017	8/22/2017
Boron	ug/L	965	968	911	991	995	1030	982	1040
Calcium	mg/L	124	123	112	125	122	129	126	130
Chloride	mg/L	311	316	336	364	383	430	382	409
Fluoride	mg/L	0.84	0.77	0.95	0.89	0.82	0.88	1	0.89
Field pH	Std. Units	7.3	7.07	7.34	6.96	7.05	7.27	7.29	6.72
Sulfate	mg/L	230	234	225	241	204	208	254	194
Total Dissolved Solids	mg/L	1190	1160	1180	1270	1230	1310	1240	1250
Antimony	ug/L	0.069	0.13	0.1	<0.058	0.1	<0.026	0.06	0.035
Arsenic	ug/L	2.1	2.2	0.78	0.69	0.82	0.73	0.57	0.67
Barium	ug/L	104	106	86.4	97.6	92.4	94.9	87.1	91.5
Beryllium	ug/L	<0.08	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	<0.012
Cadmium	ug/L	<0.029	<0.029	0.072	<0.029	<0.029	<0.018	<0.018	<0.018
Chromium	ug/L	4.5	7.1	0.92	0.79	0.69	0.56	0.6	0.43
Cobalt	ug/L	0.89	1.1	<0.5	<0.5	<0.5	0.37	0.36	0.3
Lead	ug/L	0.5	0.82	<0.19	<0.19	<0.19	0.13	0.081	0.041
Lithium	ug/L	5.1	7.5	<4.9	<4.9	<4.9	<2.9	<2.9	5.3
Mercury	ug/L	<0.039	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046
Molybdenum	ug/L	2.5	2.4	1.6	1.4	1.5	1.5	1.5	1.6
Selenium	ug/L	0.23	0.32	<0.18	0.19	<0.18	0.17	0.14	0.21
Thallium	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.042	<0.036	<0.036
Total Radium	pCi/L	1.66	1.56	2.39	1.52	2.94	2.44	3.55	3.2
Radium-226	pCi/L	0.706	0.431	0.465	0.327	1.33	0.894	1.62	1.2
Radium-228	pCi/L	0.952	1.13	1.92	1.19	1.61	1.55	1.93	2
Collected By		--	--	0	--	0	0	0	0
Field Specific Conductance	umhos/cm	1580	1958	1948	2057	2052	2139	2029	2881
Field Temperature	deg C	13	13.3	13.4	13	12.9	13.4	13.3	13.4
Groundwater Elevation	feet	655.37	656.53	653.79	655.03	654.5	657.48	654.75	652.39
Oxygen, Dissolved	mg/L	0.13	0.05	0.06	0.47	0.16	0.12	0.1	0.08
Turbidity	NTU	61.01	92.4	2.66	1.46	1.17	1.95	1.64	0.92
pH at 25 Degrees C	Std. Units	7	7	7.1	7	7.2	7.2	7.2	7
Field Oxidation Potential	millivolts	-97.5	-109	67.9	-105.1	-79.3	-40.5	-66.6	-10.1
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-304
Number of Sampling Dates: 23

Parameter Name	Units	11/8/2017	4/18/2018	8/15/2018	8/29/2018	10/16/2018	1/8/2019	4/8/2019	10/23/2019
Boron	ug/L	1040	991	1000	--	930	--	1100	970
Calcium	mg/L	136	131	138	--	123	--	130	120
Chloride	mg/L	417	400	--	375	410	--	320	280
Fluoride	mg/L	0.96	0.92	--	1	1	--	1.3	0.74
Field pH	Std. Units	7	6.9	7.34	7.22	6.86	7.16	7.17	7.05
Sulfate	mg/L	194	198	--	185	184	--	180	190
Total Dissolved Solids	mg/L	1270	1300	--	3680	1180	--	1100	1100
Antimony	ug/L	--	<0.026	0.19	--	<0.078	--	<0.53	<0.53
Arsenic	ug/L	--	0.68	1.3	--	0.96	--	<0.75	0.83
Barium	ug/L	--	88.5	87.4	--	91	--	80	80
Beryllium	ug/L	--	0.026	0.21	--	<0.089	--	<0.27	<0.27
Cadmium	ug/L	--	<0.018	0.17	--	0.073	--	<0.077	<0.039
Chromium	ug/L	--	2	5.9	--	1.4	--	1.6	2
Cobalt	ug/L	--	0.39	0.92	--	0.45	--	0.4	0.5
Lead	ug/L	--	0.37	0.81	--	0.66	--	<0.27	0.27
Lithium	ug/L	--	<4.6	<4.6	--	<4.6	--	3.3	2.8
Mercury	ug/L	--	<0.09	<0.083	--	--	<0.09	<0.1	<0.1
Molybdenum	ug/L	--	2	2.4	--	1.9	--	1.5	2.3
Selenium	ug/L	--	<0.086	0.5	--	0.26	--	<1	<1
Thallium	ug/L	--	<0.036	0.15	--	<0.099	--	<0.27	<0.27
Total Radium	pCi/L	--	2.08	3.74	--	2.76	--	2.42	2.58
Radium-226	pCi/L	--	1.22	1.78	--	1.21	--	1.23	1.08
Radium-228	pCi/L	--	0.862	1.96	--	1.55	--	1.19	1.5
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	2205	2141	2085	2123	2058	1368	1876	1871
Field Temperature	deg C	13.3	12.8	15.1	13.7	13.5	12.81	13.75	13.64
Groundwater Elevation	feet	653.03	655.55	656.35	657.82	658.2	656.28	659.33	657.71
Oxygen, Dissolved	mg/L	0.25	0.15	0.21	0.16	0.11	0.72	0.41	0.44
Turbidity	NTU	3.88	39.29	81.42	55.94	17.12	4.38	57.9	18.9
pH at 25 Degrees C	Std. Units	6.9	7	--	7.1	7	--	7.5	7.7
Field Oxidation Potential	millivolts	162.7	137.5	35.5	--	-114.5	-62.1	-58.3	-57.5
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-304
Number of Sampling Dates: 23

Parameter Name	Units	4/13/2020	10/8/2020	4/14/2021	10/8/2021	4/12/2022	10/26/2022	4/6/2023	
Boron	ug/L	1000	1000	990	990	940	750	930	
Calcium	mg/L	130	120	120	120	130	110	110	
Chloride	mg/L	250	250	240	260	270	270	260	
Fluoride	mg/L	1.1	1.1	1.1	<0.28	1.7	1.1	0.93	
Field pH	Std. Units	7.12	7.88	6.94	6.97	6.95	6.77	6.7	
Sulfate	mg/L	220	230	200	230	260	280	270	
Total Dissolved Solids	mg/L	1000	1200	1000	760	1700	1200	1200	
Antimony	ug/L	<0.58	<0.51	<1.1	<1.1	<0.69	<0.69	<1	
Arsenic	ug/L	0.96	<0.88	<0.75	0.88	0.76	0.96	0.63	
Barium	ug/L	80	74	80	79	78	85	75	
Beryllium	ug/L	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.33	
Cadmium	ug/L	<0.039	<0.049	<0.051	<0.051	<0.055	0.15	<0.1	
Chromium	ug/L	3.5	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	
Cobalt	ug/L	0.57	0.41	0.43	0.42	0.41	0.47	0.37	
Lead	ug/L	0.5	<0.11	<0.21	<0.21	<0.24	0.38	<0.24	
Lithium	ug/L	4.8	3.1	3.3	4	3.4	3.3	3.5	
Mercury	ug/L	<0.1	--	<0.15	<0.15	<0.11	<0.11	<0.14	
Molybdenum	ug/L	2	1.5	1.7	2	1.9	1.9	1.8	
Selenium	ug/L	<1	<1	<0.96	<0.96	1.3	0	<1.4	
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	1.5	<0.26	
Total Radium	pCi/L	2.46	2.41	2.49	3.49	2.87	2.66	2.1	
Radium-226	pCi/L	1.2	1.21	1.24	1.84	1.29	1.25	0.863	
Radium-228	pCi/L	1.26	1.2	1.25	1.65	1.58	1.41	1.23	
Collected By		--	--	--	--	--	--	--	
Field Specific Conductance	umhos/cm	1764	1675	1797	1617	1772	1828	1888	
Field Temperature	deg C	11.9	13.6	13.1	13.8	13.3	13.5	13.1	
Groundwater Elevation	feet	656.42	652.95	654.34	649.53	652.14	647.26	650.29	
Oxygen, Dissolved	mg/L	0.24	0.18	0.2	0.32	0.13	0	-0.13	
Turbidity	NTU	54.1	11.1	16.9	7.3	3.7	3.6	0.02	
pH at 25 Degrees C	Std. Units	7.1	7.2	7.1	7.1	7.2	7.1	7.1	
Field Oxidation Potential	millivolts	-119.8	-113	-97.5	-78.7	-56.9	-86.3	-93.7	
Bicarbonate Alkalinity as CaCO3	mg/L	370	380	360	470	380	390	--	
Carbonate Alkalinity as CaCO3	mg/L	<1.9	<3.8	<4.6	<4.6	<4.6	<4.6	--	
Total Alkalinity as CaCO3	mg/L	370	380	360	470	380	390	--	
Iron, total	ug/L	5200	4200	4500	3700	4800	4700	5400	
Magnesium, total	ug/L	43000	40000	40000	36000	45000	34000	--	
Manganese, dissolved	ug/L	3700	3800	3800	3400	3500	4100	--	
Potassium, total	ug/L	7700	7800	8200	6800	8700	6700	--	
Sodium, total	ug/L	210000	210000	210000	190000	240000	180000	--	
Cobalt, dissolved	ug/L	0.37	--	--	--	--	--	--	
Iron, dissolved	ug/L	4600	4200	4500	3900	3800	5500	--	
Manganese, total	ug/L	3700	3800	3600	3000	4200	3600	--	

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-305
Number of Sampling Dates: 24

Parameter Name	Units	4/26/2016	6/23/2016	8/11/2016	10/27/2016	1/18/2017	4/19/2017	6/21/2017	8/23/2017
Boron	ug/L	888	906	832	878	956	907	889	903
Calcium	mg/L	98.1	92.1	88.8	93.2	98.5	96.2	93.8	95.8
Chloride	mg/L	310	312	316	325	289	312	290	295
Fluoride	mg/L	0.35	0.29	0.33	0.37	0.35	0.38	0.4	0.48
Field pH	Std. Units	7.23	6.94	7.18	6.94	6.96	7.3	7.06	6.88
Sulfate	mg/L	65.7	71.3	74	79.5	90	109	121	124
Total Dissolved Solids	mg/L	1040	982	1040	1010	1020	1040	1010	1040
Antimony	ug/L	0.14	0.2	0.19	0.094	0.18	0.063	0.12	0.12
Arsenic	ug/L	2.4	1.7	0.57	0.52	0.57	0.61	0.37	0.51
Barium	ug/L	131	120	108	115	117	115	110	114
Beryllium	ug/L	<0.08	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	<0.012
Cadmium	ug/L	0.051	<0.029	0.1	<0.029	<0.029	0.052	0.039	0.034
Chromium	ug/L	1.3	0.8	0.62	1.3	<0.34	0.36	0.22	0.45
Cobalt	ug/L	14.8	15.1	13.7	14.8	15.2	14.6	14.4	14.7
Lead	ug/L	0.53	<0.19	<0.19	0.25	<0.19	0.093	<0.033	0.039
Lithium	ug/L	<4.9	<4.9	<4.9	<4.9	<4.9	<2.9	<2.9	<2.9
Mercury	ug/L	<0.039	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046
Molybdenum	ug/L	4.9	5.2	4.9	5.6	5.9	5.8	5.8	6
Selenium	ug/L	0.38	0.37	0.28	0.32	0.34	0.39	0.16	0.26
Thallium	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.34	0.29	0.36
Total Radium	pCi/L	0.693	0.716	2.17	1.3	1.46	0.673	0.996	1.08
Radium-226	pCi/L	0.281	0.127	0.583	0.714	0.162	0.494	0.301	0.291
Radium-228	pCi/L	0.412	0.589	1.59	0.589	1.3	0.179	0.695	0.793
Collected By		--	--	0	--	0	0	0	0
Field Specific Conductance	umhos/cm	1469	1796	1769	1831	1794	1822	1730	2422
Field Temperature	deg C	13.1	13.2	13.1	13	12.8	13.2	13.3	13.3
Groundwater Elevation	feet	661.67	662.36	660.78	661.37	660.87	663.27	661.26	659
Oxygen, Dissolved	mg/L	0.11	0.05	0.07	0.47	0.09	0.15	0.06	0.12
Turbidity	NTU	35.09	5.77	1.32	0.84	0.5	0.51	1.9	0.58
pH at 25 Degrees C	Std. Units	7.1	7	7.1	7.2	7.3	7.4	7.1	7.1
Field Oxidation Potential	millivolts	52.5	-20.2	-38.9	5.8	24.2 mV	17.6	-4.5	-51.3
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--
Lithium, dissolved	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-305
Number of Sampling Dates: 24

Parameter Name	Units	11/8/2017	4/18/2018	8/15/2018	10/16/2018	1/8/2019	4/8/2019	10/23/2019	3/13/2020
Boron	ug/L	925	886	911	835	--	1000	880	--
Calcium	mg/L	99.5	97.6	102	96.2	--	110	100	--
Chloride	mg/L	282	289	265	281	--	250	280	--
Fluoride	mg/L	0.4	0.4	0.44	0.4	--	0.75	<0.23	--
Field pH	Std. Units	7.01	6.9	7.21	6.86	6.99	7.06	6.91	7.02
Sulfate	mg/L	138	147	139	129	--	110	76	--
Total Dissolved Solids	mg/L	1040	1070	1060	1070	--	1000	1000	--
Antimony	ug/L	--	0.089	<0.15	0.096	--	<0.53	<0.53	--
Arsenic	ug/L	--	0.51	0.72	0.66	--	<0.75	<0.75	--
Barium	ug/L	--	116	118	125	--	120	110	--
Beryllium	ug/L	--	<0.012	<0.12	<0.089	--	<0.27	<0.27	--
Cadmium	ug/L	--	0.054	0.086	0.044	--	<0.077	0.087	--
Chromium	ug/L	--	0.26	0.41	0.3	--	<0.98	<0.98	--
Cobalt	ug/L	--	14.5	15.6	17.2	16.4	17	17	18
Lead	ug/L	--	0.12	0.31	<0.13	--	<0.27	<0.27	--
Lithium	ug/L	--	<4.6	<4.6	<4.6	--	<2.7	<2.7	2.3
Mercury	ug/L	--	<0.09	<0.09	--	<0.09	<0.1	<0.1	--
Molybdenum	ug/L	--	7.1	6.5	7.3	--	7.2	7.2	--
Selenium	ug/L	--	0.12	0.36	0.33	--	<1	<1	--
Thallium	ug/L	--	0.32	0.33	0.33	--	0.33	0.38	--
Total Radium	pCi/L	--	0.676	1.33	1.56	--	0.685	0.383	--
Radium-226	pCi/L	--	0.278	0.96	0.635	--	0.339	0.186	--
Radium-228	pCi/L	--	0.398	0.366	0.921	--	0.347	0.197	--
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	1738	1840	1832	1836	1235	1728	1794	1788
Field Temperature	deg C	13.2	12.8	14.8	13.9	12.43	13.8	13.2	12.4
Groundwater Elevation	feet	659.76	660.99	661.56	663.37	662.13	664.01	663.21	661.41
Oxygen, Dissolved	mg/L	0.2	0.15	0.18	0.09	0.81	0.59	0.42	0.2
Turbidity	NTU	2.68	7.37	14.9	6.96	4.76	21.7	6.21	42.68
pH at 25 Degrees C	Std. Units	7	7.3	7	7.1	--	7	7.5	--
Field Oxidation Potential	millivolts	146.1	-32.7	31	-26.8	36.4	32.6	-6.7	192.6
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	390
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	3100
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	16
Iron, dissolved	ug/L	--	--	--	--	--	--	--	51
Manganese, total	ug/L	--	--	--	--	--	--	--	3200
Lithium, dissolved	ug/L	--	--	--	--	--	--	--	<2.3

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-305
Number of Sampling Dates: 24

Parameter Name	Units	4/13/2020	10/9/2020	4/16/2021	10/6/2021	2/14/2022	4/11/2022	10/25/2022	4/4/2023
Boron	ug/L	920	900	860	880	--	850	640	830
Calcium	mg/L	100	110	110	110	--	120	99	120
Chloride	mg/L	270	290	240	230	--	200	220	220
Fluoride	mg/L	0.35	0.38	0.37	<0.28	--	<0.22	<0.22	0.39
Field pH	Std. Units	7	7.44	6.92	6.94	7.2	6.9	6.76	6.7
Sulfate	mg/L	63	93	120	150	--	150	190	250
Total Dissolved Solids	mg/L	960	1100	900	680	--	950	1000	1100
Antimony	ug/L	<0.58	<0.51	<1.1	<1.1	--	<0.69	<0.69	<1
Arsenic	ug/L	<0.88	<0.88	<0.75	0.75	--	<0.75	<0.75	0.57
Barium	ug/L	110	120	130	120	--	120	120	120
Beryllium	ug/L	<0.27	--	<0.27	<0.27	--	<0.27	<0.27	<0.33
Cadmium	ug/L	0.14	0.097	0.12	<0.051	--	<0.055	<0.055	<0.1
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	--	<1.1	<1.1	<1.1
Cobalt	ug/L	16	17	18	18	20	21	17	21
Lead	ug/L	0.27	<0.11	<0.21	0.29	--	<0.24	<0.24	<0.24
Lithium	ug/L	3.2	<2.5	2.6	3.1	--	<2.5	<2.5	<2.5
Mercury	ug/L	<0.1	--	<0.15	<0.15	--	<0.11	<0.11	<0.14
Molybdenum	ug/L	6.9	7.9	8.2	8.1	--	7.8	7.4	7.7
Selenium	ug/L	<1	<1	<0.96	<0.96	--	1.1	<0.96	<1.4
Thallium	ug/L	0.35	0.35	0.36	0.37	--	0.42	0.44	0.39
Total Radium	pCi/L	0.909	0.483	0.327	1.66	--	1.03	0.91	0.706
Radium-226	pCi/L	0.42	0.217	0.279	0.835	--	0.433	0.387	0.345
Radium-228	pCi/L	0.489	0.265	0.0482	0.823	--	0.601	0.523	0.361
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	1772	1810	1799	1629	1500	1742	1633	1896
Field Temperature	deg C	9.1	14	12.9	13.7	12.38	12.8	13.2	13.6
Groundwater Elevation	feet	662.44	659.81	661.15	654.83	656.35	657.62	651.48	655.02
Oxygen, Dissolved	mg/L	0.28	0.13	0.16	0.44	4.8	0.23	0.35	0.63
Turbidity	NTU	21.7	12.9	8.17	3.8	0	4.97	2.59	0.02
pH at 25 Degrees C	Std. Units	7.2	7.2	7.1	7.1	--	7.1	7.3	7.1
Field Oxidation Potential	millivolts	6.6	-13	43.6	46.9	50	134.8	-33	166.4
Bicarbonate Alkalinity as CaCO3	mg/L	460	300	470	500	--	520	440	--
Carbonate Alkalinity as CaCO3	mg/L	<1.9	<3.8	<4.6	<4.6	--	<4.6	<4.6	--
Total Alkalinity as CaCO3	mg/L	460	300	470	500	--	520	440	--
Iron, total	ug/L	330	200	170	75	--	76	76	72
Magnesium, total	ug/L	47000	48000	47000	44000	--	53000	40000	--
Manganese, dissolved	ug/L	3400	3600	3800	3300	--	3200	3800	--
Potassium, total	ug/L	7600	8300	7900	7000	--	8700	6800	--
Sodium, total	ug/L	210000	210000	200000	180000	--	210000	150000	--
Cobalt, dissolved	ug/L	16	17	20	17	--	17	21	21
Iron, dissolved	ug/L	66	63	85	150	--	55	66	--
Manganese, total	ug/L	3300	3600	3500	3200	--	4000	3200	--
Lithium, dissolved	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-305A
 Number of Sampling Dates: 8

Parameter Name	Units	3/13/2020	4/14/2020	10/9/2020	4/15/2021	10/8/2021	4/12/2022	10/26/2022	4/6/2023
Boron	ug/L	250	280	180	190	200	210	140	--
Calcium	mg/L	100	130	150	150	150	180	150	--
Chloride	mg/L	40	89	120	140	130	160	170	150
Fluoride	mg/L	0.77	0.73	0.73	0.56	<0.28	<0.22	<0.22	--
Field pH	Std. Units	8.09	7.63	7.46	7.05	6.9	7.19	7.11	6.74
Sulfate	mg/L	40	93	130	150	140	160	160	140
Total Dissolved Solids	mg/L	400	570	660	780	730	700	690	770
Antimony	ug/L	1.3	0.88	<0.51	<1.1	<1.1	<0.69	<0.69	--
Arsenic	ug/L	<0.88	<0.88	<0.88	<0.75	<0.75	<0.75	<0.75	--
Barium	ug/L	70	80	75	80	84	91	93	--
Beryllium	ug/L	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	--
Cadmium	ug/L	<0.039	<0.039	<0.049	<0.051	<0.051	<0.055	<0.055	--
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--
Cobalt	ug/L	2.4	2.7	1.5	0.5	0.94	1.7	1.7	1.4
Lead	ug/L	0.68	<0.27	<0.11	<0.21	<0.21	<0.24	0.32	--
Lithium	ug/L	14	16	13	17	17	17	13	--
Mercury	ug/L	<0.1	<0.1	--	<0.15	<0.15	<0.11	<0.11	--
Molybdenum	ug/L	9	17	6.4	5.5	4.2	4.5	3.7	--
Selenium	ug/L	2.3	1.7	<1	<0.96	<0.96	<0.96	<0.96	--
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	--
Total Radium	pCi/L	1.97	1.26	2.05	2.67	2.96	3.44	3.7	--
Radium-226	pCi/L	1.23	1.03	1.92	2.33	2.45	2.96	2.51	--
Radium-228	pCi/L	0.735	0.23	0.132	0.34	0.514	0.481	1.19	--
Field Specific Conductance	umhos/cm	745	807	1102	1224	1145	1242	1127	1224
Field Temperature	deg C	11.8	11.2	14.2	12.4	14.7	21.6	13.7	11.1
Groundwater Elevation	feet	--	--	648.01	651.16	645.57	649.24	644.38	647.7
Oxygen, Dissolved	mg/L	3.79	2.26	0.19	0.88	2.02	4.85	4.75	0.12
Turbidity	NTU	63.2	4.91	0	1.02	14.3	12.5	2.43	0.02
pH at 25 Degrees C	Std. Units	--	7.3	7.3	7.2	7	7.2	7.2	--
Field Oxidation Potential	millivolts	204.2	106.7	11	158.3	147.8	79.7	-14.4	198.2
Bicarbonate Alkalinity as CaCO3	mg/L	--	270	340	300	300	320	300	--
Carbonate Alkalinity as CaCO3	mg/L	--	<1.9	<3.8	<4.2	<4.6	<4.6	<4.6	--
Total Alkalinity as CaCO3	mg/L	--	270	340	300	300	320	300	--
Iron, total	ug/L	720	64	64	<36	<36	<36	42	<36
Magnesium, total	ug/L	--	28000	31000	29000	26000	32000	24000	--
Manganese, dissolved	ug/L	150	240	160	87	120	120	140	--
Potassium, total	ug/L	--	3800	4200	3600	3400	4200	3400	--
Sodium, total	ug/L	--	46000	64000	68000	52000	60000	42000	--
Cobalt, dissolved	ug/L	2.1	2.8	--	--	--	--	--	--
Iron, dissolved	ug/L	<50	<50	<50	<36	<36	<36	<36	--
Manganese, total	ug/L	180	260	150	78	100	140	120	--
Lithium, dissolved	ug/L	15	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-306
 Number of Sampling Dates: 25

Parameter Name	Units	4/26/2016	6/23/2016	8/11/2016	10/27/2016	1/18/2017	4/19/2017	6/21/2017	8/23/2017
Boron	ug/L	540	575	574	702	809	814	784	822
Calcium	mg/L	101	88.5	85	90	85.9	81.3	75.6	73.9
Chloride	mg/L	85.8	77.6	67.9	64.9	57.2	58.5	56	54.4
Fluoride	mg/L	0.11	<0.073	0.086	0.11	0.087	0.11	<0.1	0.15
Field pH	Std. Units	7.08	6.17	6.72	6.44	6.51	6.79	6.71	6.46
Sulfate	mg/L	264	271	266	277	285	300	282	264
Total Dissolved Solids	mg/L	899	849	846	864	828	819	775	769
Antimony	ug/L	0.2	0.25	0.18	0.12	0.18	0.051	0.13	0.1
Arsenic	ug/L	2.2	1.7	0.44	0.4	0.47	0.42	0.41	0.38
Barium	ug/L	93	80.5	58	60.5	56.4	54.3	48.7	47.4
Beryllium	ug/L	<0.08	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	<0.012
Cadmium	ug/L	0.87	0.98	0.93	0.91	0.74	0.72	0.65	0.72
Chromium	ug/L	1.9	2.3	0.82	0.6	0.68	0.52	0.57	0.58
Cobalt	ug/L	8.3	7.7	6.4	6.6	6	5.7	5.2	5
Lead	ug/L	0.74	0.74	<0.19	<0.19	<0.19	0.038	0.1	<0.033
Lithium	ug/L	<4.9	<4.9	<4.9	<4.9	<4.9	<2.9	<2.9	<2.9
Mercury	ug/L	<0.039	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046
Molybdenum	ug/L	4.8	4.8	4.5	4.8	4.7	4.7	4.6	4.4
Selenium	ug/L	0.3	0.3	<0.18	0.24	0.2	<0.086	0.088	0.13
Thallium	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.14	0.082	<0.036
Total Radium	pCi/L	1.14	1.25	0.958	0.868	0.435	0.213	1.03	1.3
Radium-226	pCi/L	0.179	0.475	0	0.253	-0.15	0.0761	0	0.517
Radium-228	pCi/L	0.962	0.774	0.958	0.615	0.435	0.137	1.03	0.784
Collected By		--	--	0	--	0	0	0	0
Field Specific Conductance	umhos/cm	960	1271	1228	1262	1215	1210	1151	1576
Field Temperature	deg C	9.7	12.7	12.8	13.5	13.6	13.2	13.4	13.2
Groundwater Elevation	feet	670.86	670.64	670.35	670.21	669.89	670.69	669.94	668.77
Oxygen, Dissolved	mg/L	0.07	0.07	0.02	0.4	0.13	0.21	0.07	0.08
Turbidity	NTU	25.21	8.19	1.89	1	0.49	0.13	0.14	0.74
pH at 25 Degrees C	Std. Units	6.6	6.6	6.6	6.7	6.9	7	6.8	6.7
Field Oxidation Potential	millivolts	174.7	56	8.6	43.3	44.2	70.9	15.1	-10.5
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	--	--	--	--
Magnesium, total	ug/L	--	--	--	--	--	--	--	--
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--
Potassium, total	ug/L	--	--	--	--	--	--	--	--
Sodium, total	ug/L	--	--	--	--	--	--	--	--
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	--
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--
Manganese, total	ug/L	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-306
Number of Sampling Dates: 25

Parameter Name	Units	11/8/2017	4/18/2018	8/15/2018	10/16/2018	1/8/2019	4/8/2019	10/23/2019	4/14/2020
Boron	ug/L	881	919	915	862	--	1100	980	1000
Calcium	mg/L	73.1	74.1	78.9	80	--	95	77	73
Chloride	mg/L	50.4	54.4	58.2	83.3	--	98	47	41
Fluoride	mg/L	0.11	0.11	0.13	<0.19	--	0.27	<0.23	<0.23
Field pH	Std. Units	6.49	6.42	6.74	6.42	6.65	6.66	6.74	6.68
Sulfate	mg/L	274	289	275	285	--	270	280	310
Total Dissolved Solids	mg/L	773	805	840	884	--	930	870	820
Antimony	ug/L	--	0.094	<0.15	0.1	--	<0.53	<0.53	<0.58
Arsenic	ug/L	--	0.38	0.65	0.6	--	<0.75	0.78	<0.88
Barium	ug/L	--	48.2	51.6	56	--	58	51	48
Beryllium	ug/L	--	<0.012	<0.12	<0.089	--	<0.27	<0.27	<0.27
Cadmium	ug/L	--	0.88	0.76	0.96	--	1.1	0.89	0.83
Chromium	ug/L	--	0.37	0.7	0.46	--	<0.98	1	<1.1
Cobalt	ug/L	--	4.8	5.5	6.4	6.2	6.9	6.2	5.5
Lead	ug/L	--	0.04	0.2	<0.13	--	<0.27	0.34	0.37
Lithium	ug/L	--	<4.6	<4.6	<4.6	--	<2.7	<2.7	<2.3
Mercury	ug/L	--	<0.09	<0.083	--	<0.09	<0.1	<0.1	<0.1
Molybdenum	ug/L	--	5.7	4.7	5.1	--	4.3	4.9	4.4
Selenium	ug/L	--	<0.086	0.21	0.22	--	<1	<1	<1
Thallium	ug/L	--	0.083	<0.14	0.12	--	<0.27	<0.27	<0.26
Total Radium	pCi/L	--	0.305	0.985	0.693	--	0.155	0.624	0.0738
Radium-226	pCi/L	--	0.305	0.482	0.263	--	0.0529	-0.00408	0.0738
Radium-228	pCi/L	--	-0.109	0.503	0.43	--	0.102	0.624	-0.118
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	1186	1228	1271	1340	965	1350	1266	1158
Field Temperature	deg C	13.6	13.1	14.6	13.4	13.31	13.63	13.12	11.7
Groundwater Elevation	feet	669.04	668.92	668.66	670.24	669.84	670.96	671.28	670.71
Oxygen, Dissolved	mg/L	0.18	0.14	0.15	0.08	0.47	0.92	0.29	0.21
Turbidity	NTU	0.82	0.59	3.95	7.07	0.89	28.5	12.3	15.7
pH at 25 Degrees C	Std. Units	6.5	6.9	6.6	6.7	--	6.6	7.4	6.8
Field Oxidation Potential	millivolts	174.1	14.2	22.8	13.3	59.5	49.1	-0.5	49.7
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	280
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	<1.9
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	280
Iron, total	ug/L	--	--	--	--	--	--	--	590
Magnesium, total	ug/L	--	--	--	--	--	--	--	26000
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	16000
Potassium, total	ug/L	--	--	--	--	--	--	--	3700
Sodium, total	ug/L	--	--	--	--	--	--	--	160000
Cobalt, dissolved	ug/L	--	--	--	--	--	--	--	5.4
Iron, dissolved	ug/L	--	--	--	--	--	--	--	140
Manganese, total	ug/L	--	--	--	--	--	--	--	16000

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-306
Number of Sampling Dates: 25

Parameter Name	Units	10/9/2020	2/23/2021	4/13/2021	7/6/2021	10/8/2021	2/14/2022	4/12/2022	10/25/2022
Boron	ug/L	1100	--	1000	--	730	--	760	560
Calcium	mg/L	80	--	74	--	130	--	110	93
Chloride	mg/L	43	--	35	--	180	--	260	300
Fluoride	mg/L	<0.23	--	<0.28	--	<0.28	--	<0.22	<0.22
Field pH	Std. Units	6.54	6.34	6.42	7.44	6.66	7.07	6.66	6.53
Sulfate	mg/L	360	--	370	--	460	--	70	86
Total Dissolved Solids	mg/L	900	--	880	--	1100	--	710	1100
Antimony	ug/L	<0.51	--	<1.1	--	<1.1	--	<0.69	<0.69
Arsenic	ug/L	<0.88	--	<0.75	--	<0.75	--	<0.75	<0.75
Barium	ug/L	49	--	49	--	71	--	94	95
Beryllium	ug/L	--	--	<0.27	--	<0.27	--	<0.27	<0.27
Cadmium	ug/L	0.92	--	0.95	--	1.7	--	1.3	1.1
Chromium	ug/L	<1.1	--	<1.1	--	<1.1	--	<1.1	<1.1
Cobalt	ug/L	5.9	5.6	5.6	5.8	11	8.8	9.1	7
Lead	ug/L	<0.11	--	<0.21	--	<0.21	--	<0.24	<0.24
Lithium	ug/L	<2.5	--	<2.5	--	<2.5	--	<2.5	<2.5
Mercury	ug/L	--	--	<0.15	--	<0.15	--	<0.11	<0.11
Molybdenum	ug/L	5.6	--	5.1	--	6.1	--	14	12
Selenium	ug/L	<1	--	<0.96	--	<0.96	--	<0.96	<0.96
Thallium	ug/L	<0.26	--	<0.26	--	<0.26	--	<0.26	<0.26
Total Radium	pCi/L	0.889	--	0.334	--	0.794	--	2.03	1.03
Radium-226	pCi/L	0.163	--	0.0205	--	<0.439	--	0.115	0.12
Radium-228	pCi/L	0.727	--	0.313	--	0.657	--	1.92	0.912
Collected By		--	--	--	--	--	--	--	--
Field Specific Conductance	umhos/cm	1294	1277	1339	1357	1506	1770	1579	1597
Field Temperature	deg C	13.4	13.4	12.7	14.3	14.7	13.6	13.8	13.5
Groundwater Elevation	feet	670.18	669.86	670.27	661.87	662.27	663.66	664.61	657.11
Oxygen, Dissolved	mg/L	0.12	0.5	0.14	0.33	0.4	1.05	0.24	0.39
Turbidity	NTU	14	2.86	8.99	1.37	6.7	0	2.64	0
pH at 25 Degrees C	Std. Units	6.8	--	6.8	--	6.7	--	6.9	6.9
Field Oxidation Potential	millivolts	41.4	64.2	92	119.2	86	39	17.1	-37.7
Bicarbonate Alkalinity as CaCO3	mg/L	160	--	270	--	270	--	470	370
Carbonate Alkalinity as CaCO3	mg/L	<3.8	--	<4.6	--	<4.6	--	<4.6	<4.6
Total Alkalinity as CaCO3	mg/L	160	--	270	--	270	--	470	370
Iron, total	ug/L	340	--	220	--	<360	--	68	100
Magnesium, total	ug/L	23000	--	25000	--	43000	--	44000	33000
Manganese, dissolved	ug/L	15000	--	15000	--	31000	--	23000	30000
Potassium, total	ug/L	3800	--	3500	--	3700	--	6000	4900
Sodium, total	ug/L	170000	--	170000	--	170000	--	180000	150000
Cobalt, dissolved	ug/L	5.1	--	6.1	--	9.9	--	7.6	8.2
Iron, dissolved	ug/L	100	--	110	--	100	--	<250	72
Manganese, total	ug/L	16000	--	15000	--	30000	--	26000	27000

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-306
 Number of Sampling Dates: 25

Parameter Name	Units	4/6/2023							
Boron	ug/L	780							
Calcium	mg/L	100							
Chloride	mg/L	310							
Fluoride	mg/L	<0.22							
Field pH	Std. Units	6.61							
Sulfate	mg/L	78							
Total Dissolved Solids	mg/L	1000							
Antimony	ug/L	<1							
Arsenic	ug/L	<0.53							
Barium	ug/L	85							
Beryllium	ug/L	<0.33							
Cadmium	ug/L	1.2							
Chromium	ug/L	<1.1							
Cobalt	ug/L	8.6							
Lead	ug/L	<0.24							
Lithium	ug/L	<2.5							
Mercury	ug/L	<0.14							
Molybdenum	ug/L	13							
Selenium	ug/L	<1.4							
Thallium	ug/L	<0.26							
Total Radium	pCi/L	0.455							
Radium-226	pCi/L	0.19							
Radium-228	pCi/L	0.266							
Collected By		--							
Field Specific Conductance	umhos/cm	1583							
Field Temperature	deg C	13.4							
Groundwater Elevation	feet	659.12							
Oxygen, Dissolved	mg/L	0.12							
Turbidity	NTU	3.09							
pH at 25 Degrees C	Std. Units	6.9							
Field Oxidation Potential	millivolts	103.1							
Bicarbonate Alkalinity as CaCO3	mg/L	--							
Carbonate Alkalinity as CaCO3	mg/L	--							
Total Alkalinity as CaCO3	mg/L	--							
Iron, total	ug/L	81							
Magnesium, total	ug/L	--							
Manganese, dissolved	ug/L	--							
Potassium, total	ug/L	--							
Sodium, total	ug/L	--							
Cobalt, dissolved	ug/L	7.7							
Iron, dissolved	ug/L	--							
Manganese, total	ug/L	--							

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-305A
 Number of Sampling Dates: 8

Parameter Name	Units	3/13/2020	4/14/2020	10/9/2020	4/15/2021	10/8/2021	4/12/2022	10/26/2022	4/6/2023
Boron	ug/L	250	280	180	190	200	210	140	--
Calcium	mg/L	100	130	150	150	150	180	150	--
Chloride	mg/L	40	89	120	140	130	160	170	150
Fluoride	mg/L	0.77	0.73	0.73	0.56	<0.28	<0.22	<0.22	--
Field pH	Std. Units	8.09	7.63	7.46	7.05	6.9	7.19	7.11	6.74
Sulfate	mg/L	40	93	130	150	140	160	160	140
Total Dissolved Solids	mg/L	400	570	660	780	730	700	690	770
Antimony	ug/L	1.3	0.88	<0.51	<1.1	<1.1	<0.69	<0.69	--
Arsenic	ug/L	<0.88	<0.88	<0.88	<0.75	<0.75	<0.75	<0.75	--
Barium	ug/L	70	80	75	80	84	91	93	--
Beryllium	ug/L	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	--
Cadmium	ug/L	<0.039	<0.039	<0.049	<0.051	<0.051	<0.055	<0.055	--
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--
Cobalt	ug/L	2.4	2.7	1.5	0.5	0.94	1.7	1.7	1.4
Lead	ug/L	0.68	<0.27	<0.11	<0.21	<0.21	<0.24	0.32	--
Lithium	ug/L	14	16	13	17	17	17	13	--
Mercury	ug/L	<0.1	<0.1	--	<0.15	<0.15	<0.11	<0.11	--
Molybdenum	ug/L	9	17	6.4	5.5	4.2	4.5	3.7	--
Selenium	ug/L	2.3	1.7	<1	<0.96	<0.96	<0.96	<0.96	--
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	--
Total Radium	pCi/L	1.97	1.26	2.05	2.67	2.96	3.44	3.7	--
Radium-226	pCi/L	1.23	1.03	1.92	2.33	2.45	2.96	2.51	--
Radium-228	pCi/L	0.735	0.23	0.132	0.34	0.514	0.481	1.19	--
Field Specific Conductance	umhos/cm	745	807	1102	1224	1145	1242	1127	1224
Field Temperature	deg C	11.8	11.2	14.2	12.4	14.7	21.6	13.7	11.1
Groundwater Elevation	feet	--	--	648.01	651.16	645.57	649.24	644.38	647.7
Oxygen, Dissolved	mg/L	3.79	2.26	0.19	0.88	2.02	4.85	4.75	0.12
Turbidity	NTU	63.2	4.91	0	1.02	14.3	12.5	2.43	0.02
pH at 25 Degrees C	Std. Units	--	7.3	7.3	7.2	7	7.2	7.2	--
Field Oxidation Potential	millivolts	204.2	106.7	11	158.3	147.8	79.7	-14.4	198.2
Bicarbonate Alkalinity as CaCO3	mg/L	--	270	340	300	300	320	300	--
Carbonate Alkalinity as CaCO3	mg/L	--	<1.9	<3.8	<4.2	<4.6	<4.6	<4.6	--
Total Alkalinity as CaCO3	mg/L	--	270	340	300	300	320	300	--
Iron, total	ug/L	720	64	64	<36	<36	<36	42	<36
Magnesium, total	ug/L	--	28000	31000	29000	26000	32000	24000	--
Manganese, dissolved	ug/L	150	240	160	87	120	120	140	--
Potassium, total	ug/L	--	3800	4200	3600	3400	4200	3400	--
Sodium, total	ug/L	--	46000	64000	68000	52000	60000	42000	--
Cobalt, dissolved	ug/L	2.1	2.8	--	--	--	--	--	--
Iron, dissolved	ug/L	<50	<50	<50	<36	<36	<36	<36	--
Manganese, total	ug/L	180	260	150	78	100	140	120	--
Lithium, dissolved	ug/L	15	--	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating Station

Location ID: MW-310
 Number of Sampling Dates: 12

Parameter Name	Units	10/24/2019	2/5/2020	3/12/2020	4/13/2020	10/12/2020	2/23/2021	4/13/2021	7/6/2021
Boron	ug/L	720	620	--	550	800	--	360	--
Calcium	mg/L	230	160	--	200	180	--	210	--
Chloride	mg/L	150	120	--	130	150	--	250	--
Fluoride	mg/L	0.31	0.85	--	1.1	1	--	1.3	--
Field pH	Std. Units	7.15	7.08	6.89	7	7.07	7.11	7.07	8.23
Sulfate	mg/L	610	530	--	590	570	--	720	--
Total Dissolved Solids	mg/L	260	1200	--	1300	1200	--	1600	--
Antimony	ug/L	<0.53	<0.58	--	<0.58	0.61	--	<1.1	--
Arsenic	ug/L	0.78	<0.88	--	<0.88	0.94	--	0.97	--
Barium	ug/L	76	53	--	62	55	--	92	--
Beryllium	ug/L	<0.27	<0.27	--	<0.27	--	--	<0.27	--
Cadmium	ug/L	0.22	0.12	--	0.16	0.29	--	0.51	--
Chromium	ug/L	<0.98	<1.1	--	<1.1	<1.1	--	<1.1	--
Cobalt	ug/L	0.57	0.32	0.32	0.24	0.38	--	0.75	--
Lead	ug/L	<0.27	<0.27	--	<0.27	<0.11	--	<0.21	--
Lithium	ug/L	35	42	46	48	42	37	58	52
Mercury	ug/L	<0.1	<0.1	--	<0.1	--	--	<0.15	--
Molybdenum	ug/L	26	29	--	31	39	--	83	--
Selenium	ug/L	5	3.3	--	4.5	2.4	--	2.4	--
Thallium	ug/L	<0.27	<0.26	--	<0.26	<0.26	--	<0.26	--
Total Radium	pCi/L	0.411	0.0344	--	0.271	0.429	--	0	--
Radium-226	pCi/L	-0.0393	0.0344	--	0.0494	0.0766	--	-0.0354	--
Radium-228	pCi/L	0.411	-0.137	--	0.222	0.353	--	-0.0334	--
Field Specific Conductance	umhos/cm	1906	1723	1902	1823	1709	962	2362	1852
Field Temperature	deg C	13.74	12.49	12.8	10.3	13.9	13.6	12.6	13
Groundwater Elevation	feet	649.31	644.71	645.45	645.91	638.46	638.77	642.7	639.32
Oxygen, Dissolved	mg/L	0.41	0.68	0.3	0.22	0.16	0.09	0.46	0.21
Turbidity	NTU	2.29	0.9	2.77	0.87	0.02	0.02	2.38	0
pH at 25 Degrees C	Std. Units	7.2	7.1	--	7	7.3	--	7.4	--
Field Oxidation Potential	millivolts	-9.3	42.2	252.2	179.4	146.5	91.3	161	88.6
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	190	410	--	130	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	<1.9	<3.8	--	<4.6	--
Total Alkalinity as CaCO3	mg/L	--	--	--	190	410	--	130	--
Iron, total	ug/L	--	--	--	<50	<50	--	<36	--
Magnesium, total	ug/L	--	--	--	86000	76000	--	100000	--
Manganese, dissolved	ug/L	--	--	250	280	350	--	330	--
Potassium, total	ug/L	--	--	--	12000	12000	--	17000	--
Sodium, total	ug/L	--	--	--	100000	100000	--	150000	--
Cobalt, dissolved	ug/L	--	--	0.31	0.23	--	--	--	--
Iron, dissolved	ug/L	--	--	<50	<50	<50	--	<36	--
Manganese, total	ug/L	--	--	260	280	390	--	290	--
Lithium, dissolved	ug/L	--	--	45	--	44	--	63	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-310
Number of Sampling Dates: 12

Parameter Name	Units	10/6/2021	4/11/2022	10/25/2022	4/4/2023				
Boron	ug/L	520	640	340	--				
Calcium	mg/L	130	190	150	--				
Chloride	mg/L	120	200	140	--				
Fluoride	mg/L	<0.28	<0.22	0.8	--				
Field pH	Std. Units	7.2	6.86	6.7	6.91				
Sulfate	mg/L	470	630	480	--				
Total Dissolved Solids	mg/L	930	1400	1200	--				
Antimony	ug/L	<1.1	0.89	<0.69	--				
Arsenic	ug/L	1.1	1	<0.75	--				
Barium	ug/L	53	75	78	--				
Beryllium	ug/L	<0.27	<0.27	<0.27	--				
Cadmium	ug/L	0.21	0.23	0.24	--				
Chromium	ug/L	<1.1	<1.1	<1.1	--				
Cobalt	ug/L	0.72	0.93	0.75	0.24				
Lead	ug/L	<0.21	<0.24	<0.24	--				
Lithium	ug/L	52	54	36	--				
Mercury	ug/L	<0.15	<0.11	<0.11	--				
Molybdenum	ug/L	70	47	24	--				
Selenium	ug/L	2.3	2.3	2.6	--				
Thallium	ug/L	<0.26	<0.26	<0.26	--				
Total Radium	pCi/L	0.539	0.316	0.827	--				
Radium-226	pCi/L	<0.511	-0.0361	0.061	--				
Radium-228	pCi/L	<0.462	0.316	0.766	--				
Field Specific Conductance	umhos/cm	1425	2007	1856	852				
Field Temperature	deg C	15.4	12.6	13.3	11.8				
Groundwater Elevation	feet	638.19	640.79	638.55	641.71				
Oxygen, Dissolved	mg/L	0.48	0.3	0.03	4.34				
Turbidity	NTU	1	4	0.73	0.02				
pH at 25 Degrees C	Std. Units	7.1	7.1	7	--				
Field Oxidation Potential	millivolts	96.8	161.1	113.6	252.5				
Bicarbonate Alkalinity as CaCO3	mg/L	250	260	250	--				
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	<4.6	--				
Total Alkalinity as CaCO3	mg/L	250	260	250	--				
Iron, total	ug/L	<36	<36	<36	<36				
Magnesium, total	ug/L	55000	90000	57000	--				
Manganese, dissolved	ug/L	830	400	1300	--				
Potassium, total	ug/L	9900	16000	12000	--				
Sodium, total	ug/L	110000	170000	93000	--				
Cobalt, dissolved	ug/L	--	--	--	--				
Iron, dissolved	ug/L	<36	<36	<36	--				
Manganese, total	ug/L	350	520	1100	--				
Lithium, dissolved	ug/L	45	52	45	--				

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-310A

Number of Sampling Dates: 8

Parameter Name	Units	3/13/2020	4/14/2020	10/12/2020	4/15/2021	10/8/2021	4/12/2022	10/26/2022	4/5/2023
Boron	ug/L	1500	1600	1700	1500	1500	1500	1500	--
Calcium	mg/L	82	87	94	82	80	99	69	--
Chloride	mg/L	140	130	130	120	130	120	120	--
Fluoride	mg/L	1.7	1.8	2	1.9	0.28	0.4	2	--
Field pH	Std. Units	7.73	7.85	7.48	7.47	7.65	7.43	7.64	7.46
Sulfate	mg/L	1200	1100	1100	1100	1200	1200	1200	--
Total Dissolved Solids	mg/L	2300	2300	2200	2300	1800	2100	2200	--
Antimony	ug/L	<0.58	<0.58	<0.51	<1.1	<1.1	0.85	<0.69	--
Arsenic	ug/L	<0.88	<0.88	<0.88	<0.75	<0.75	<0.75	<0.75	--
Barium	ug/L	16	16	16	14	12	14	13	--
Beryllium	ug/L	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	--
Cadmium	ug/L	<0.039	<0.039	<0.049	<0.051	<0.051	<0.055	<0.055	--
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--
Cobalt	ug/L	0.63	0.39	0.43	0.48	0.45	0.41	0.56	0.51
Lead	ug/L	<0.27	<0.27	<0.11	<0.21	<0.21	<0.24	<0.24	--
Lithium	ug/L	250	290	240	270	280	260	230	--
Mercury	ug/L	<0.1	<0.1	--	<0.15	<0.15	<0.11	<0.11	--
Molybdenum	ug/L	2.6	2.7	3	5	1.9	4.4	1.4	--
Selenium	ug/L	<1	<1	<1	<0.96	<0.96	1.4	<0.96	--
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	--
Total Radium	pCi/L	3.43	3.9	4.46	4.44	5.41	4.61	4.4	--
Radium-226	pCi/L	3.27	3.48	3.9	4.14	4.35	4.35	3.24	--
Radium-228	pCi/L	0.157	0.418	0.563	0.293	1.07	0.267	1.16	--
Field Specific Conductance	umhos/cm	3160	2915	3122	3106	2808	2920	2964	3045
Field Temperature	deg C	12.5	8.8	13.1	12.5	15.6	17.2	14.2	12.1
Groundwater Elevation	feet	--	--	640.2	644.88	639.57	640.83	639.49	643.11
Oxygen, Dissolved	mg/L	6.28	6.39	0.48	0.98	6.21	4.72	4.24	0.49
Turbidity	NTU	109	--	0	2.25	15	14.2	3.85	1.97
pH at 25 Degrees C	Std. Units	--	7.5	7.7	7.7	7.7	7.7	7.7	--
Field Oxidation Potential	millivolts	178.9	146.1	89.7	160.2	143.1	26.7	81.2	-15.5
Bicarbonate Alkalinity as CaCO3	mg/L	--	320	260	340	370	360	350	--
Carbonate Alkalinity as CaCO3	mg/L	--	<1.9	<3.8	<4.6	<4.6	<4.6	<4.6	--
Total Alkalinity as CaCO3	mg/L	--	320	260	340	370	360	350	--
Iron, total	ug/L	99	230	280	<36	<140	56	96	69
Magnesium, total	ug/L	--	41000	45000	37000	36000	42000	32000	--
Manganese, dissolved	ug/L	53	39	29	39	30	20	43	--
Potassium, total	ug/L	--	9900	11000	9200	8900	11000	8600	--
Sodium, total	ug/L	--	630000	620000	600000	570000	650000	620000	--
Cobalt, dissolved	ug/L	0.67	0.4	--	--	--	--	--	--
Iron, dissolved	ug/L	<50	220	<50	<36	38	<140	52	--
Manganese, total	ug/L	51	38	31	34	26	26	24	--
Lithium, dissolved	ug/L	250	--	230	300	240	260	270	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-311
 Number of Sampling Dates: 9

Parameter Name	Units	10/24/2019	2/5/2020	3/13/2020	4/13/2020	10/12/2020	4/14/2021	4/11/2022	10/26/2022
Boron	ug/L	<110	<100	--	<100	<80	64	79	75
Calcium	mg/L	170	130	--	170	160	160	150	130
Chloride	mg/L	13	14	--	13	14	11	17	17
Fluoride	mg/L	<0.23	<0.23	--	<0.23	<0.23	<0.28	<0.22	<0.22
Field pH	Std. Units	6.95	6.72	7.11	6.86	6.93	6.66	6.74	6.61
Sulfate	mg/L	47	54	--	54	70	75	78	76
Total Dissolved Solids	mg/L	530	520	--	570	640	590	480	550
Antimony	ug/L	<0.53	<0.58	--	<0.58	<0.51	<1.1	<0.69	<0.69
Arsenic	ug/L	<0.75	<0.88	--	<0.88	1.7	<0.75	<0.75	<0.75
Barium	ug/L	200	160	--	180	220	180	170	200
Beryllium	ug/L	<0.27	<0.27	--	<0.27	--	<0.27	<0.27	<0.27
Cadmium	ug/L	0.04	<0.039	--	<0.039	0.12	<0.051	<0.055	<0.055
Chromium	ug/L	<0.98	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1
Cobalt	ug/L	0.78	0.11	<0.091	<0.091	2.2	<0.091	<0.19	<0.19
Lead	ug/L	<0.27	<0.27	--	<0.27	1.8	<0.21	<0.24	<0.24
Lithium	ug/L	4.7	2.9	4.7	6.2	4.6	5.9	6.3	4.4
Mercury	ug/L	<0.1	<0.1	--	<0.1	--	<0.15	<0.11	<0.11
Molybdenum	ug/L	<1.1	<1.1	--	<1.1	<1.1	<1.3	<1.2	<1.2
Selenium	ug/L	<1	1.2	--	<1	<1	2.1	2	1.3
Thallium	ug/L	<0.27	<0.26	--	<0.26	<0.26	<0.26	<0.26	<0.26
Total Radium	pCi/L	0.386	0.108	--	0.17	0.738	0.194	0.224	--
Radium-226	pCi/L	0.0831	0.0368	--	0.0742	0.247	0.0364	0.0305	--
Radium-228	pCi/L	0.303	0.0711	--	0.0963	0.491	0.158	0.194	--
Field Specific Conductance	umhos/cm	926	891	877	912	1024	945	880	846
Field Temperature	deg C	13.88	10.21	10	8.8	14.4	9.3	10.1	14.6
Groundwater Elevation	feet	647.8	645	644.18	646.79	638.73	643.02	641.44	638.46
Oxygen, Dissolved	mg/L	0.29	2.11	0.23	0.29	7.12	1.18	0.51	0.68
Turbidity	NTU	3.88	1.89	3.44	0.44	0	0.78	3.57	0.84
pH at 25 Degrees C	Std. Units	7	7.1	--	6.9	6.9	6.9	7	7
Field Oxidation Potential	millivolts	-24.7	21	222.6	103.4	-53	179.8	125.4	52.8
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	460	290	450	440	490
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	<1.9	<3.8	<4.6	<4.6	<4.6
Total Alkalinity as CaCO3	mg/L	--	--	--	460	290	450	440	490
Iron, total	ug/L	--	--	<50	<50	630	<36	<36	<36
Magnesium, total	ug/L	--	--	--	40000	40000	36000	37000	27000
Manganese, dissolved	ug/L	--	--	21	39	75	<4.4	<3.6	8.7
Potassium, total	ug/L	--	--	--	620	810	650	860	740
Sodium, total	ug/L	--	--	--	5000	5100	5200	6300	4800
Cobalt, dissolved	ug/L	--	--	0.11	<0.091	--	--	--	--
Iron, dissolved	ug/L	--	--	<50	<50	<50	<36	<36	<36
Manganese, total	ug/L	--	--	20	41	180	<4.4	4.6	7.4
Lithium, dissolved	ug/L	--	--	8	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-311
 Number of Sampling Dates: 9

Parameter Name	Units	4/4/2023							
Boron	ug/L	--							
Calcium	mg/L	--							
Chloride	mg/L	--							
Fluoride	mg/L	--							
Field pH	Std. Units	6.56							
Sulfate	mg/L	--							
Total Dissolved Solids	mg/L	--							
Antimony	ug/L	--							
Arsenic	ug/L	--							
Barium	ug/L	--							
Beryllium	ug/L	--							
Cadmium	ug/L	--							
Chromium	ug/L	--							
Cobalt	ug/L	0.38							
Lead	ug/L	--							
Lithium	ug/L	--							
Mercury	ug/L	--							
Molybdenum	ug/L	--							
Selenium	ug/L	--							
Thallium	ug/L	--							
Total Radium	pCi/L	--							
Radium-226	pCi/L	--							
Radium-228	pCi/L	--							
Field Specific Conductance	umhos/cm	932							
Field Temperature	deg C	10.5							
Groundwater Elevation	feet	641.88							
Oxygen, Dissolved	mg/L	0							
Turbidity	NTU	0.02							
pH at 25 Degrees C	Std. Units	--							
Field Oxidation Potential	millivolts	257							
Bicarbonate Alkalinity as CaCO3	mg/L	--							
Carbonate Alkalinity as CaCO3	mg/L	--							
Total Alkalinity as CaCO3	mg/L	--							
Iron, total	ug/L	<36							
Magnesium, total	ug/L	--							
Manganese, dissolved	ug/L	--							
Potassium, total	ug/L	--							
Sodium, total	ug/L	--							
Cobalt, dissolved	ug/L	--							
Iron, dissolved	ug/L	--							
Manganese, total	ug/L	--							
Lithium, dissolved	ug/L	--							

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-311A
 Number of Sampling Dates: 11

Parameter Name	Units	3/13/2020	4/13/2020	6/30/2020	10/8/2020	2/25/2021	4/16/2021	7/7/2021	10/8/2021
Boron	ug/L	1400	1500	--	1600	--	1500	--	1400
Calcium	mg/L	44	48	--	51	--	42	--	40
Chloride	mg/L	130	140	--	150	--	130	--	140
Fluoride	mg/L	3.4	4.1	3.7	4.4	3.9	4	3.8	2
Field pH	Std. Units	7.85	8.4	7.64	8.33	7.55	7.76	8.19	8.12
Sulfate	mg/L	1200	1200	--	1200	--	1100	--	1100
Total Dissolved Solids	mg/L	2300	2400	--	2400	--	2200	--	2000
Antimony	ug/L	<0.58	<0.58	--	<0.51	--	<1.1	--	<1.1
Arsenic	ug/L	<0.88	<0.88	--	<0.88	--	<0.75	--	<0.75
Barium	ug/L	20	20	--	15	--	12	--	8.7
Beryllium	ug/L	<0.27	<0.27	--	--	--	<0.27	--	<0.27
Cadmium	ug/L	<0.039	<0.039	--	<0.049	--	<0.051	--	<0.051
Chromium	ug/L	<1.1	<1.1	--	<1.1	--	<1.1	--	<1.1
Cobalt	ug/L	0.19	0.13	--	0.12	--	0.13	--	<0.19
Lead	ug/L	<0.27	<0.27	--	<0.11	--	<0.21	--	<0.21
Lithium	ug/L	260	310	--	240	--	290	--	290
Mercury	ug/L	<0.1	<0.1	--	--	--	<0.15	--	<0.15
Molybdenum	ug/L	1.2	2.8	--	3.1	--	<1.3	--	<1.3
Selenium	ug/L	<1	<1	--	<1	--	<0.96	--	<0.96
Thallium	ug/L	<0.26	<0.26	--	<0.26	--	<0.26	--	<0.26
Total Radium	pCi/L	1.47	2.31	--	3.1	--	3.85	--	4.44
Radium-226	pCi/L	1.42	2.1	--	2.22	--	3.25	--	3.67
Radium-228	pCi/L	0.0555	0.214	--	0.88	--	0.6	--	0.774
Field Specific Conductance	umhos/cm	3336	3027	3391	3177	3243	3332	3381	2930
Field Temperature	deg C	12.1	7.9	12.6	12.7	11.5	12.3	14.2	15.1
Groundwater Elevation	feet	--	--	647.73	641.09	641.16 ft	644.16	642.38	640.58
Oxygen, Dissolved	mg/L	2.29	3.87	1.51	0.44	3.23	0.77	0.42	1.68
Turbidity	NTU	7.74	3.19	1.43	0	0.02	0.02	0	9.6
pH at 25 Degrees C	Std. Units	--	7.9	--	7.9	--	7.8	--	7.9
Field Oxidation Potential	millivolts	206	115.8	23.4	39.6	129.7	146.9	80.8	140.7
Bicarbonate Alkalinity as CaCO3	mg/L	--	360	--	400	--	370	--	380
Carbonate Alkalinity as CaCO3	mg/L	--	<1.9	--	<3.8	--	<4.6	--	<4.6
Total Alkalinity as CaCO3	mg/L	--	360	--	400	--	370	--	380
Iron, total	ug/L	<50	<50	--	<50	--	<36	--	<140
Magnesium, total	ug/L	--	23000	--	25000	--	21000	--	20000
Manganese, dissolved	ug/L	20	22	--	5.8	--	6.2	--	5.5
Potassium, total	ug/L	--	9000	--	10000	--	8300	--	7700
Sodium, total	ug/L	--	710000	--	700000	--	720000	--	670000
Cobalt, dissolved	ug/L	0.36	0.12	--	--	--	--	--	--
Iron, dissolved	ug/L	<50	<50	--	<50	--	<36	--	<36
Manganese, total	ug/L	20	13	--	8.3	--	6.1	--	<18
Lithium, dissolved	ug/L	250	--	--	230	--	330	--	250

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-311A
 Number of Sampling Dates: 11

Parameter Name	Units	4/14/2022	10/26/2022	4/6/2023				
Boron	ug/L	1500	1400	--				
Calcium	mg/L	54	46	--				
Chloride	mg/L	140	140	--				
Fluoride	mg/L	2.4	4.3	--				
Field pH	Std. Units	7.53	7.8	7.54				
Sulfate	mg/L	1200	1200	--				
Total Dissolved Solids	mg/L	2200	2300	--				
Antimony	ug/L	<0.69	0.83	--				
Arsenic	ug/L	<0.75	<0.75	--				
Barium	ug/L	10	12	--				
Beryllium	ug/L	<0.27	<0.27	--				
Cadmium	ug/L	<0.055	<0.055	--				
Chromium	ug/L	<1.1	<1.1	--				
Cobalt	ug/L	0.32	0.6	0.66				
Lead	ug/L	<0.24	<0.24	--				
Lithium	ug/L	280	230	--				
Mercury	ug/L	<0.11	<0.11	--				
Molybdenum	ug/L	1.6	2.2	--				
Selenium	ug/L	1.3	<0.96	--				
Thallium	ug/L	<0.26	<0.26	--				
Total Radium	pCi/L	3.99	4.21	--				
Radium-226	pCi/L	3.38	2.99	--				
Radium-228	pCi/L	0.61	1.22	--				
Field Specific Conductance	umhos/cm	3211	3022	3037				
Field Temperature	deg C	14.1	14.1	11.5				
Groundwater Elevation	feet	643.23	640.27	643.59				
Oxygen, Dissolved	mg/L	4.66	4.68	2.47				
Turbidity	NTU	9.61	5.88	0.02				
pH at 25 Degrees C	Std. Units	7.7	7.9	--				
Field Oxidation Potential	millivolts	54.6	-21.6	47.7				
Bicarbonate Alkalinity as CaCO3	mg/L	370	380	--				
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	--				
Total Alkalinity as CaCO3	mg/L	370	380	--				
Iron, total	ug/L	<36	<36	<36				
Magnesium, total	ug/L	25000	18000	--				
Manganese, dissolved	ug/L	<14	7	--				
Potassium, total	ug/L	10000	7800	--				
Sodium, total	ug/L	800000	720000	--				
Cobalt, dissolved	ug/L	--	--	--				
Iron, dissolved	ug/L	<140	<36	--				
Manganese, total	ug/L	3.7	9.4	--				
Lithium, dissolved	ug/L	310	280	--				

Single Location
Name: IPL - Ottumwa Generating Station

Location ID: MW-312
 Number of Sampling Dates: 7

Parameter Name	Units	1/12/2022	2/14/2022	2/15/2022	4/11/2022	8/25/2022	10/25/2022	4/5/2023
Boron	ug/L	380	--	420	560	--	580	--
Calcium	mg/L	180	--	180	200	180	160	170
Chloride	mg/L	150	--	150	170	--	170	--
Fluoride	mg/L	<0.28	--	0.37	<0.22	--	0.38	--
Field pH	Std. Units	7.18	--	7.24	7.07	7.14	7.1	7.11
Sulfate	mg/L	620	--	570	550	--	610	--
Total Dissolved Solids	mg/L	1200	--	930	1100	--	1300	--
Antimony	ug/L	<1.1	--	<0.69	<0.69	--	<0.69	--
Arsenic	ug/L	3.4	--	4.1	4.4	--	2.8	--
Barium	ug/L	87	--	63	50	--	45	--
Beryllium	ug/L	<0.27	--	<0.27	<0.27	--	<0.27	--
Cadmium	ug/L	0.053	--	<0.055	<0.055	--	<0.055	--
Chromium	ug/L	<1.1	--	<1.1	<1.1	--	<1.1	--
Cobalt	ug/L	4.9	--	6.1	9.1	11	11	11
Lead	ug/L	<0.21	--	<0.24	<0.24	--	<0.24	--
Lithium	ug/L	41	--	31	40	--	35	--
Mercury	ug/L	<0.15	--	<0.11	<0.11	--	<0.11	--
Molybdenum	ug/L	2.7	--	1.6	1.3	--	1.4	--
Selenium	ug/L	<0.96	--	<0.96	<0.96	--	<0.96	--
Thallium	ug/L	<0.26	--	<0.26	<0.26	--	<0.26	--
Total Radium	pCi/L	1.25	--	0.888	0.357	--	1.29	--
Radium-226	pCi/L	0.176	--	0.405	0.357	--	0.493	--
Radium-228	pCi/L	1.08	--	0.483	-0.907	--	0.802	--
Field Specific Conductance	umhos/cm	1762	--	1800	1855	1949	1985	1576
Field Temperature	deg C	12.62	--	13.01	12.3	13.2	13.1	12
Groundwater Elevation	feet	--	--	--	--	640.8	639.64	644.08
Oxygen, Dissolved	mg/L	0.32	--	1.34	0.15	0.18	0	0.28
Turbidity	NTU	0	--	0	8.39	1.47	1.68	1.32
pH at 25 Degrees C	Std. Units	7.4	--	7.3	7.3	--	7.3	--
Field Oxidation Potential	millivolts	-53.4	--	-67	112.1	116.7	11.3	0.5
Bicarbonate Alkalinity as CaCO3	mg/L	220	230	--	240	250	230	250
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	--	<4.6	<4.6	<4.6	<2.5
Total Alkalinity as CaCO3	mg/L	220	230	--	240	250	230	250
Iron, total	ug/L	--	440	--	350	330	260	370
Magnesium, total	ug/L	--	54000	--	65000	58000	52000	59000
Manganese, dissolved	ug/L	1300	1100	--	1200	1100	1200	--
Potassium, total	ug/L	--	4300	--	4800	4600	4800	5700
Sodium, total	ug/L	--	130000	--	170000	140000	130000	140000
Cobalt, dissolved	ug/L	5.1	5.6	--	--	13	--	--
Iron, dissolved	ug/L	380	380	--	510	240	250	150
Manganese, total	ug/L	--	1300	--	1400	1200	1000	960
Lithium, dissolved	ug/L	--	31	--	37	43	41	--
Aluminum, dissolved	ug/L	<17	--	--	--	--	--	--
Potassium, dissolved	ug/L	4300	--	--	--	--	--	--
Calcium, dissolved	ug/L	180000	--	--	--	--	--	--
Magnesium, dissolved	ug/L	52000	--	--	--	--	--	--
Sodium, dissolved	ug/L	120000	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating Station

Location ID: MW-313
 Number of Sampling Dates: 7

Parameter Name	Units	1/12/2022	2/14/2022	2/15/2022	4/11/2022	8/25/2022	10/25/2022	4/5/2023
Boron	ug/L	530	--	510	570	--	540	--
Calcium	mg/L	190	--	200	200	180	170	220
Chloride	mg/L	180	--	170	170	--	170	--
Fluoride	mg/L	<0.28	--	<0.22	<0.22	--	<0.22	--
Field pH	Std. Units	7	--	7.01	6.94	7.09	6.95	6.93
Sulfate	mg/L	620	--	570	500	--	580	--
Total Dissolved Solids	mg/L	1300	--	1100	3200	--	1300	--
Antimony	ug/L	<1.1	--	<0.69	<0.69	--	<0.69	--
Arsenic	ug/L	1.2	--	1	1.2	--	1.1	--
Barium	ug/L	48	--	44	44	--	53	--
Beryllium	ug/L	<0.27	--	<0.27	<0.27	--	<0.27	--
Cadmium	ug/L	<0.051	--	<0.055	<0.055	--	<0.055	--
Chromium	ug/L	<1.1	--	<1.1	<1.1	--	<1.1	--
Cobalt	ug/L	5.9	--	5.7	5.7	3.9	3.8	5.5
Lead	ug/L	<0.21	--	<0.24	<0.24	--	<0.24	--
Lithium	ug/L	33	--	26	28	--	30	--
Mercury	ug/L	<0.15	--	<0.11	<0.11	--	<0.11	--
Molybdenum	ug/L	6.1	--	5.3	4.8	--	5.8	--
Selenium	ug/L	<0.96	--	<0.96	<0.96	--	<0.96	--
Thallium	ug/L	<0.26	--	<0.26	<0.26	--	<0.26	--
Total Radium	pCi/L	1.29	--	1.25	0.543	--	1.56	--
Radium-226	pCi/L	0.354	--	0.252	0.308	--	0.21	--
Radium-228	pCi/L	0.931	--	0.999	0.235	--	1.35	--
Field Specific Conductance	umhos/cm	1857	--	925	1788	1717	1937	1878
Field Temperature	deg C	14.6	--	13.89	13.2	13.2	14	11.5
Groundwater Elevation	feet	--	--	--	--	639.38	639.16	642.02
Oxygen, Dissolved	mg/L	0.15	--	1.22	0.09	0.16	0.22	0.09
Turbidity	NTU	0	--	0	7.44	4.86	2.75	5.09
pH at 25 Degrees C	Std. Units	7.1	--	7.1	7.2	--	7.2	--
Field Oxidation Potential	millivolts	-51	--	-29	126.5	133.3	-18.4	-14.5
Bicarbonate Alkalinity as CaCO3	mg/L	230	250	--	300	230	290	270
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	--	<4.6	<4.6	<4.6	<2.5
Total Alkalinity as CaCO3	mg/L	230	250	--	300	230	290	270
Iron, total	ug/L	--	380	--	920	1600	1100	810
Magnesium, total	ug/L	--	58000	--	68000	52000	49000	72000
Manganese, dissolved	ug/L	3600	3200	--	3200	2400	3100	--
Potassium, total	ug/L	--	5900	--	6100	4500	4300	6100
Sodium, total	ug/L	--	120000	--	140000	110000	100000	150000
Cobalt, dissolved	ug/L	5.9	5.2	--	--	4.4	--	--
Iron, dissolved	ug/L	240	290	--	630	600	950	520
Manganese, total	ug/L	--	3700	--	3800	2700	2600	3600
Lithium, dissolved	ug/L	--	26	--	26	29	32	--
Aluminum, dissolved	ug/L	<17	--	--	--	--	--	--
Potassium, dissolved	ug/L	5700	--	--	--	--	--	--
Calcium, dissolved	ug/L	190000	--	--	--	--	--	--
Magnesium, dissolved	ug/L	58000	--	--	--	--	--	--
Sodium, dissolved	ug/L	110000	--	--	--	--	--	--

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-316

Number of Sampling Dates: 1

Parameter Name	Units	4/6/2023
Calcium	mg/L	210
Field pH	Std. Units	6.7
Cobalt	ug/L	2.1
Field Specific Conductance	umhos/cm	1694
Field Temperature	deg C	10.6
Groundwater Elevation	feet	642.78
Oxygen, Dissolved	mg/L	-0.16
Turbidity	NTU	0.02
Field Oxidation Potential	millivolts	104.1
Bicarbonate Alkalinity as CaCO3	mg/L	340
Carbonate Alkalinity as CaCO3	mg/L	<2.5
Total Alkalinity as CaCO3	mg/L	340
Iron, total	ug/L	<36
Magnesium, total	ug/L	65000
Potassium, total	ug/L	1900
Sodium, total	ug/L	110000
Iron, dissolved	ug/L	<36
Manganese, total	ug/L	1200

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-316A

Number of Sampling Dates: 1


Parameter Name	Units	4/6/2023
Calcium	mg/L	74
Field pH	Std. Units	7.4
Cobalt	ug/L	0.3
Field Specific Conductance	umhos/cm	1976
Field Temperature	deg C	11.2
Groundwater Elevation	feet	643.49
Oxygen, Dissolved	mg/L	3.29
Turbidity	NTU	4.77
Field Oxidation Potential	millivolts	99.6
Bicarbonate Alkalinity as CaCO3	mg/L	430
Carbonate Alkalinity as CaCO3	mg/L	<2.5
Total Alkalinity as CaCO3	mg/L	430
Iron, total	ug/L	<36
Magnesium, total	ug/L	30000
Potassium, total	ug/L	8000
Sodium, total	ug/L	430000
Iron, dissolved	ug/L	<36
Manganese, total	ug/L	210

Single Location
Name: IPL - Ottumwa Generating
Station

Location ID: MW-317

Number of Sampling Dates: 1

Parameter Name	Units	4/6/2023
Calcium	mg/L	200
Field pH	Std. Units	6.57
Cobalt	ug/L	5.6
Field Specific Conductance	umhos/cm	1561
Field Temperature	deg C	11.5
Groundwater Elevation	feet	642.84
Oxygen, Dissolved	mg/L	0.12
Turbidity	NTU	3.89
Field Oxidation Potential	millivolts	-24
Bicarbonate Alkalinity as CaCO3	mg/L	540
Carbonate Alkalinity as CaCO3	mg/L	<2.5
Total Alkalinity as CaCO3	mg/L	540
Iron, total	ug/L	1600
Magnesium, total	ug/L	44000
Potassium, total	ug/L	3400
Sodium, total	ug/L	130000
Iron, dissolved	ug/L	1400
Manganese, total	ug/L	1800



Appendix E

Statistical Evaluation

E1 LCL Evaluation – October 2022 Event

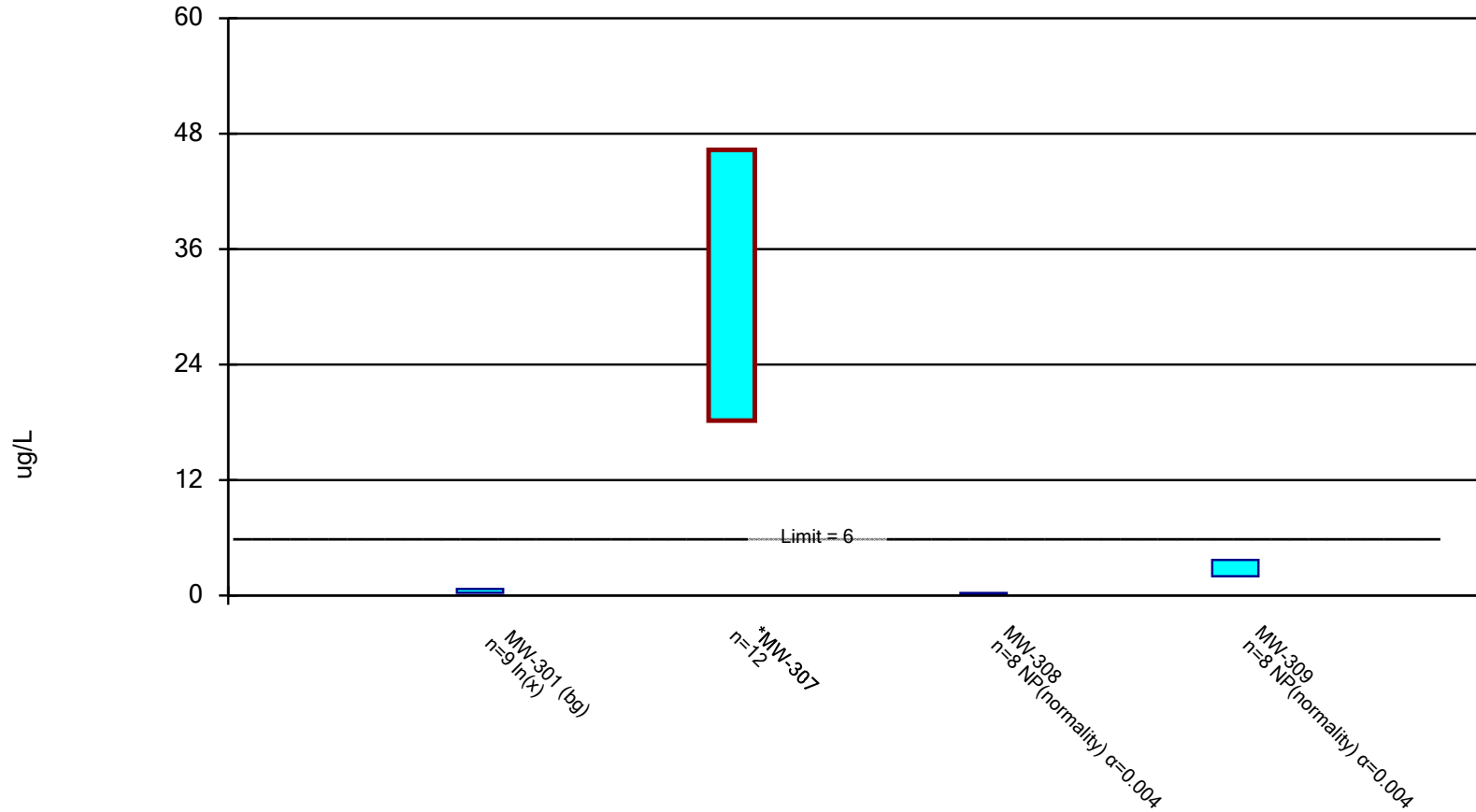
Confidence Interval

Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122 Printed 11/21/2022, 12:20 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (ug/L)	MW-301 (bg)	0.6833	0.2774	6	No	9	0	None	ln(x)	0.01	Param.
Cobalt (ug/L)	MW-307	46.33	18.17	6	Yes	12	0	None	No	0.01	Param.
Cobalt (ug/L)	MW-308	0.26	0.14	6	No	8	0	None	No	0.004	NP (normality)
Cobalt (ug/L)	MW-309	3.7	2	6	No	8	0	None	No	0.004	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 11/21/2022 12:19 PM View: OGS - ZLDP

Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 11/21/2022 12:20 PM View: OGS - ZLDP
 Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

	MW-301 (bg)	MW-307	MW-308	MW-309
10/24/2019	0.6			
12/11/2019		11	0.26 (J)	3.7
2/5/2020	1.1	13	0.14 (J)	2.3
3/12/2020	0.43 (J)			
4/14/2020	0.52	20	0.14 (J)	3.2
10/7/2020		18	0.14 (J)	2
10/8/2020	0.41 (J)			
2/23/2021		64		
4/14/2021	0.29 (J)	46	0.16 (J)	2.3
7/6/2021		60		
10/7/2021	0.48 (J)	48	0.22 (J)	2
2/14/2022		24		
4/11/2022		31		
4/12/2022	0.23 (J)		0.24 (J)	
4/14/2022				2
8/25/2022		25		
10/25/2022		27		
10/26/2022	0.29 (J)		0.24 (J)	2.2
Mean	0.4833	32.25	0.1925	2.463
Std. Dev.	0.2604	17.94	0.0523	0.6368
Upper Lim.	0.6833	46.33	0.26	3.7
Lower Lim.	0.2774	18.17	0.14	2

E2 LCL Evaluation – April 2023 Event

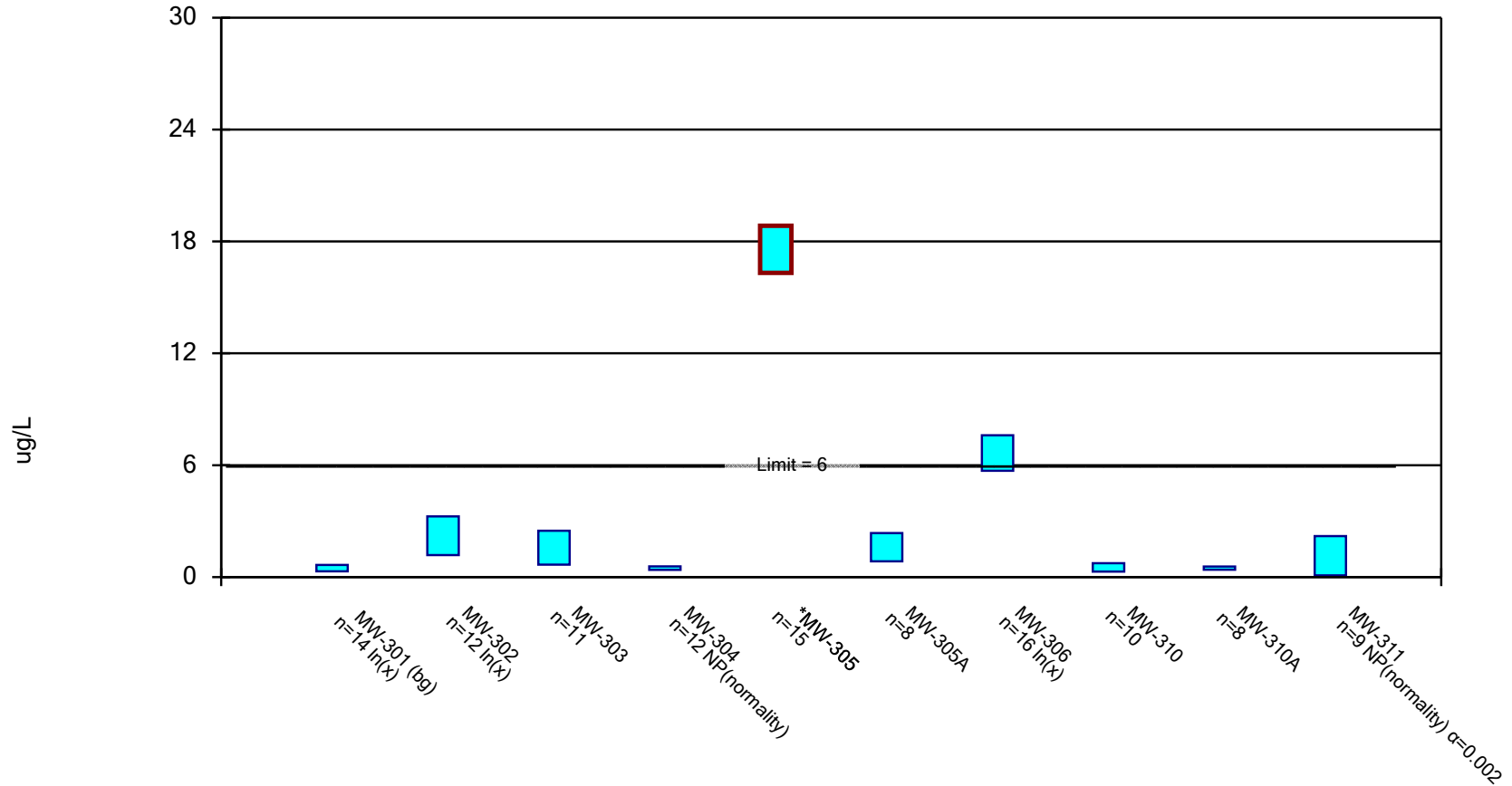
Confidence Interval

Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122 Printed 6/26/2023, 2:54 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (ug/L)	MW-301 (bg)	0.6488	0.3056	6	No	14	0	None	ln(x)	0.01	Param.
Cobalt (ug/L)	MW-302	3.257	1.18	6	No	12	0	None	ln(x)	0.01	Param.
Cobalt (ug/L)	MW-303	2.484	0.667	6	No	11	0	None	No	0.01	Param.
Cobalt (ug/L)	MW-304	0.57	0.39	6	No	12	0	None	No	0.01	NP (normality)
Cobalt (ug/L)	MW-305	18.84	16.32	6	Yes	15	0	None	No	0.01	Param.
Cobalt (ug/L)	MW-305A	2.361	0.8485	6	No	8	0	None	No	0.01	Param.
Cobalt (ug/L)	MW-306	7.608	5.703	6	No	16	0	None	ln(x)	0.01	Param.
Cobalt (ug/L)	MW-310	0.7471	0.2969	6	No	10	0	None	No	0.01	Param.
Cobalt (ug/L)	MW-310A	0.5686	0.3964	6	No	8	0	None	No	0.01	Param.
Cobalt (ug/L)	MW-311	2.2	0.091	6	No	9	55.56	None	No	0.002	NP (normality)
Cobalt (ug/L)	MW-311A	0.4799	0.0967	6	No	8	12.5	None	ln(x)	0.01	Param.
Cobalt (ug/L)	MW-312	11	4.9	6	No	6	0	None	No	0.0155	NP (normality)
Cobalt (ug/L)	MW-313	5.9	3.8	6	No	6	0	None	No	0.0155	NP (normality)
Thallium (ug/L)	MW-301 (bg)	0.27	0.099	2	No	12	91.67	None	No	0.01	NP (NDs)
Thallium (ug/L)	MW-302	0.56	0.14	2	No	12	75	None	No	0.01	NP (normality)
Thallium (ug/L)	MW-303	0.27	0.099	2	No	11	81.82	None	No	0.006	NP (NDs)
Thallium (ug/L)	MW-304	0.27	0.099	2	No	12	91.67	None	No	0.01	NP (NDs)
Thallium (ug/L)	MW-305	0.3938	0.3345	2	No	12	0	None	No	0.01	Param.
Thallium (ug/L)	MW-305A	0.26	0.26	2	No	7	100	None	No	0.008	NP (NDs)
Thallium (ug/L)	MW-306	0.27	0.12	2	No	12	83.33	None	No	0.01	NP (NDs)
Thallium (ug/L)	MW-310	0.27	0.26	2	No	8	100	None	No	0.004	NP (NDs)
Thallium (ug/L)	MW-310A	0.26	0.26	2	No	7	100	None	No	0.008	NP (NDs)
Thallium (ug/L)	MW-311	0.27	0.26	2	No	7	100	None	No	0.008	NP (NDs)
Thallium (ug/L)	MW-311A	0.26	0.26	2	No	7	100	None	No	0.008	NP (NDs)
Thallium (ug/L)	MW-312	0.26	0.26	2	No	4	100	None	No	0.0625	NP (NDs)
Thallium (ug/L)	MW-313	0.26	0.26	2	No	4	100	None	No	0.0625	NP (NDs)

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 6/26/2023 2:51 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 6/26/2023 2:54 PM View: OGS - Ash Pond
 Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

	MW-301 (bg)	MW-302	MW-303	MW-304	MW-305	MW-305A	MW-306	MW-310	MW-310A
4/18/2018	0.46 (J)	0.9 (J)	2.1	0.39 (J)	14.5		4.8		
8/14/2018	1.4	1.5	2.2						
8/15/2018				0.92 (J)	15.6		5.5		
10/16/2018	0.36 (J)	4	1.7	0.45 (J)	17.2		6.4		
1/8/2019					16.4		6.2		
4/8/2019	0.44 (J)	1.2	0.42 (J)	0.4 (J)	17		6.9		
10/23/2019				0.5	17		6.2		
10/24/2019	0.6	2.7	1.2					0.57	
2/5/2020	1.1							0.32 (J)	
3/12/2020	0.43 (J)							0.32 (J)	
3/13/2020					18	2.4			0.63
4/13/2020				0.57	16			0.24 (J)	
4/14/2020	0.52	5.3	0.87			2.7	5.5		0.39 (J)
10/8/2020	0.41 (J)	1.5	2.4	0.41 (J)					
10/9/2020					17	1.5	5.9		
10/12/2020								0.38 (J)	0.43 (J)
2/23/2021							5.6		
4/13/2021		5.5	0.43 (J)				5.6	0.75	
4/14/2021	0.29 (J)			0.43 (J)					
4/15/2021						0.5			0.48 (J)
4/16/2021					18				
7/6/2021							5.8		
10/6/2021					18			0.72	
10/7/2021	0.48 (J)	2.2	4						
10/8/2021				0.42 (J)		0.94	11		0.45 (J)
2/14/2022					20		8.8		
4/11/2022					21			0.93	
4/12/2022	0.23 (J)	1.3	1.6	0.41 (J)		1.7	9.1		0.41 (J)
10/25/2022					17		7	0.75	
10/26/2022	0.29 (J)	1.8		0.47 (J)		1.7			0.56
4/4/2023					21			0.24 (J)	
4/5/2023		0.82	0.41 (J)						0.51
4/6/2023	0.21 (J)			0.37 (J)		1.4	7.7		
Mean	0.5157	2.393	1.575	0.4783	17.58	1.605	6.75	0.522	0.4825
Std. Dev.	0.3352	1.654	1.09	0.1494	1.862	0.7137	1.647	0.2523	0.0812
Upper Lim.	0.6488	3.257	2.484	0.57	18.84	2.361	7.608	0.7471	0.5686
Lower Lim.	0.3056	1.18	0.667	0.39	16.32	0.8485	5.703	0.2969	0.3964

Confidence Interval

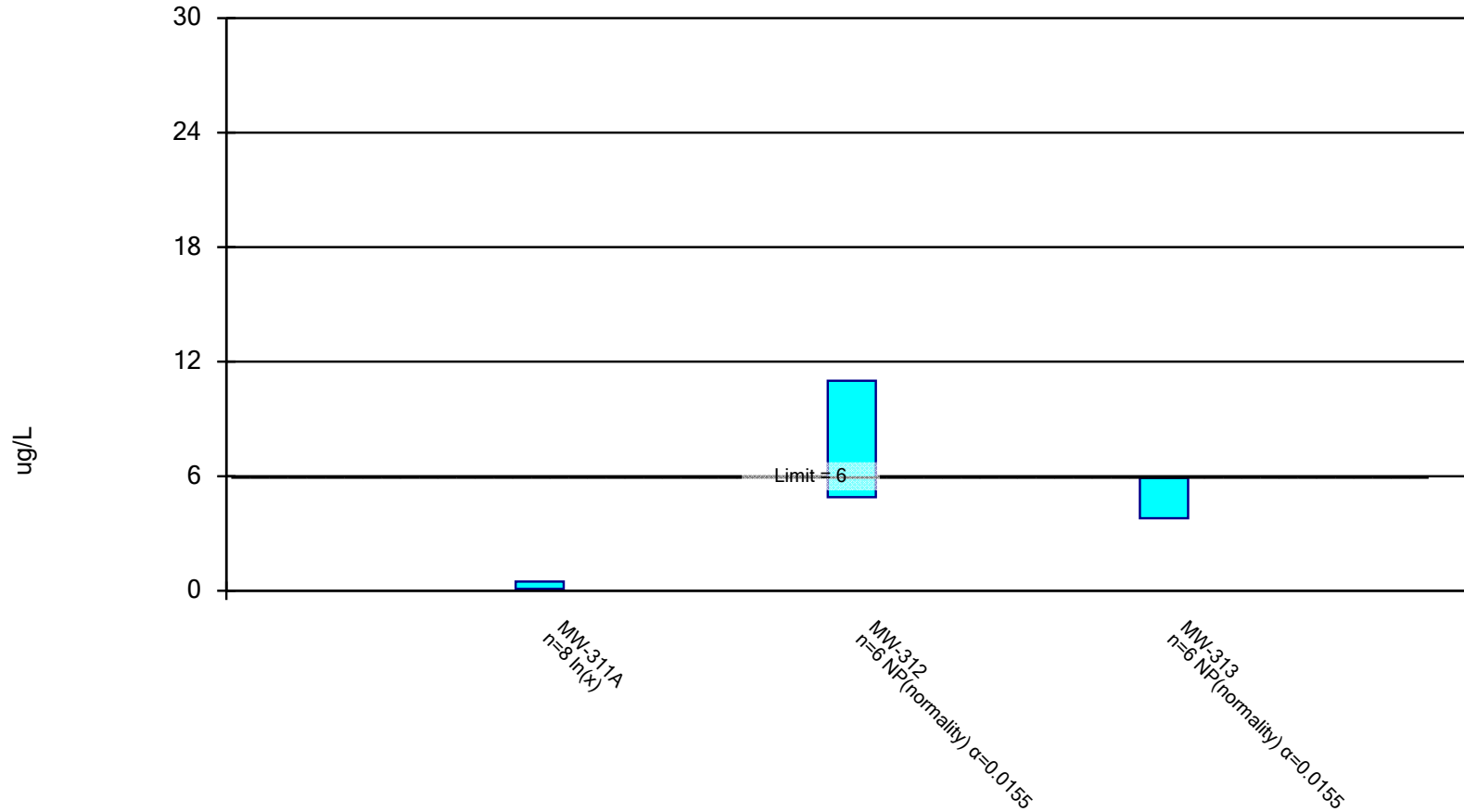
Constituent: Cobalt (ug/L) Analysis Run 6/26/2023 2:54 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

MW-311

4/18/2018	
8/14/2018	
8/15/2018	
10/16/2018	
1/8/2019	
4/8/2019	
10/23/2019	
10/24/2019	0.78
2/5/2020	0.11 (J)
3/12/2020	
3/13/2020	<0.091 (U)
4/13/2020	<0.091 (U)
4/14/2020	
10/8/2020	
10/9/2020	
10/12/2020	2.2
2/23/2021	
4/13/2021	
4/14/2021	<0.091 (U)
4/15/2021	
4/16/2021	
7/6/2021	
10/6/2021	
10/7/2021	
10/8/2021	
2/14/2022	
4/11/2022	<0.19 (U)
4/12/2022	
10/25/2022	
10/26/2022	<0.19 (U)
4/4/2023	0.38 (J)
4/5/2023	
4/6/2023	
Mean	0.4581
Std. Dev.	0.6904
Upper Lim.	2.2
Lower Lim.	0.091

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 6/26/2023 2:51 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

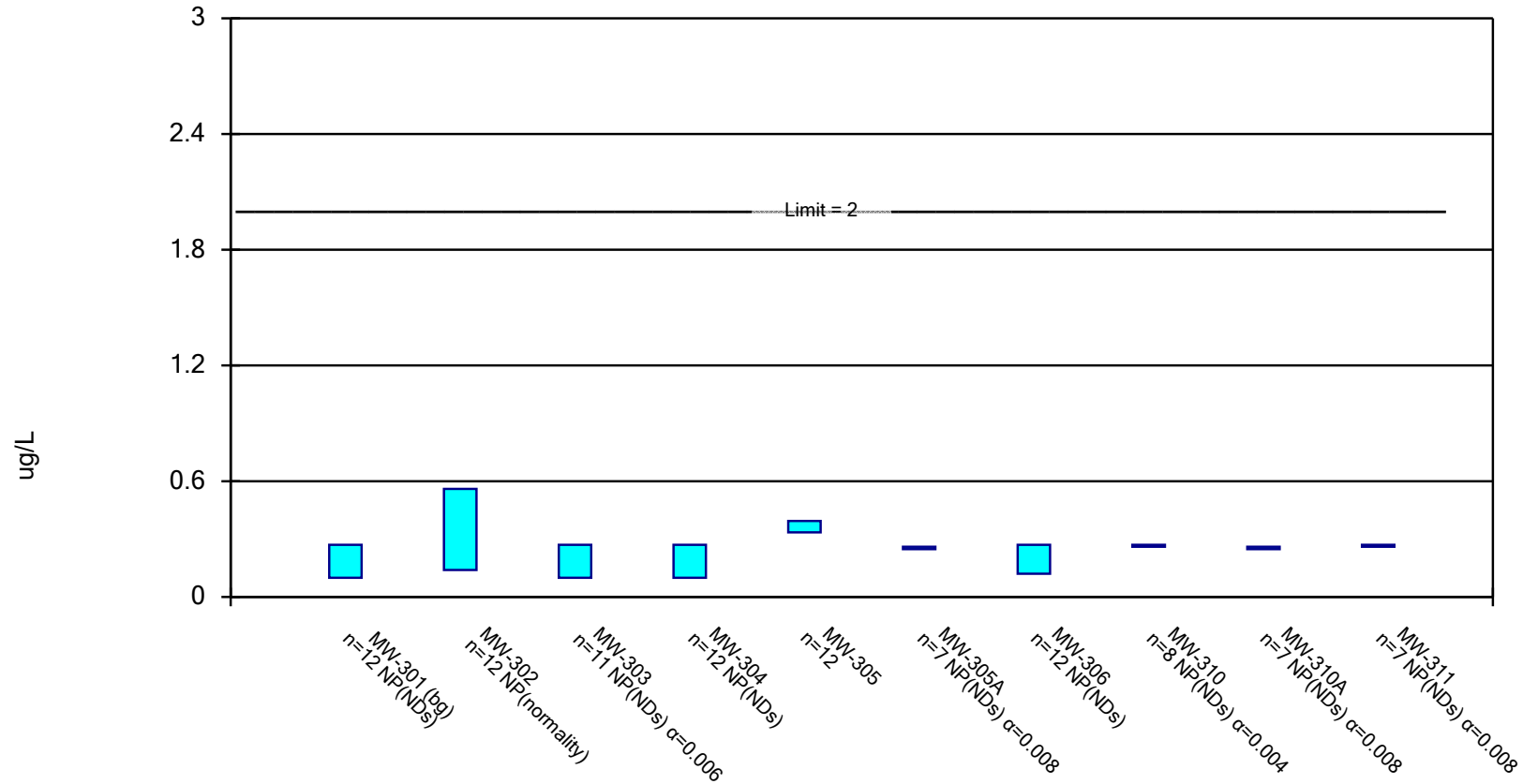
Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 6/26/2023 2:54 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

	MW-311A	MW-312	MW-313
3/13/2020	0.19 (J)		
4/13/2020	0.13 (J)		
10/8/2020	0.12 (J)		
4/16/2021	0.13 (J)		
10/8/2021	<0.19 (U)		
1/12/2022		4.9	5.9
2/14/2022		6.1	5.7
4/11/2022		9.1	5.7
4/14/2022	0.32 (J)		
8/25/2022		11	3.9
10/25/2022		11	3.8
10/26/2022	0.6		
4/5/2023		11	5.5
4/6/2023	0.66		
Mean	0.2806	8.85	5.083
Std. Dev.	0.2272	2.724	0.9642
Upper Lim.	0.4799	11	5.9
Lower Lim.	0.0967	4.9	3.8

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Thallium Analysis Run 6/26/2023 2:51 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

Confidence Interval

Constituent: Thallium (ug/L) Analysis Run 6/26/2023 2:54 PM View: OGS - Ash Pond
 Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

	MW-301 (bg)	MW-302	MW-303	MW-304	MW-305	MW-305A	MW-306	MW-310	MW-310A
4/18/2018	<0.036 (U)	<0.036 (U)	<0.036 (U)	<0.036 (U)	0.32 (J)		0.083 (J)		
8/14/2018	0.16 (J)	<0.14 (U)	<0.14 (U)						
8/15/2018				0.15 (J)	0.33 (J)		<0.14 (U)		
10/16/2018	<0.099 (U)	0.16 (J)	<0.099 (U)	<0.099 (U)	0.33 (J)		0.12 (J)		
4/8/2019	<0.27 (U)	<0.27 (U)	<0.27 (U)	<0.27 (U)	0.33 (J)		<0.27 (U)		
10/23/2019				<0.27 (U)	0.38 (J)		<0.27 (U)		
10/24/2019	<0.27 (U)	<0.27 (U)	<0.27 (U)					<0.27 (U)	
2/5/2020								<0.26 (U)	
3/13/2020						<0.26 (U)			<0.26 (U)
4/13/2020				<0.26 (U)	0.35 (J)			<0.26 (U)	
4/14/2020	<0.26 (U)	<0.26 (U)	<0.26 (U)	<0.26 (U)		<0.26 (U)	<0.26 (U)		<0.26 (U)
10/8/2020	<0.26 (U)	<0.26 (U)	<0.26 (U)	<0.26 (U)					
10/9/2020					0.35 (J)	<0.26 (U)	<0.26 (U)		
10/12/2020								<0.26 (U)	<0.26 (U)
4/13/2021		<0.26 (U)	<0.26 (U)				<0.26 (U)	<0.26 (U)	
4/14/2021	<0.26 (U)			<0.26 (U)					
4/15/2021						<0.26 (U)			<0.26 (U)
4/16/2021					0.36 (J)				
10/6/2021					0.37 (J)			<0.26 (U)	
10/7/2021	<0.26 (U)	0.56 (J)	<0.26 (U)						
10/8/2021				<0.26 (U)		<0.26 (U)	<0.26 (U)		<0.26 (U)
4/11/2022					0.42 (J)			<0.26 (U)	
4/12/2022	<0.26 (U)	<0.26 (U)	0.26 (J)	<0.26 (U)		<0.26 (U)	<0.26 (U)		<0.26 (U)
10/25/2022					0.44 (J)		<0.26 (U)	<0.26 (U)	
10/26/2022	<0.26 (U)	<0.26 (U)		<0.26 (U)		<0.26 (U)			<0.26 (U)
4/4/2023					0.39 (J)				
4/5/2023		3.2	0.42 (J)						
4/6/2023	<0.26 (U)			<0.26 (U)			<0.26 (U)		
Mean	0.2212	0.4947	0.2305	0.2204	0.3642	0.26	0.2252	0.2612	0.26
Std. Dev.	0.07879	0.8606	0.1033	0.07954	0.03777	0	0.06812	0.003536	0
Upper Lim.	0.27	0.56	0.27	0.27	0.3938	0.26	0.27	0.27	0.26
Lower Lim.	0.099	0.14	0.099	0.099	0.3345	0.26	0.12	0.26	0.26

Confidence Interval

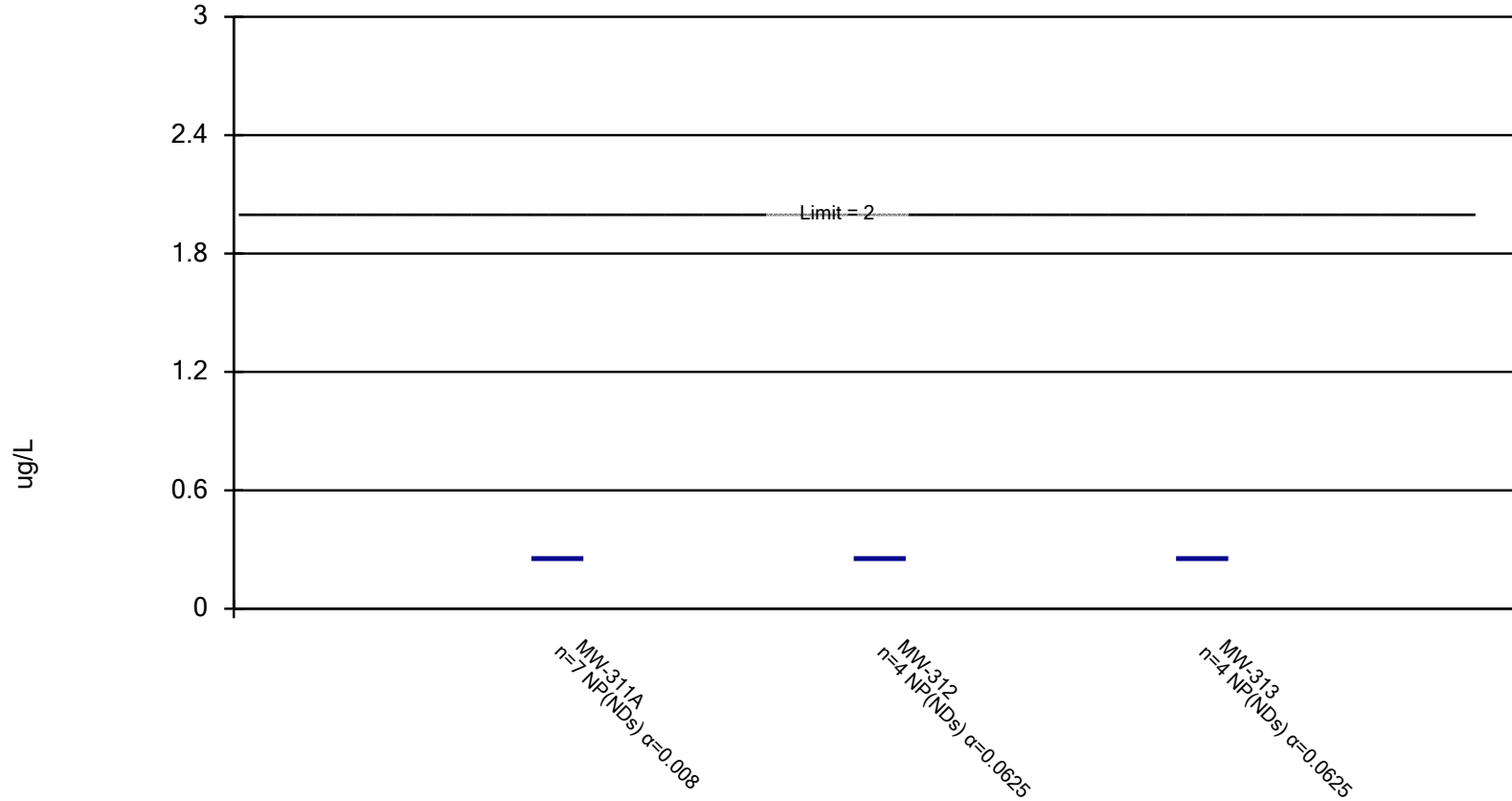
Constituent: Thallium (ug/L) Analysis Run 6/26/2023 2:54 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

MW-311

4/18/2018	
8/14/2018	
8/15/2018	
10/16/2018	
4/8/2019	
10/23/2019	
10/24/2019	<0.27 (U)
2/5/2020	<0.26 (U)
3/13/2020	
4/13/2020	<0.26 (U)
4/14/2020	
10/8/2020	
10/9/2020	
10/12/2020	<0.26 (U)
4/13/2021	
4/14/2021	<0.26 (U)
4/15/2021	
4/16/2021	
10/6/2021	
10/7/2021	
10/8/2021	
4/11/2022	<0.26 (U)
4/12/2022	
10/25/2022	
10/26/2022	<0.26 (U)
4/4/2023	
4/5/2023	
4/6/2023	
Mean	0.2614
Std. Dev.	0.00378
Upper Lim.	0.27
Lower Lim.	0.26

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Thallium Analysis Run 6/26/2023 2:51 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

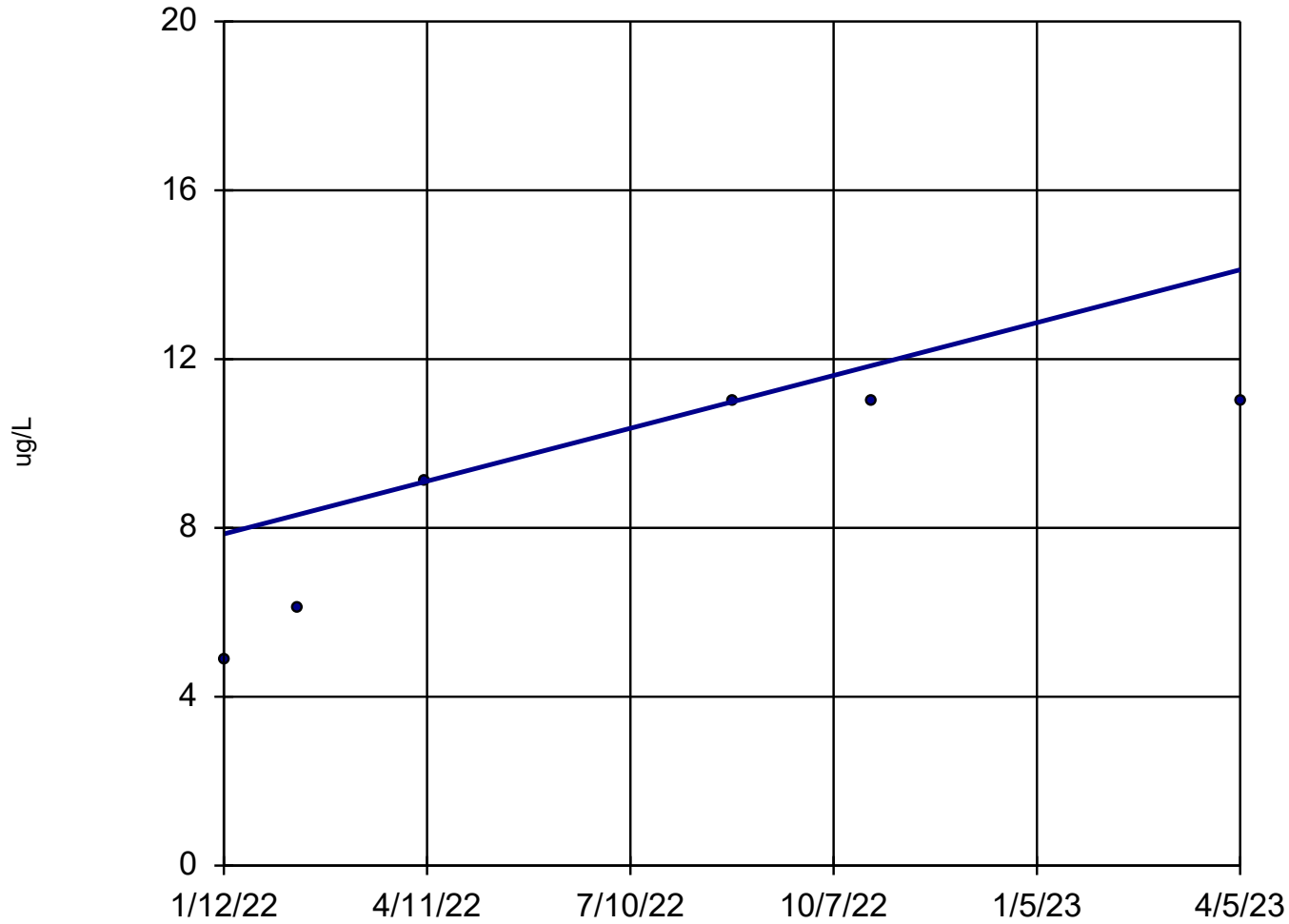
Confidence Interval

Constituent: Thallium (ug/L) Analysis Run 6/26/2023 2:54 PM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122

	MW-311A	MW-312	MW-313
3/13/2020	<0.26 (U)		
4/13/2020	<0.26 (U)		
10/8/2020	<0.26 (U)		
4/16/2021	<0.26 (U)		
10/8/2021	<0.26 (U)		
1/12/2022		<0.26 (U)	<0.26 (U)
2/14/2022		<0.26 (U)	<0.26 (U)
4/11/2022		<0.26 (U)	<0.26 (U)
4/14/2022	<0.26 (U)		
10/25/2022		<0.26 (U)	<0.26 (U)
10/26/2022	<0.26 (U)		
Mean	0.26	0.26	0.26
Std. Dev.	0	0	0
Upper Lim.	0.26	0.26	0.26
Lower Lim.	0.26	0.26	0.26

Cobalt

MW-312



n = 6
Slope = 5.099
units per year.
Mann-Kendall
statistic = 12
critical = 13
Trend not sig-
nificant at 98%
confidence level
($\alpha = 0.01$ per
tail).

Sen's Slope Estimator Analysis Run 8/7/2023 9:53 AM View: OGS - Ash Pond
Ottumwa Generating Station Client: SCS Engineers Data: OGS_CP_Export_201122