

2024 Annual Groundwater Monitoring and Corrective Action Report

Lansing Generating Station
Lansing, Iowa

Prepared for:

Alliant Energy



SCS ENGINEERS

25224070.00 | January 31, 2025

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OVERVIEW OF CURRENT STATUS

Lansing Generating Station, Landfill, and Upper Ash Pond 2024 Annual Report

In accordance with §257.90(e)(6), this section at the beginning of the annual report provides an overview of the current status of groundwater monitoring and corrective action programs for the coal combustion residual (CCR) unit. The groundwater monitoring system at the Lansing Generating Station (LAN) is a multiunit system that includes the Landfill and Upper Ash Pond. Supporting information is provided in the text of the annual report.

Category	Rule Requirement	Site Status
Monitoring Status – Start of Year	(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Assessment
Monitoring Status – End of Year	(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Assessment
Statistically Significant Increases (SSIs)	<p>(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):</p> <p style="padding-left: 20px;">(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>	<p>SSIs initially determined on January 15, 2018, based on October 2017 monitoring results. In 2024, SSIs identified for semiannual events for compliance wells at waste boundary included the following; see Table 5 for complete results.</p> <p><u>October 2023</u> Boron: MW-301, MW-302 Calcium: MW-301, MW-302 Chloride: MW-301, MW-302 Sulfate: MW-301</p> <p><u>April 2024</u> Boron: MW-301, MW-302 Calcium: MW-302 Chloride: MW-301, MW-302 Sulfate: MW-301 Total Dissolved Solids (TDS): MW-302</p>
	(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	July 16, 2018

Category	Rule Requirement	Site Status
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;	Arsenic: MW-302 Determined to be at SSL above GPS on January 15, 2019. In October 2022 and April 2023, concentrations exceeding the GPS detected in both events. Molybdenum: MW-304A Determined to be at SSL above GPS on June 7, 2021, and attributed to alternative source. No SSLs at compliance wells.
	(B) Provide the date when the Assessment of Corrective Measures (ACM) was initiated for the CCR unit;	Arsenic: April 15, 2019 Molybdenum: No ACM required.
	(C) Provide the date when the public meeting was held for the ACM for the CCR unit; and	July 17, 2023
	(D) Provide the date when the ACM was completed for the CCR unit.	September 12, 2019 – Original ACM November 25, 2020 – Addendum No. 1 to ACM June 5, 2023 – Addendum No. 2 to ACM
Selection of Remedy (SOR)	(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	Selection of Remedy dated May 6, 2024
Corrective Action	(vi) Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.	A Corrective Action Monitoring Plan was implemented August 2024

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1.0 INTRODUCTION

This 2024 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 Code of Federal Regulations (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 2024 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units. The Lansing Generating Station (LAN) site location is shown on **Figure 1**.

This report covers the period of groundwater monitoring from January 1, 2024, through December 31, 2024.

The groundwater monitoring system at the LAN is a multiunit system that includes the following two existing CCR units:

- LAN Landfill
- LAN Upper Ash Pond

The groundwater system is designed to detect monitored constituents at the waste boundary of the facility as required by 40 CFR 257.91(d). The groundwater monitoring system includes one upgradient monitoring well (MW-6) and three downgradient monitoring wells (MW-301, MW-303, and MW-302/MW-307) at the waste boundary. The network was recertified on August 2, 2024, to replace MW-302 with MW-307 as a downgradient compliance monitoring well. MW-302 will remain as part of the corrective action monitoring plan (**Figure 2** and **Table 1**). The network also includes 10 additional downgradient wells. Four of the additional 10 downgradient wells are delineation monitoring wells (MW-302/MW-307, MW-304, MW-305, and MW-306), four wells are deeper delineation piezometers (MW-302A, MW-304A, MW-306A, and MW-307A), and two wells function as groundwater elevation monitoring points only (MW-308 and MW-309).

The ongoing groundwater investigation has provided evidence that the Ash Pond and Landfill are not the source of the arsenic groundwater protection standard (GPS) exceedances in compliance monitoring well MW-302. An amendment to the Assessment of Corrective Measures (ACM) was completed in June 2023 to provide a summary of the information supporting that conclusion and a revision of the site conceptual model.

The Landfill and Upper Ash Pond were both closed in 2023. A Selection of Remedy (SOR) was prepared and finalized on May 6, 2024. A Corrective Action Monitoring Plan for assessment monitoring was prepared in August 2024. Assessment of the nature and extent of arsenic in groundwater suggests that the LAN CCR units are not the source for the arsenic GPS exceedances and “No Additional Action” was selected.

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 sections:

- Geologic and hydrogeologic setting
- CCR Rule monitoring system

2.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

2.1.1 Regional Information

The uppermost bedrock unit in the site area is the Jordan aquifer, which is the lower Cambrian-Ordovician sandstone interbedded with dolostone. The thickness of the Jordan aquifer varies from 50 to more than 120 feet thick in most areas of Allamakee County. Underlying the Cambrian-Ordovician sandstone are the Cambrian confining beds comprised of dolostone, siltstone, and shale. The Cambrian confining beds overlie the Dresbach Aquifer, comprised of shaly sandstone. A summary of the regional hydrogeologic stratigraphy is provided in **Appendix A**. A regional bedrock surface hydrogeologic map, hydrogeologic cross sections, and a contour map of the top of the Cambrian-Ordovician sandstone in northeastern Iowa are also included in **Appendix A**. The bedrock surface elevation is highly variable due to erosion.

The Mississippi River and associated alluvial aquifers are a major source of surface water and shallow groundwater in the area. The alluvial aquifer is up to 60 feet thick within the deeply incised valley where LAN is located but is thin to absent on the surrounding bluffs and hilltops. The lower Cambrian-Ordovician sandstone unit (Jordan sandstone) is the shallowest regional bedrock aquifer. The October 1989 Iowa Department of Natural Resources (IDNR) Water Atlas No. 8 states that the Jordan aquifer is commonly the source of municipal and industrial high-capacity wells in the region. A summary of the regional groundwater units is included in **Appendix A**.

A map showing the regional potentiometric surface in the Jordan sandstone is presented in **Appendix A**. This map shows the potentiometric surface near the site area as sloping to the east-northeast. The flow direction in the shallow unconsolidated aquifer at Lansing is generally to the north and northwest (**Figures 3 and 5**). The flow in the Jordan sandstone immediately beneath the landfill and ponds is also likely to the north due to the control of incoming groundwater from the bluffs flanking the valley with ultimate discharge to the Mississippi River.

2.1.2 Site Information

For the purposes of groundwater monitoring in accordance with section 257.91 of the CCR Rule, the shallow alluvial aquifer, in combination with the hydraulically connected lower Cambrian-Ordovician sandstone unit (Jordan sandstone), is considered to be the uppermost aquifer unit at the Lansing site. The upgradient background monitoring well total boring depth was 93.5 feet. The bedrock at this location is overlain by 37 feet of unconsolidated material and the water table occurs in the bedrock.

Monitoring wells MW-301 through MW-309 and piezometers MW-302A, MW-304A, MW-306A, and MW-307A are installed in the shallow alluvial aquifer and in the hydraulically connected lower Cambrian-Ordovician sandstone unit (Jordan sandstone), which together comprise the uppermost aquifer unit at the Lansing site. The unconsolidated materials at these well locations are generally sand, silt with minor clay, and gravel. The total boring depths of monitoring wells MW-301 through MW-309 are between 16 and 27 feet, and bedrock was not encountered in any of the monitoring well borings. The total depths of piezometers MW-302A, MW-304A, and MW-307A are between 50 and 56 feet. Background monitoring well MW-6 is screened within the bedrock unit because the water table occurs within the bedrock at this location. Boring logs, well construction, and development documentation for all monitoring wells are included in **Appendix B**.

To evaluate groundwater flow directions and rates, groundwater flow maps were developed for two depth intervals within the aquifer. The water table maps are based on monitoring wells installed at or

near the water table. The potentiometric surface maps are based on the deeper “A” wells. The potentiometric surface maps do not incorporate water level data from state monitoring program well located south of the “A” wells because they are screened in higher elevations.

The water table and potentiometric surface contours and groundwater flow patterns based on April 2024 water level measurements are shown on **Figures 3 and 4**. The water table and potentiometric surface contours and groundwater flow patterns for the October 2024 water level measurements are shown on **Figures 5 and 6**. The groundwater elevation data for the CCR monitoring wells are provided in **Table 3**, along with additional groundwater elevation data for the wells in the state monitoring program for the CCR landfill. Estimated horizontal gradients and flow velocities 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 three downgradient monitoring wells installed at the waste boundary (**Table 1** and **Figure 2**). The background well is MW-6. Through the April 2024 monitoring event, the three downgradient compliance wells at the waste boundary included MW-301, MW-302, and MW-303. Beginning with the October monitoring event, the three downgradient compliance wells at the waste boundary include MW-301, MW-303, and MW-307.

Monitoring well nest MW-307/MW-307A was installed in 2021 at the waste boundary, at a location between the Upper Ash Pond and downgradient compliance well MW-302. Installation of a compliance well at this location was not feasible when the monitoring system was originally installed in 2015. In August 2024, the monitoring network was recertified to add MW-307 in place of MW-302 as a downgradient compliance well. MW-302 will remain as part of the corrective action monitoring program.

Four additional water table wells and four deeper piezometers were added as delineation wells to support the evaluation of the nature and extent of groundwater impacts and characterization of the site conditions. Two additional water table wells (MW-308 and MW-309) were installed to provide information on horizontal groundwater flow, and groundwater sample collection is not currently planned at these two wells.

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 CCR management units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31, 2029, 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 units and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided on **Figure 2**.

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

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

No monitoring wells were installed or decommissioned in 2024. As noted above, the network was recertified on August 2, 2024, to replace MW-302 with MW-307 as a downgradient compliance monitoring well. MW-302 will remain as part of the corrective action monitoring plan.

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 2024. A summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection or assessment monitoring programs is included in **Table 2**.

The semiannual assessment monitoring events for the compliance monitoring network were completed in April and October 2024. For both events, MW-303 could not be sampled due to low water levels. In April 2024, a water level was recorded for MW-303, but there was insufficient water to collect a sample. In October 2024, MW-303 was dry. In April and October 2024, samples from the background well and compliance wells installed at the waste boundary (except MW-303) were analyzed for Appendix III and Appendix IV parameters. Samples from the delineation wells were analyzed for arsenic. As discussed in the SOR, the CCR Landfill and Upper Ash Pond are not believed to be the source of arsenic at MW-302. Arsenic at MW-302 is likely attributed to in-situ geochemical processes in organic-rich sediments present near the location of MW-302.

The validation and evaluation of the October 2023 monitoring event data was completed and transmitted to IPL on March 8, 2024. The validation and evaluation of the April 2024 monitoring event data was completed and transmitted to IPL on July 26, 2024. The validation and evaluation of the October 2024 monitoring event data was in progress at the end of 2024 and will be transmitted to IPL in 2025; therefore, the October 2024 monitoring results will be included in the 2025 annual report. The October 2024 groundwater elevation data is included in this report.

The October 2023 and April 2024 monitoring results are summarized in **Table 5**. Field parameter results for the October 2023 and April 2024 sampling events are provided in **Table 6**. The analytical reports for October 2023 and April 2024 are provided in **Appendix C**. Historical results for each monitoring well through April 2024 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);

Following the SOR completion in May 2024, the monitoring program transitioned into the Corrective Action Groundwater Monitoring Program, which is outlined in an updated plan dated August 2, 2024. The SOR identified “No Additional Action” beyond the consolidation and closure activities for the CCR Units at the site as the selected remedy. The Landfill was closed in 2023. Construction work to consolidate and cap the Upper Ash Pond area was completed in 2023.

The LAN monitoring program transitioned to assessment monitoring beginning in April 2018 and assessment monitoring continued through 2023. An ACM was initiated for the LAN CCR units in April 2019 and completed in September 2019. The ACM was initiated in response to the detection of arsenic at SSLs exceeding the GPS at compliance well MW-302. Addendum No. 1 to the ACM was completed in November 2020 and Addendum No. 2 to the ACM was completed in June 2023. Addendum No. 2 to the ACM showed that the “No Additional Action” alternative is viable based on the available data, which indicates the CCR Units are not the source of groundwater impacts above the GPS at LAN. Following completion of the SOR in May 2024, the corrective action groundwater monitoring program was initiated in 2024.

In 2024, the only Appendix IV parameter detected at a concentration above the GPS in a sample from a compliance well was arsenic at MW-302. As noted above, beginning with the October 2024 monitoring event, MW-307 replaced MW-302 in the compliance monitoring network, because it is closer to the waste boundary. Appendix III constituents were determined to be SSIs above the background including boron, calcium, chloride, field pH, sulfate, and total dissolved solids (TDS).

In accordance with the Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act Facilities (U.S. Environmental Protection Agency, 2009), the comparison of assessment monitoring results to the GPS was based on the lower confidence limit (LCL) for the arithmetic mean. The LCL evaluations completed in 2024 for the October 2023 and April 2024 monitoring events are included in **Appendix E**. The LCLs were calculated with Sanitas™.

Based on the LCL evaluation for the compliance wells in 2024, the only parameter at an SSL above the GPS continues to be arsenic at compliance well MW-302. As described in Addendum No. 2 to the ACM, the LAN Upper Ash Pond and Landfill are not the likely source of the SSLs above the GPS for arsenic at monitoring well MW-302. The May 2024 SOR identified “No Additional Action” as the proposed remedy because the Upper Ash Pond and Landfill are not considered as sources of the arsenic GPS exceedances at MW-302.

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 2024 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units.

3.5.1 § 257.90(e) General Requirements

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

Status of Groundwater Monitoring and Corrective Action Program. The groundwater monitoring and corrective action program was the SOR process at the beginning of 2024, with assessment monitoring continuing. The SOR was completed in May 2024 and the Corrective Action Monitoring Program was established on August 2, 2024. The monitoring program meets the requirements of an assessment monitoring program under § 257.95.

Summary of Key Actions Completed.

- Completed two semiannual assessment monitoring events (April and October 2024).
- Completed statistical evaluation for the October 2023 assessment monitoring event and prepared groundwater monitoring results letter (March 2024).
- Prepared a semiannual progress report for the SOR process (March 2024).
- Completed statistical evaluation for the April 2024 assessment monitoring event and prepared a groundwater monitoring results letter (July 2024).
- Finalized the Selection of Remedy (May 2024). “No Additional Action” was selected as the remedy.
- Updated the network certification supporting replacement of MW-302 as a downgradient compliance well with MW-307. Updated the status of MW-302 to a delineation well (August 2, 2024).
- Established and implemented a Corrective Action Groundwater Monitoring Program (August 2, 2024).

Closure Activities

- Construction work to consolidate and close the Landfill and Upper Ash Pond was completed in 2023 and no additional closure activities were conducted in 2024.

Description of Any Problems Encountered. Compliance monitoring well MW-303 was not sampled during the April and October 2024 sampling events due to insufficient water for sample collection.

Discussion of Actions to Resolve the Problems. Samples could not be collected from MW-303 in 2024 due to low water levels. Due to the closure of the Upper Ash Pond in 2023, groundwater levels in MW-303 have not returned to historical levels and sample collection may not be feasible in future sampling events following closure. Evaluation of the possible installation of a deeper monitoring well to replace MW-303 is ongoing.

Projection of Key Activities for the Upcoming Year (2025).

- Complete two semiannual assessment monitoring events (April and October 2025).
- Complete statistical evaluation and determination of any SSLs exceeding the GPS and prepare groundwater monitoring results letter for the October 2024 monitoring event (March 2025).
- Complete statistical evaluation and determination of any SSLs exceeding the GPS and prepare a groundwater monitoring results letter for the April 2025 monitoring event.
- Continue evaluation of post-closure groundwater levels including recovery of water levels in MW-303.

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. The LAN CCR units are no longer in the 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. The LAN CCR units are 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 2024 assessment monitoring results, background UPLs, and GPSs established for LAN are provided in **Table 5**. The laboratory reports are provided in **Appendix C**. Historical monitoring results are summarized in **Appendix D**.

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

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

Not applicable. No alternative source demonstrations were completed in 2024.

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

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

Not applicable. The ACM was initiated on April 15, 2019. The July 10, 2019 certification, demonstrated the need for a 90-day deadline extension, which was provided in the 2019 Annual Groundwater Monitoring and Corrective Action Report. The ACM was completed on September 19, 2019. Addendum No. 1 to the ACM was completed on November 25, 2020. Addendum No. 2 to the ACM was completed on June 5, 2023. The SOR was finalized on May 7, 2024, and “No Additional Action” was selected.

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 REFERENCE

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 Water Level Summary
- 4A Horizontal Gradients and Flow Velocity
- 4B Vertical Gradients
- 5 Groundwater Analytical Results Summary
- 6 Groundwater Field Data Summary

**Table 1. Groundwater Monitoring Well Network
Lansing Generating Station / SCS Engineers Project #25224070.00**

Monitoring Well	Location in Monitoring Network	Role in Monitoring Network
MW-6	Upgradient	Background
MW-301	Downgradient	Compliance
MW-302*	Downgradient	Compliance (April 2024)
		Delineation (October 2024)
MW-302A	Downgradient, deeper	Delineation
MW-303	Downgradient	Compliance
MW-304	Downgradient	Delineation
MW-304A	Downgradient, deeper	Delineation
MW-305	Downgradient	Delineation
MW-306	Downgradient	Delineation
MW-306A	Downgradient, deeper	Delineation
MW-307*	Downgradient	Delineation (April 2024)
		Compliance (October 2024)
MW-307A	Downgradient, deeper	Delineation
MW-308	Downgradient	Groundwater Elevation Only
MW-309	Downgradient	Groundwater Elevation Only

* In August 2024, MW-302 was removed from the compliance well monitoring network and replaced with MW-307.

Created by: <u>RM</u>	Date: <u>12/14/2020</u>
Last revision by: <u>NLB</u>	Date: <u>11/18/2024</u>
Checked by: <u>RM</u>	Date: <u>1/13/2025</u>

**Table 2. CCR Rule Groundwater Samples Summary
Lansing Generating Station / SCS Engineers Project #25223070.00**

Sample Dates	Background Well	Compliance Wells		Delineation Well	Compliance Well	Delineation Wells						Groundwater Elevation Only		
	MW-6	MW-301	MW-302 ⁽³⁾	MW-302A	MW-303 ⁽²⁾	MW-304	MW-304A	MW-305	MW-306	MW-306A	MW-307 ⁽³⁾	MW-307A	MW-308 ⁽¹⁾	MW-309 ⁽¹⁾
April 1-2, 2024	A	A	A	A-NE	--	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	--	--
October 21-22, 2024	A	A	A-NE	A-NE	--	A-NE	A-NE	A-NE	A-NE	A-NE	A	A-NE	--	--
Total Samples	2	2	2	2	0	2	2	2	2	2	2	2	0	0

Abbreviations:

A = Assessment Monitoring Sample

A-NE = Assessment monitoring for nature and extent, wells sampled for arsenic.

-- = Not Sampled

Notes:

1. No sampling events are currently planned for MW-308 or MW-309. These wells are intended for groundwater elevation measurements only.
2. MW-303 had insufficient water for sample collection during the April and October 2024 events.
3. In August 2024, MW-302 was removed from the compliance well monitoring network and replaced with MW-307.

Last revision by: NLB Date: 12/31/2024
Checked by: RM Date: 12/31/2024

**Table 4A. Horizontal Gradients and Flow Velocity
Lansing Generating Station / SCS Engineers Project #25224070.00**

Flow Path A - Shallow Water Table - Northwest					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
April 2, 2024	629.85	626.49	272	0.012	0.94
October 21-22, 2024	630.00	625.00	292	0.017	1.30

Flow Path B - Deep Potentiometric Surface - Northwest					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
April 2, 2024	623.25	621.00	346	0.007	0.49
October 21-22, 2024	623.22	621.00	346	0.006	0.49

Well	K Values (cm/sec)	K Values (ft/d)
MW-6	N/A	N/A
MW-301	1.75E-03	5.0
MW-302	3.50E-03	9.9
MW-302A	2.03E-02	57
MW-303	2.19E-02	62
MW-304	1.68E-02	48
MW-304A	2.55E-03	7.2
MW-305	3.38E-03	9.6
MW-306	4.46E-02	126
MW-306A	3.04E-02	86
MW-307	4.03E-02	114
MW-307A	9.66E-03	27
Geometric Mean	1.1E-02	30

Assumed Porosity, n
0.40

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

ft = feet
 ft/d = feet per day
 K = hydraulic conductivity
 n = effective porosity
 V = groundwater flow velocity

h1, h2 = point interpreted groundwater elevation at locations 1 and 2
 Δl = distance between location 1 and 2
 Δh/Δl = hydraulic gradient

Note:

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

Last revision by: LH Date: 1/22/2025
 Checked by: NLB Date: 1/22/2025

Table 4B. Vertical Gradients
Lansing Generating Station / SCS Engineers Project #25224070.00
January - December 2024

Vertical Hydraulic Gradients	MW302/MW302A		MW304/MW304A		MW306/MW306A		MW307/MW307A	
	Shallow Well Screen midpoint⁽²⁾ (feet amsl)	MW302 621.90		MW304 625.43		MW306 616.48		MW307 628.06
Deep Well Screen midpoint (feet amsl)	MW302A 592.43		MW304A 591.10		MW306A 587.06		MW307A 595.46	
Measurement Date	Distance between midpoints ⁽²⁾ (ft)	Vertical Gradient (ft/ft)	Distance between midpoints ⁽²⁾ (ft)	Vertical Gradient (ft/ft)	Distance between midpoints ^(2,3) (ft)	Vertical Gradient (ft/ft)	Distance between midpoints ⁽²⁾ (ft)	Vertical Gradient (ft/ft)
April 1-2, 2024	29.5	-0.104	29.6	0.074	28.8	0.013	32.6	-0.123
October 21-22, 2024	29.5	-0.118	29.6	0.077	28.6	0.009	32.6	-0.158

Notes:

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

NI: Not Installed

NM: Not Measured

Last revision by: NLB Date: 11/18/2024
Checked by: RM Date: 12/31/2024

**Table 5. Groundwater Analytical Results Summary - October 2023 and April 2024
Lansing Generating Station / SCS Engineers Project #25224070.00**

Parameter Name	UPL Method	UPL	GPS	Background Well		Compliance Wells				Delineation Well		Compliance Well	
				MW-6		MW-301		MW-302		MW-302A		MW-303	
				10/30/2023	4/1/2024	10/31/2023	4/1/2024	10/30/2023	4/2/2024	10/31/2023	4/2/2024	10/30/2023	4/1/2024
Groundwater Elevation, ft amsl				663.59	663.16	622.20	622.11	627.05	625.60	622.91	622.53	Dry	Dry
Appendix III													
Boron, ug/L	NP	110		<76	<76	650	480	590	430	--	--	--	--
Calcium, mg/L	P	73.7		73	68	83	69	130	130	--	--	--	--
Chloride, mg/L	P	8.13		5.5	5.6	29	20	16	10	--	--	--	--
Fluoride, mg/L	P	0.304		<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	--	--	--
Field pH, Std. Units	P	7.98		7.38	7.12	7.71	7.84	7.21	7.06	7.34	7.37	--	--
Sulfate, mg/L	P	28		22	21	58	56	<2.1	<2.1	--	--	--	--
Total Dissolved Solids, mg/L	NP	580		280	300	340	360	520	580	--	--	--	--
Appendix IV													
		UTL	GPS										
Antimony, ug/L	NP	1.1	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--	--
Arsenic, ug/L	NP	4.5	10	<0.53	<0.53	2.9	1.3 J	64	45	<0.53	<0.53	--	--
Barium, ug/L	P	50.2	2,000	46	44	160	120	830	700	--	--	--	--
Beryllium, ug/L	DQ	DQ	4	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	--	--	--	--
Cadmium, ug/L	DQ	DQ	5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	--	--	--
Chromium, ug/L	NP	1.10	100	<1.1	<1.1	<1.1	<1.1	10 B	<1.1	--	--	--	--
Cobalt, ug/L	NP	0.5	6	<0.17	<0.17	<0.17	<0.17	1.3 B	1.4	--	--	--	--
Fluoride, mg/L	NP	0.63	4	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	--	--	--
Lead, ug/L	NP	1.9	15	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--
Lithium, ug/L	NP	4.9	40	<2.5	<2.5	8.1 J	6.9 J	<2.5	<2.5	--	--	--	--
Mercury, ug/L	DQ	DQ	2	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	--	--	--	--
Molybdenum, ug/L	NP	1.5	100	<0.91	<0.91	11	5.8	1.4 J	<0.91	--	--	--	--
Selenium, ug/L	NP	5.8	50	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	--	--	--	--
Thallium, ug/L	NP	0.5	2	<0.26	<0.26	<0.26	<0.26	0.34 J	<0.26	--	--	--	--
Radium 226/228 Combined, pCi/L	P	1.29	5	0.234	0.457	0.324	0.168	2.68	2.04	--	--	--	--
Additional Parameters - Selection of Remedy													
Arsenic, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--
Iron, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--
Iron, ug/L				<36	<36	250	160	45,000	45,000	<36	<36	--	--
Magnesium, ug/L				--	--	--	--	--	--	--	--	--	--
Manganese, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--
Manganese, ug/L				--	--	--	--	--	--	--	--	--	--
Molybdenum, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--
Potassium, ug/L				--	--	--	--	--	--	--	--	--	--
Sodium, ug/L				--	--	--	--	--	--	--	--	--	--
Total Alkalinity, mg/L				--	--	--	--	--	--	--	--	--	--
Carbonate Alkalinity, mg/L				--	--	--	--	--	--	--	--	--	--
Bicarbonate Alkalinity, mg/L				--	--	--	--	--	--	--	--	--	--

See Page 3 for abbreviations and notes.

**Table 5. Groundwater Analytical Results Summary - October 2023 and April 2024
Lansing Generating Station / SCS Engineers Project #25224070.00**

Parameter Name	UPL Method	UPL	GPS	Delineation Wells													
				MW-304		MW-304A		MW-305		MW-306		MW-306A		MW-307		MW-307A	
				10/30/2023	4/1/2024	10/30/2023	4/1/2024	10/31/2023	4/2/2024	10/30/2023	4/2/2024	10/30/2023	4/2/2024	10/30/2023	4/1/2024	10/30/2023	4/1/2024
Groundwater Elevation, ft amsl				621.21	621.05	623.57	623.25	626.89	626.49	620.41	620.18	621.02	620.56	628.65	628.61	625.01	624.61
Appendix III																	
Boron, ug/L	NP	110		--	--	--	--	--	--	--	--	--	--	920	770	--	--
Calcium, mg/L	P	73.7		--	--	--	--	--	--	--	--	--	--	56	44	--	--
Chloride, mg/L	P	8.13		--	--	--	--	--	--	--	--	--	--	20	16	--	--
Fluoride, mg/L	P	0.304		--	--	--	--	--	--	--	--	--	--	<0.38	<0.38	--	--
Field pH, Std. Units	P	7.98		7.17	7.28	7.93	8.02	7.17	7.23	7.05	6.97	7.43	7.36	8.32	8.62	7.71	7.56
Sulfate, mg/L	P	28		--	--	--	--	--	--	--	--	--	--	36	61	--	--
Total Dissolved Solids, mg/L	NP	580		--	--	--	--	--	--	--	--	--	--	250	230	--	--
Appendix IV																	
		UTL	GPS														
Antimony, ug/L	NP	1.1	6	--	--	--	--	--	--	--	--	--	--	<1.0	<1.0		
Arsenic, ug/L	NP	4.5	10	<0.53	<0.53	0.76 J	0.69 J	1.8 J	0.66 J	9.5	8.1	<0.53	<0.53	2.3	1.9 J	1.0 J	1.1 J
Barium, ug/L	P	50.2	2,000	--	--	--	--	--	--	--	--	--	--	340	240	--	--
Beryllium, ug/L	DQ	DQ	4	--	--	--	--	--	--	--	--	--	--	<0.33	<0.33	--	--
Cadmium, ug/L	DQ	DQ	5	--	--	--	--	--	--	--	--	--	--	<0.10	<0.10	--	--
Chromium, ug/L	NP	1.10	100	--	--	--	--	--	--	--	--	--	--	<1.1	<1.1	--	--
Cobalt, ug/L	NP	0.5	6	--	--	--	--	--	--	--	--	--	--	<0.17	<0.17	--	--
Fluoride, mg/L	NP	0.63	4	--	--	--	--	--	--	--	--	--	--	<0.38	<0.38	--	--
Lead, ug/L	NP	1.9	15	--	--	--	--	--	--	--	--	--	--	<0.24	<0.24	--	--
Lithium, ug/L	NP	4.9	40	--	--	--	--	--	--	--	--	--	--	16	12	--	--
Mercury, ug/L	DQ	DQ	2	--	--	--	--	--	--	--	--	--	--	<0.14	<0.14	--	--
Molybdenum, ug/L	NP	1.5	100	--	--	--	--	--	--	--	--	--	--	5.5	7.7	--	--
Selenium, ug/L	NP	5.8	50	--	--	--	--	--	--	--	--	--	--	<1.4	1.8 J	--	--
Thallium, ug/L	NP	0.5	2	--	--	--	--	--	--	--	--	--	--	<0.26	<0.26	--	--
Radium 226/228 Combined, pCi/L	P	1.29	5	--	--	--	--	--	--	--	--	--	--	1.95	0.465	--	--
Additional Parameters - Selection of Remedy																	
Arsenic, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron, ug/L				290	<36	160	380	6,700	5,500	53,000	50,000	1,700	1,700	56 J	48 J	200	180
Magnesium, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum, dissolved, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium, ug/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Alkalinity, mg/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate Alkalinity, mg/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bicarbonate Alkalinity, mg/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--

See Page 3 for abbreviations and notes.

**Table 5. Groundwater Analytical Results Summary
Lansing Generating Station / SCS Engineers Project #25224070.00**

4.4	Blue highlighted cell indicates the compliance well result exceeds the UPL or UTL (background) and the LOQ.
30.8	Yellow highlighted cell indicates the compliance well result exceeds the GPS.
17.0	Grayscale indicates additional parameters sampled for selection of remedy and evaluation of MNA.

Abbreviations:

UPL = Upper Prediction Limit

UTL = Upper Tolerance Limit

-- = Not Analyzed

µg/L = micrograms per liter

mg/L = milligrams per liter

J = Estimated concentration at or above the LOD and below the LOQ.

B = Compound was found in blank and Sample

Dry = insufficient water available for sample collection or groundwater elevation measurement

Notes:

1. An individual result above the UPL or GPS does not constitute a statistically significant increase (SSI) above background or statistically significant increase above the GPS. See the accompanying letter text for identification of statistically significant results.
2. GPS is the United States Environmental Protection Agency (US EPA) Maximum Contamination Level (MCL), if established; otherwise, the value from 40 CFR 257.95(h)(2) is used.
3. Interwell UPLs calculated based on results from background well MW-6.
4. Interwell App III UPLs updated and App IV UTLs calculated in January 2023 based on background results through October 2022.

Created by: RM
 Last revision by: JM
 Checked by: RM
 Sci QA/QC: TK

Date: 7/27/2024
 Date: 9/20/2024
 Date: 12/31/2024
 Date: 1/19/2025

**Table 6. Groundwater Field Data Summary
Lansing Generating Station / SCS Engineers Project #25224070.00**

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	10/31/2023	622.20	12.4	7.71	0.62	639	-96	0.49
	4/1/2024	622.11	9.2	7.84	0.54	587	12	0.00
MW-302	10/30/2023	627.05	13.4	7.21	0.26	1185	-177	0.82
	4/2/2024	625.60	7.4	7.06	0.14	1175	-176	0.00
MW-302A	10/31/2023	622.91	11.4	7.34	5.16	616	36	0.00
	4/2/2024	622.53	10.6	7.37	5.67	607	23	0.00
MW-303	10/30/2023	NA	NA	NA	NA	NA	NA	NA
	4/1/2024	NA	NA	NA	NA	NA	NA	NA
MW-304	10/30/2023	621.21	12.0	7.17	7.54	576	-30	0.00
	4/1/2024	621.05	9.4	7.28	7.97	544	161	0.00
MW-304A	10/30/2023	623.57	10.9	7.93	0.18	473	-121	23.95
	4/1/2024	623.25	10.2	8.02	0.47	500	123	59.83
MW-305	10/31/2023	626.89	15.1	7.17	0.71	745	-153	4.18
	4/2/2024	626.49	6.8	7.23	1.18	657	-126	0.00
MW-306	10/30/2023	620.41	16.3	7.05	0.20	2071	-159	33.15
	4/2/2024	620.18	11.9	6.97	0.13	2002	-168	1.51
MW-306A	10/30/2023	621.02	14.2	7.43	1.25	650	-84	0.00
	4/2/2024	620.56	12.3	7.36	1.31	619	-92	0.00
MW-307	10/30/2023	628.65	13.5	8.32	0.19	490	-102	0.00
	4/1/2024	628.61	8.8	8.62	0.48	421	-174	0.00
MW-307A	10/30/2023	625.01	11.9	7.71	0.49	610	-52	0.00
	4/1/2024	624.61	10.6	7.56	0.19	588	-74	0.00
MW-6	10/30/2023	663.59	9.7	7.38	7.94	566	-12	0.00
	4/1/2024	663.16	9.6	7.12	6.61	528	77	0.00

Notes:

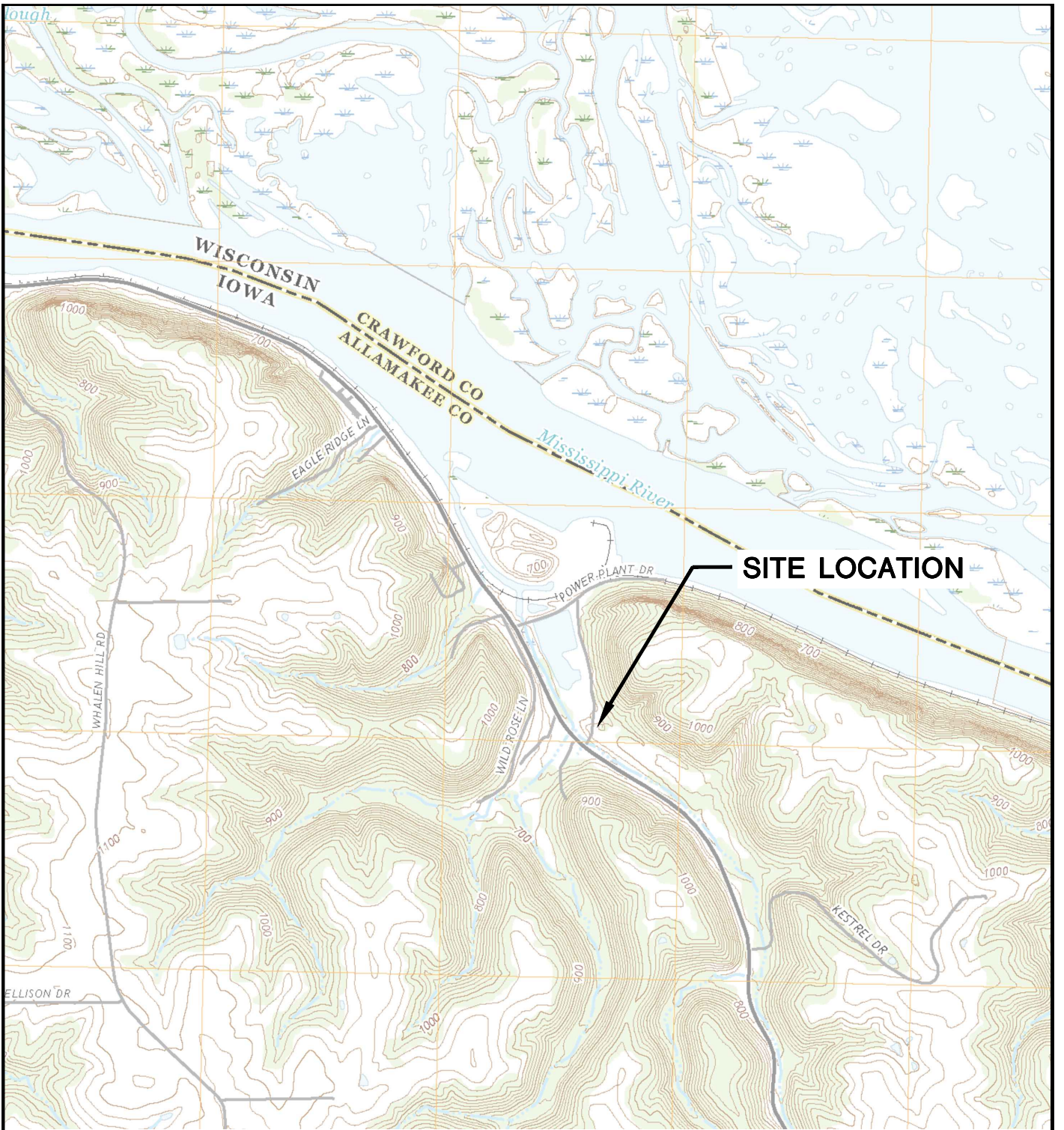
- MW-303 had insufficient water for sample collection during the October 2023 and April 2024 sampling events.

Created by: RM
 Last revision by: JM
 Checked by: RM

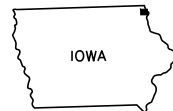
Date: 7/26/2023
 Date: 9/20/2024
 Date: 12/31/2024

Figures

- 1 Site Location Map
- 2 Site Plan and Monitoring Well Locations
- 3 Water Table Map, April 2, 2024
- 4 Potentiometric Surface Map, April 2, 2024
- 5 Water Table Map, October 21-22, 2024
- 6 Potentiometric Surface Map, October 21-22, 2024

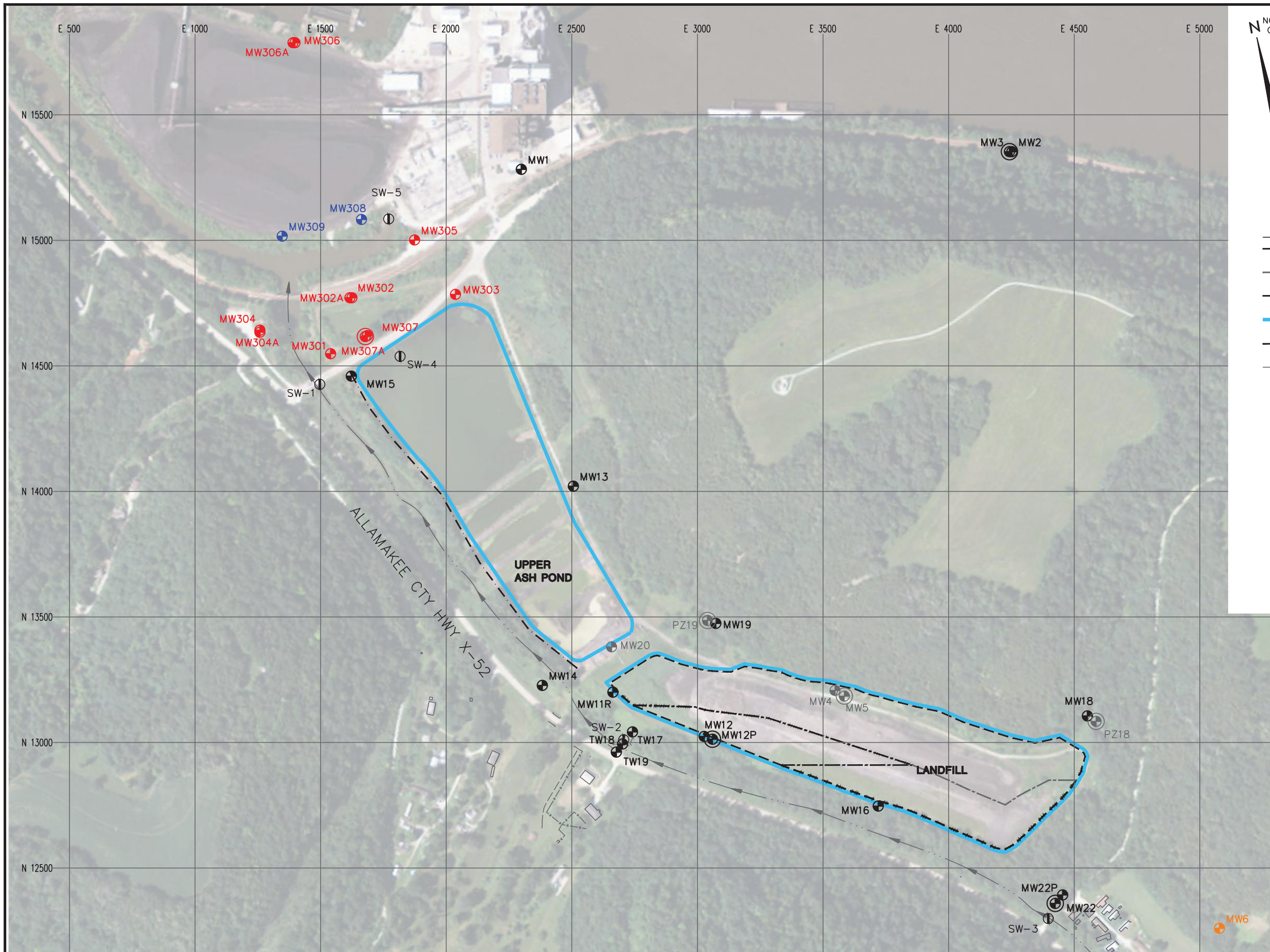


LANSING QUADRANGLE
 IOWA-ALLAMAKEE CO.
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'



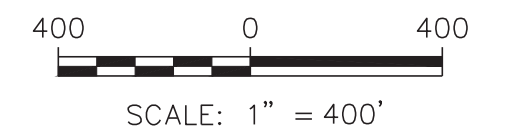
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	PROJECT NO.	25219070.00		DRAWN BY:	BSS		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
DRAWN:	11/27/2019	CHECKED BY:	MDB	APPROVED BY:	TK 01/30/2020			
REVISED:	11/27/2019							

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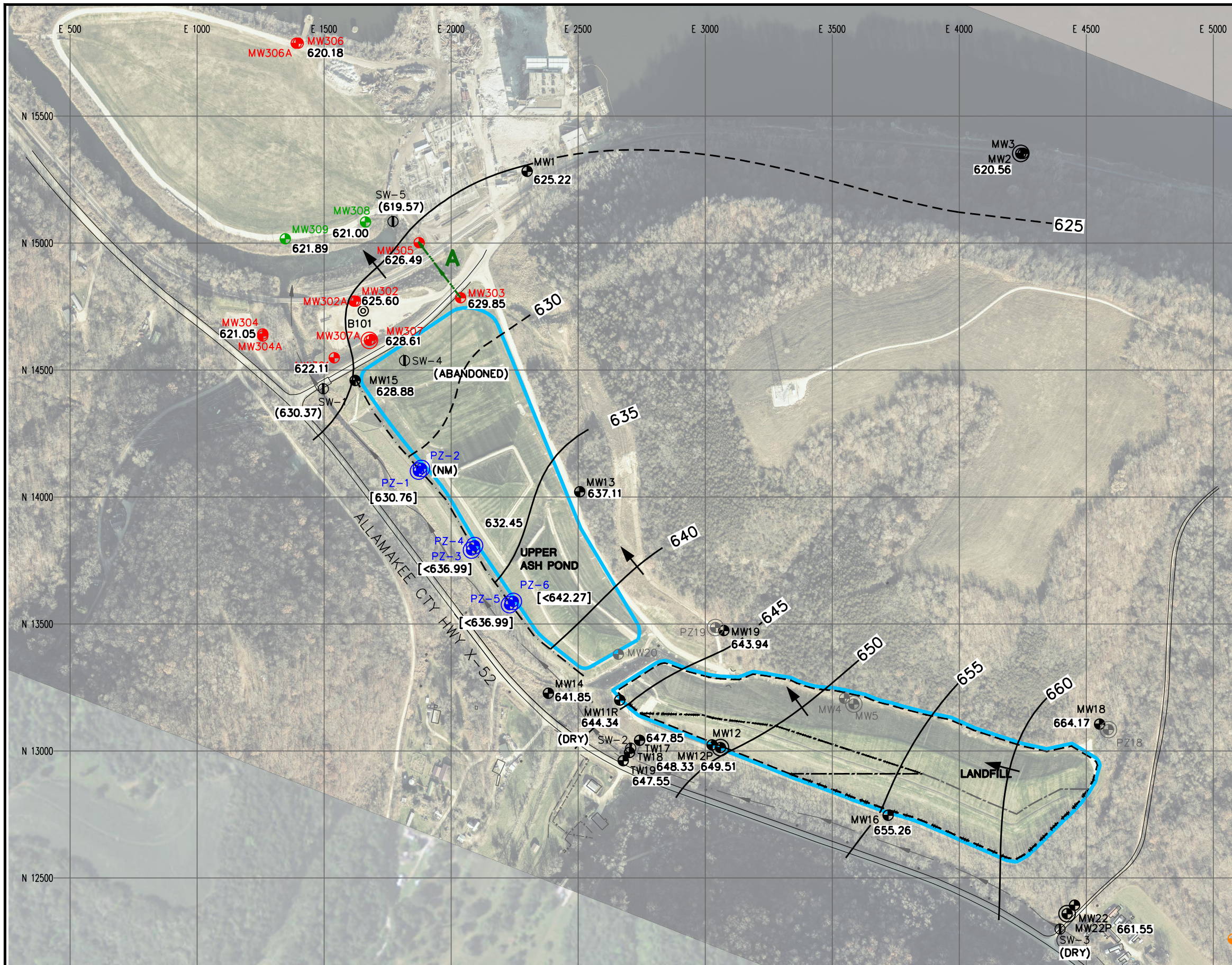
LEGEND	
	APPROVED LIMITS OF WASTE
	LIMITS OF PHASE 1 FINAL COVER
	LIMITS OF PHASE 2 FINAL COVER
	CCR LIMITS
	SLURRY WALL
	EXISTING STREAM
	SW-1 EXISTING STAFF GAUGE
	MW17 EXISTING MONITORING WELL
	MW12P EXISTING PIEZOMETER
	MW4 ABANDONED MONITORING WELL
	MW5 ABANDONED PIEZOMETER
	MW301 CCR MONITORING WELL
	MW6 CCR BACKGROUND MONITORING WELL
	MW308 WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)

- NOTES:
1. MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.
 2. MONITORING WELL MW20 WAS ABANDONED ON MAY 5, 2022..



PROJECT NO. 25222070.00	DRAWN BY: KP	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT	INTERSTATE POWER AND LIGHT 2320 POWER PLANT DRIVE LANSING, IA 52151-9733	SITE	ALLIANT ENERGY LANSING POWER STATION LANSING, IOWA	SITE PLAN AND MONITORING WELL LOCATIONS	FIGURE
DRAWN: 05/26/2021	CHECKED BY: JR								2
REVISED: 01/27/2023	APPROVED BY: TK 01/30/2023								

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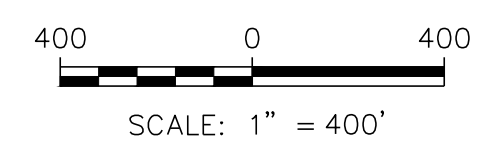


LEGEND

- LIMITS OF PHASE 1 FINAL COVER
- LIMITS OF PHASE 2 FINAL COVER
- SLURRY WALL
- EXISTING STREAM
- SW-1 EXISTING STAFF GAUGE
- B101 EXISTING BORING
- MW17 EXISTING MONITORING WELL
- MW4 ABANDONED MONITORING WELL
- MW5 ABANDONED PIEZOMETER
- MW301 CCR MONITORING WELL
- MW6 CCR BACKGROUND MONITORING WELL
- MW308 WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
- PZ-4 PIEZOMETER
- CCR UNITS
- (NM)** NOT MEASURED
- 666.58** WATER TABLE ELEVATION
- [630.76]** GROUNDWATER ELEVATION NOT USED FOR CONTOUR DEVELOPMENT
- (630.61)** SURFACE WATER ELEVATION
- WATER TABLE CONTOUR (CONTOUR INTERVAL = 5 FT) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4A)

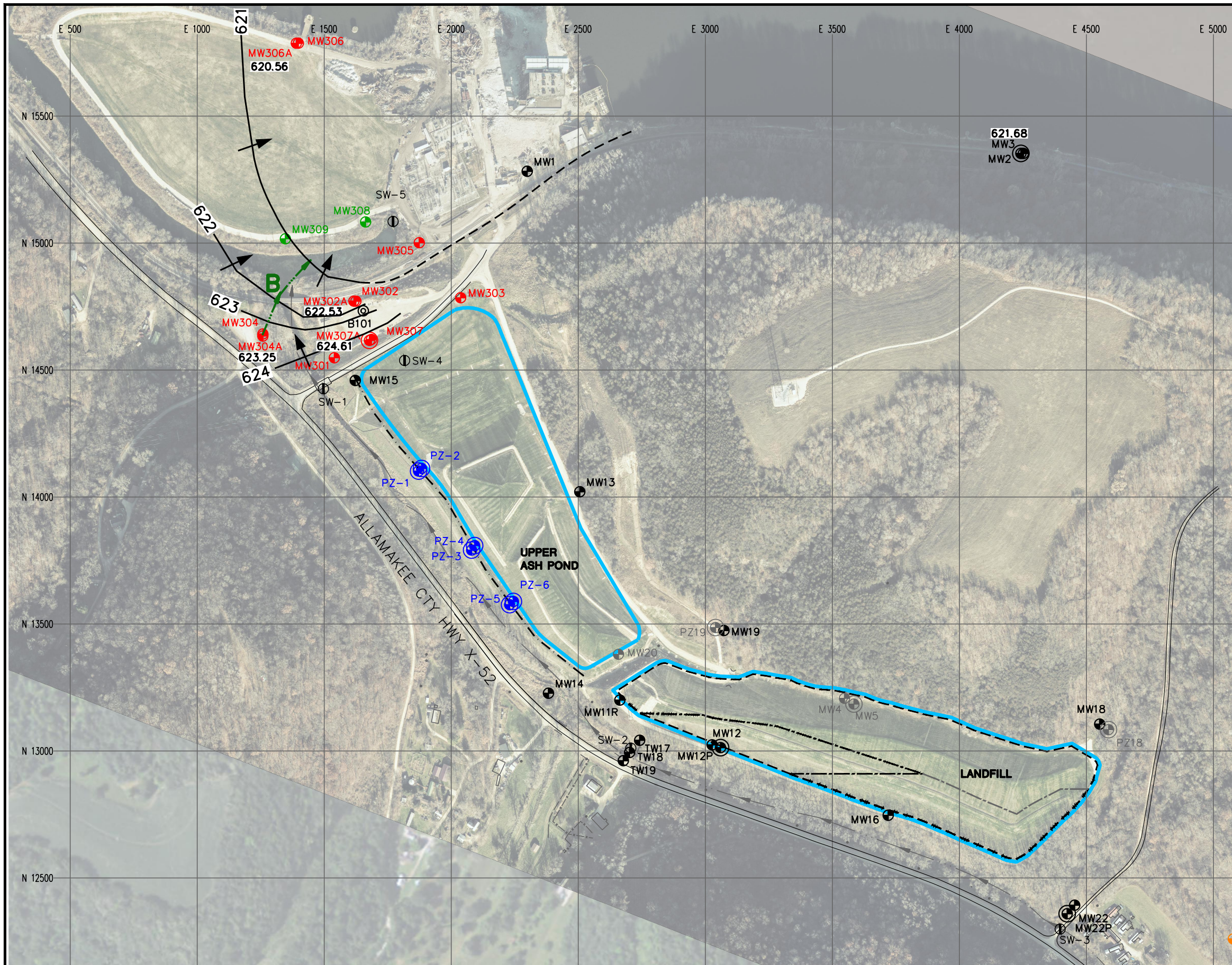
NOTES:

1. MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.



PROJECT NO. 25224070.00	DRAWN BY: SB/RAR/RVG	ENGINEER SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT 2320 POWER PLANT DRIVE LANSING, IA 52151-9733	SITE ALLIANT ENERGY LANSING POWER STATION LANSING, IOWA	WATER TABLE MAP APRIL 2, 2024	FIGURE
DRAWN: 04/17/2024	CHECKED BY: BRK/NB/SC					3
REVISED: 01/27/2025	APPROVED BY: TK 01/27/2025					

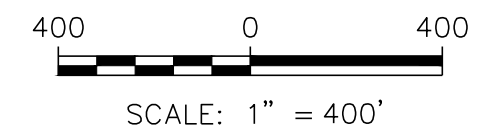
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LEGEND

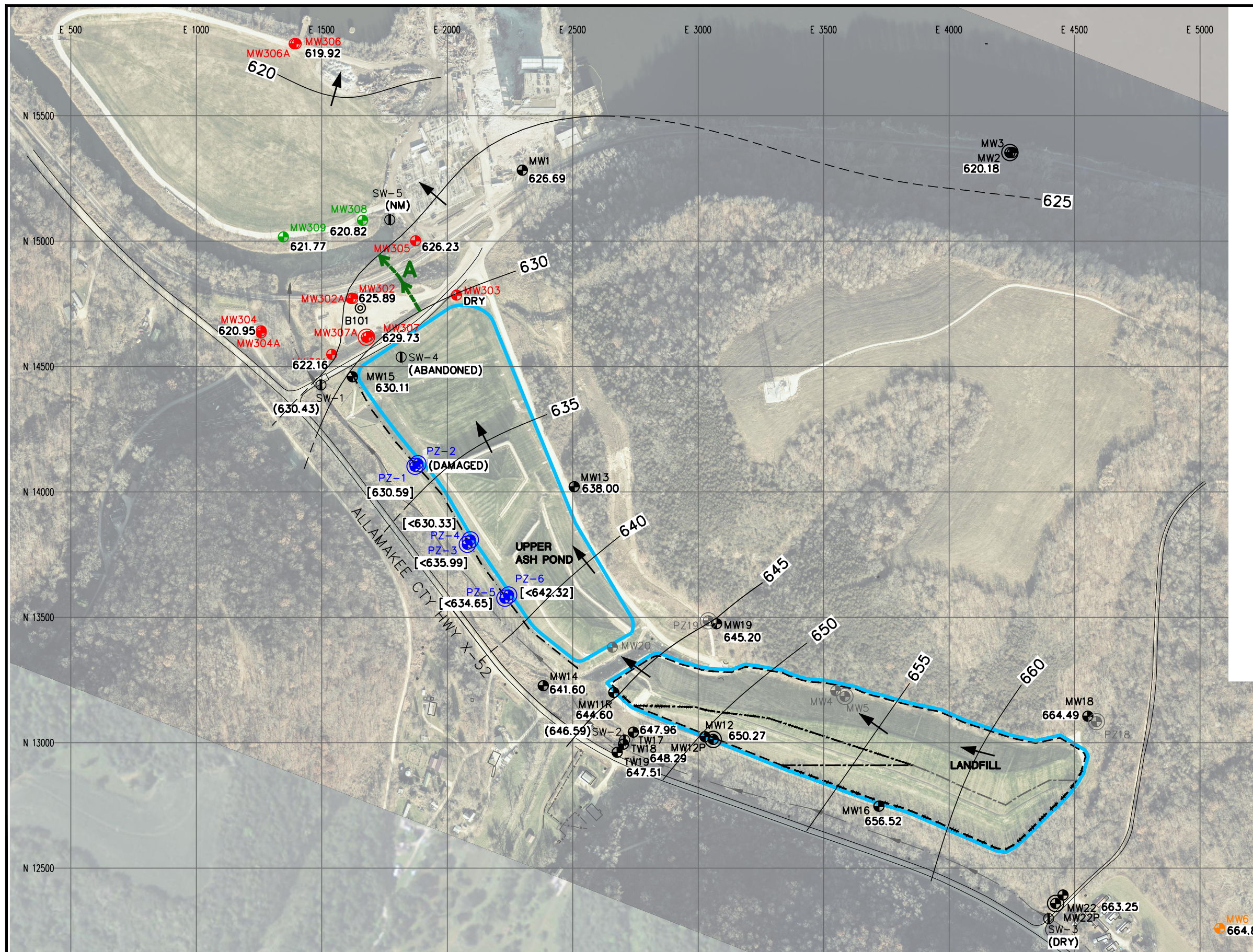
- APPROVED LIMITS OF WASTE
- LIMITS OF PHASE 1 FINAL COVER
- LIMITS OF PHASE 2 FINAL COVER
- SLURRY WALL
- EXISTING STREAM
- EXISTING STAFF GAUGE
- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- ABANDONED PIEZOMETER
- CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
- PIEZOMETER
- CCR UNITS
- 661.02** POTENTIOMETRIC SURFACE ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR (CONTOUR INTERVAL = 5 FT) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- FLOWPATH FOR VELOCITY CALCULATION (SEE TABLE 4A)

- NOTES:**
1. MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.
 2. SEE FIGURE 2 FOR ADDITIONAL LEGEND ITEMS AND NOTES.
 3. THE BACKGROUND MONITORING WELL FOR THE LANSING POWER STATION IS MW6.



PROJECT NO. 25224070.00	DRAWN BY: SB/RAR/RVG	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT 2320 POWER PLANT DRIVE LANSING, IA 52151-9733	SITE ALLIANT ENERGY LANSING POWER STATION LANSING, IOWA	POTENTIOMETRIC SURFACE MAP APRIL 2, 2024	FIGURE 4
DRAWN: 04/17/2024	CHECKED BY: BRK/NB/SC					
REVISED: 01/27/2025	APPROVED BY: TK 01/27/2025					

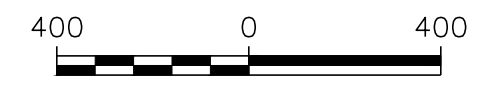
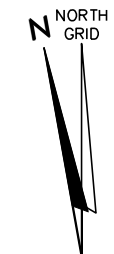
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- LEGEND**
- LIMITS OF PHASE 1 FINAL COVER
 - LIMITS OF PHASE 2 FINAL COVER
 - - - SLURRY WALL
 - > EXISTING STREAM
 - ⊕ SW-1 EXISTING STAFF GAUGE
 - ⊙ B101 EXISTING BORING
 - ⊕ MW17 EXISTING MONITORING WELL
 - ⊕ MW4 ABANDONED MONITORING WELL
 - ⊕ MW5 ABANDONED PIEZOMETER
 - ⊕ MW301 CCR MONITORING WELL
 - ⊕ MW6 CCR BACKGROUND MONITORING WELL
 - ⊕ MW308 WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
 - ⊕ PZ-4 PIEZOMETER
 - CCR UNITS
 - (NM) NOT MEASURED
 - 666.58 WATER TABLE ELEVATION
 - [630.76] GROUNDWATER ELEVATION NOT USED FOR CONTOUR DEVELOPMENT
 - (630.61) SURFACE WATER ELEVATION
 - WATER TABLE ELEVATION CONTOUR LINE (CONTOUR INTERVAL = 5 FT) (DASHED WHERE INFERRED)
 - APPROXIMATE GROUNDWATER FLOW DIRECTION
 - FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4)

NOTES:

- MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.



PROJECT NO.	25224070.00	DRAWN BY:	SB/RVG
DRAWN:	11/19/2024	CHECKED BY:	NLB/BRK/SC
REVISED:	01/27/2025	APPROVED BY:	TK 01/27/2025

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

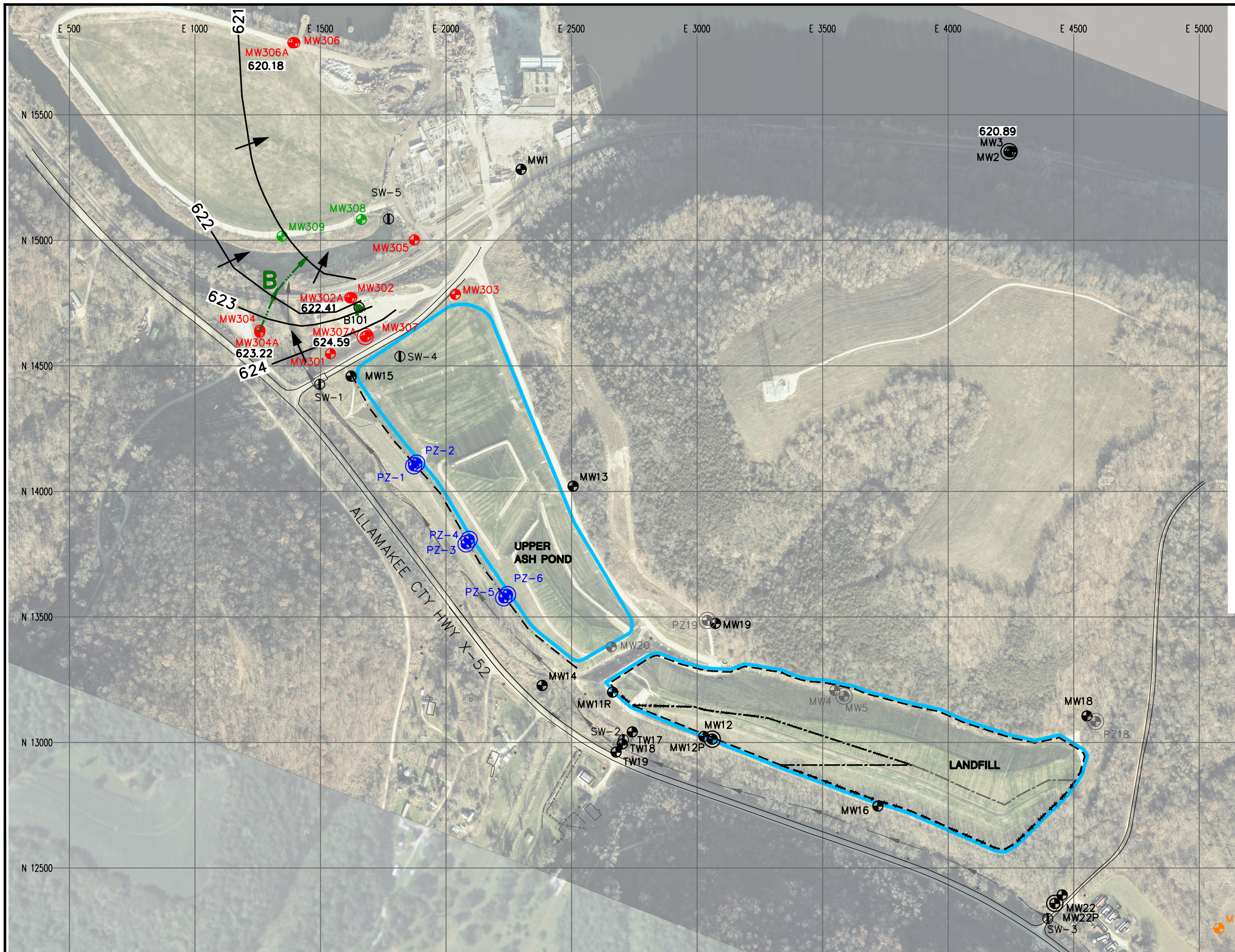
CLIENT: INTERSTATE POWER AND LIGHT
 2320 POWER PLANT DRIVE
 LANSING, IA 52151-9733

SITE: ALLIANT ENERGY
 LANSING POWER STATION
 LANSING, IOWA

WATER TABLE CONTOUR MAP
 OCTOBER 21-22, 2024

FIGURE
 5

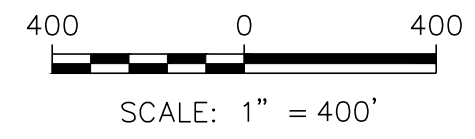
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LEGEND


- APPROVED LIMITS OF WASTE
- LIMITS OF PHASE 1 FINAL COVER
- LIMITS OF PHASE 2 FINAL COVER
- SLURRY WALL
- EXISTING STREAM
- SW-1 EXISTING STAFF GAUGE
- MW17 EXISTING MONITORING WELL
- MW4 ABANDONED MONITORING WELL
- MW5 ABANDONED PIEZOMETER
- MW301 CCR MONITORING WELL
- MW6 CCR BACKGROUND MONITORING WELL
- MW308 WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
- PZ-4 PIEZOMETER
- CCR UNITS
- 661.02** POTENTIOMETRIC GROUNDWATER SURFACE ELEVATION
- POTENTIOMETRIC GROUNDWATER SURFACE CONTOUR (CONTOUR INTERVAL = 5 FT) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4A)

- NOTES:**
1. MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.
 2. SEE FIGURE 2 FOR ADDITIONAL LEGEND ITEMS AND NOTES.
 3. THE BACKGROUND MONITORING WELL FOR THE LANSING POWER STATION IS MW6.



PROJECT NO. 25224070.00	DRAWN BY: SB/RVG	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT 2320 POWER PLANT DRIVE LANSING, IA 52151-9733	SITE ALLIANT ENERGY LANSING POWER STATION LANSING, IOWA	POTENTIOMETRIC SURFACE MAP OCTOBER 21-22, 2024	FIGURE 6	
DRAWN: 11/19/2024	CHECKED BY: NLB/BRK/SC		ENGINEER				
REVISED: 01/27/2025	APPROVED BY: TK 01/27/2025						

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Appendix A
Regional Hydrogeologic Information

**Table LAN-3 Regional Hydrogeologic Stratigraphy
Lansing Generating Station / SCS Engineers Project #25215053**

Strategic Unit			Hydrogeologic Units	Type of Rock	Hydrologic Conditions	Thickness Range (ft)	Age of Rocks*			
Quaternary		Recent and Pleistocene deposits	Surficial aquifers- Alluvium, Drift, Buried-channel	Sand and gravel interbedded with silt and clay	Mostly unconfined local aquifers, some artesian, small-to-large yields	0 – 305	0 – 2.8 million years (m.y.)			
Devonian	Yellow Spring Group (Gp)	Lime Creek Formation (Fm)	Confining layers	Shale, some dolostone	Non-aquifer	0 – 50	365 – 405 m.y.			
	Cedar Valley Gp	Lithograph City Fm Coralville Fm Little Cedar Fm	Silurian-Devonian aquifer	Limestone and dolostone, thin shales	Major aquifer, mostly artesian, moderate-to-large yields	0 – 400				
	Wapsipinicon Gp	Pinicon Ridge Fm Spillville Fm		Dolostone and limestone						
Silurian	Scotch Grove Fm Hopkinton Fm Blanding Fm Tete des Morts Fm	Dolostone, locally with much chert, local shale as cavern fillings		405 – 425 m.y.						
Ordovician	Maquoketa Fm	Brainard Member Fort Atkinson Member Clermont Member Elgin Member	Maquoketa Fm, confining beds Fort Atkinson – Elgin aquifer	Shale and dolostone, some chert	Non-aquifer to local aquifer, small-to-moderate yields	0 – 300	425 – 455 m.y.			
		Galena Gp	Dubuque Fm Wise Lake Fm Dunleith Fm Decorah Fm					Galena aquifer	Limestone and dolostone, minor chert, shale at base and locally in upper part	Local aquifer, confined and unconfined, small-to-moderate yields
		Platteville Fm Glenwood Fm	Decorah- Platteville- Glenwood confining beds	Limestone and shale	Non-aquifer	0 – 50				
		St. Peter Sandstone	Cambrian- Ordovician aquifer	Sandstone	Major aquifer, mostly artesian, large yields	0 – 580	460 – 500 m.y.			
		Prairie du Chien Gr		Dolostone, minor sandstone and chert			500 – 503 m.y.			
Cambrian		Jordan Sandstone	Cambrian confining beds	Sandstone, dolomitic	Non-aquifer	0 – 400	503 – 508 m.y.			
		St. Lawrence Fm Lone Rock (Franconia) Fm		Dolostone, silty Fine, sandstone, siltstone, shale, and minor dolostone						
		Wenowoc (incl Ironton-Galesville sandstone) Fm Eau Claire Fm Mt. Simon Sandstone		Dresbach aquifer				Artesian aquifer, large yields	0 – 1,950	508 – 515 m.y.
				Sandstone Fine sandstone, siltstone, and shale Sandstone						
Pre-C		Undifferentiated crystalline rocks	Unknown	Igneous and metamorphic rocks	Unknown	Unknown	570 m.y. – > 2 billion years			

*Age determinations as used on COSUNA charts published by AAPG-USGS

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

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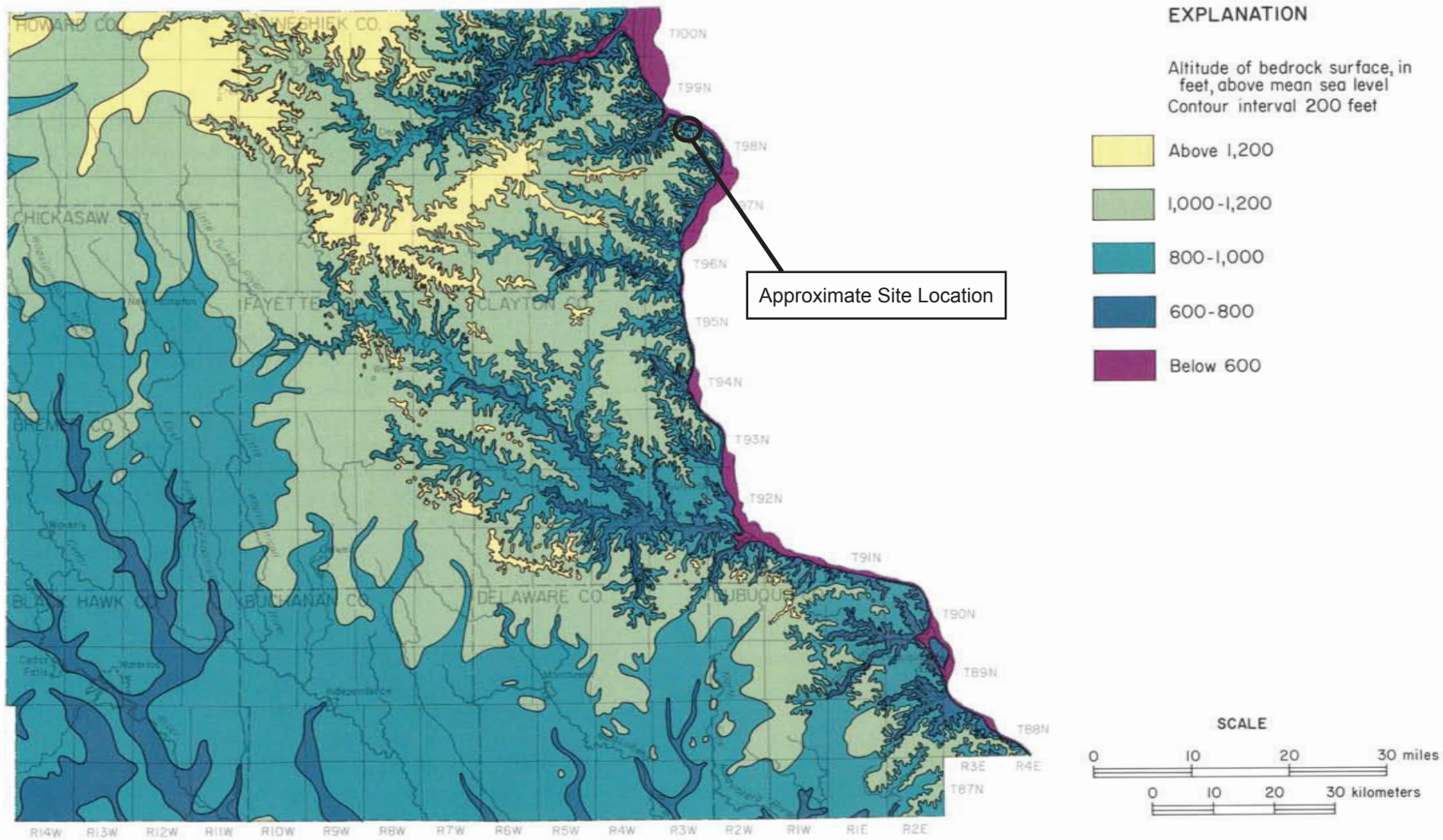


Figure 30. Altitude and configuration of the bedrock surface

Source: Horick, Paul J., Water Resources of Northeast Iowa, Iowa Department of Natural Resources Water Atlas Number 8, October

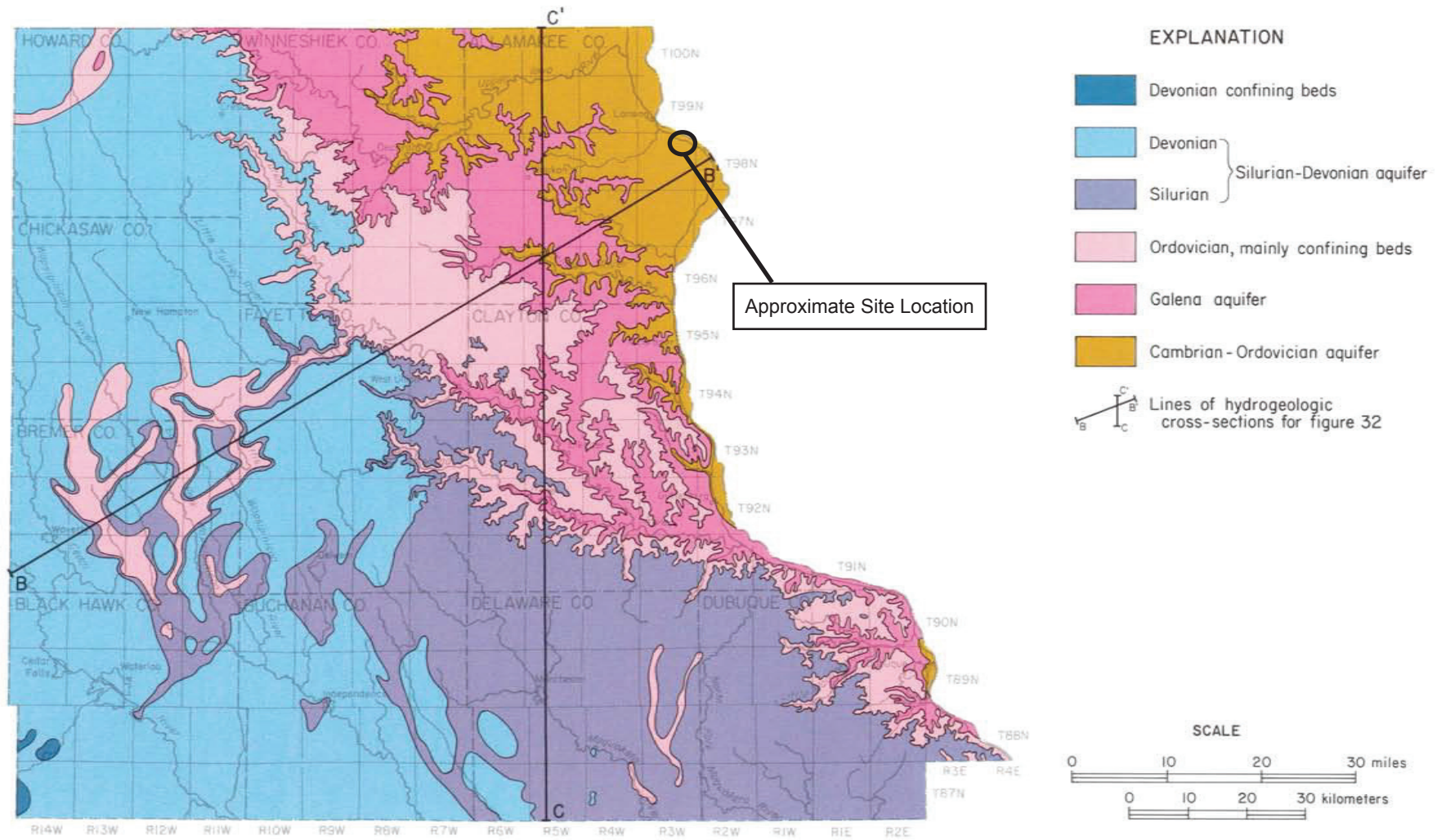
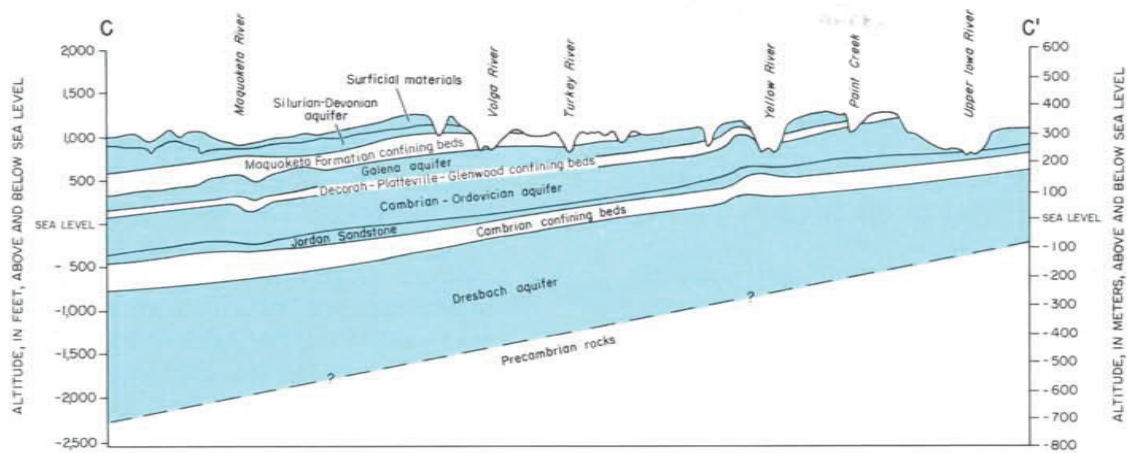
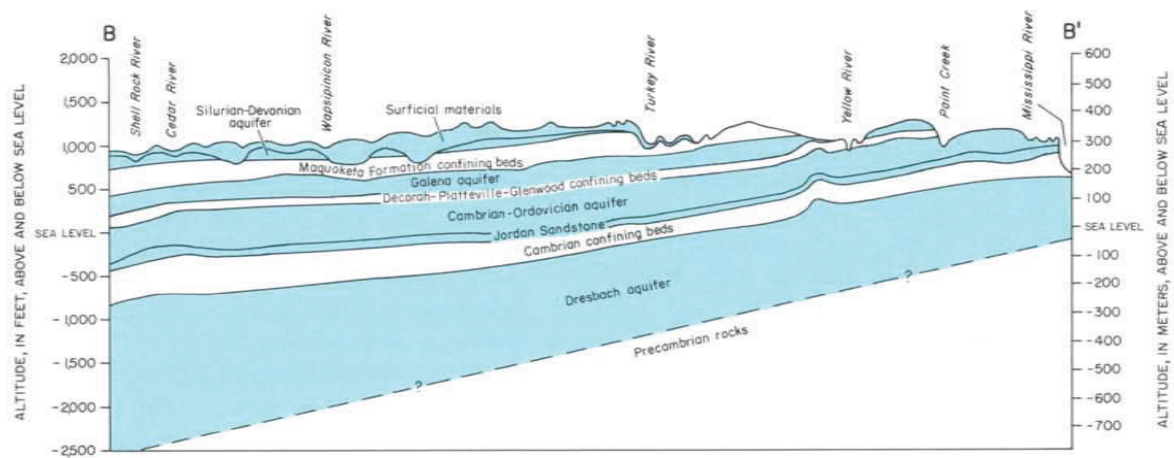


Figure 31. Bedrock hydrogeologic map

Source: Horick, Paul J., Water Resources of Northeast Iowa, Iowa Department of Natural Resources Water Atlas Number 8, October



VERTICAL EXAGGERATION = 42X
 Location of sections shown in figure 31

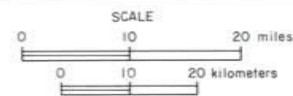


Figure 32. Hydrogeologic cross-sections

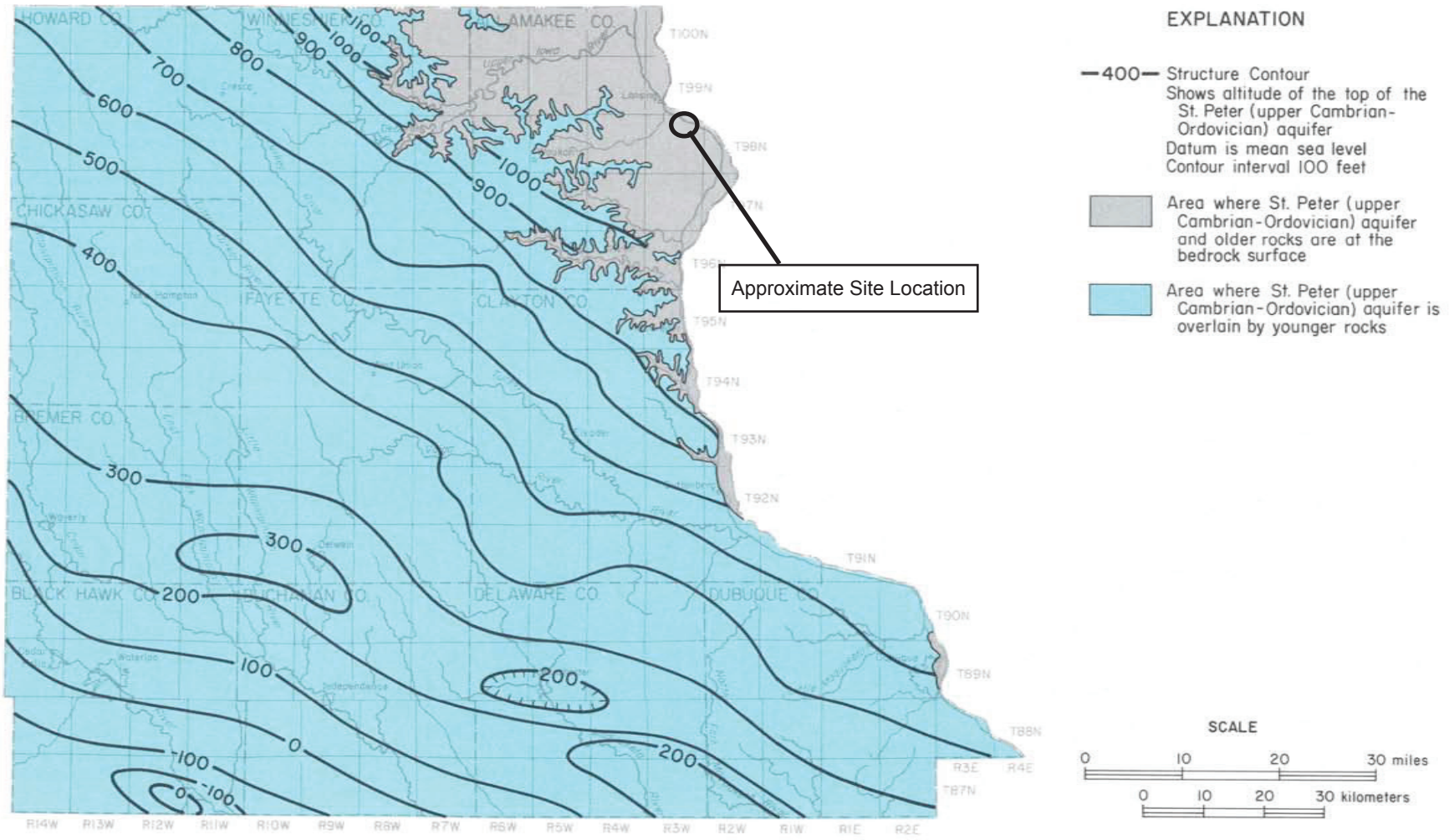


Figure 38. Altitude of the top of the St. Peter (upper Cambrian-Ordovician) aquifer

Source: Horick, Paul J., Water Resources of Northeast Iowa, Iowa Department of Natural Resources Water Atlas Number 8, October

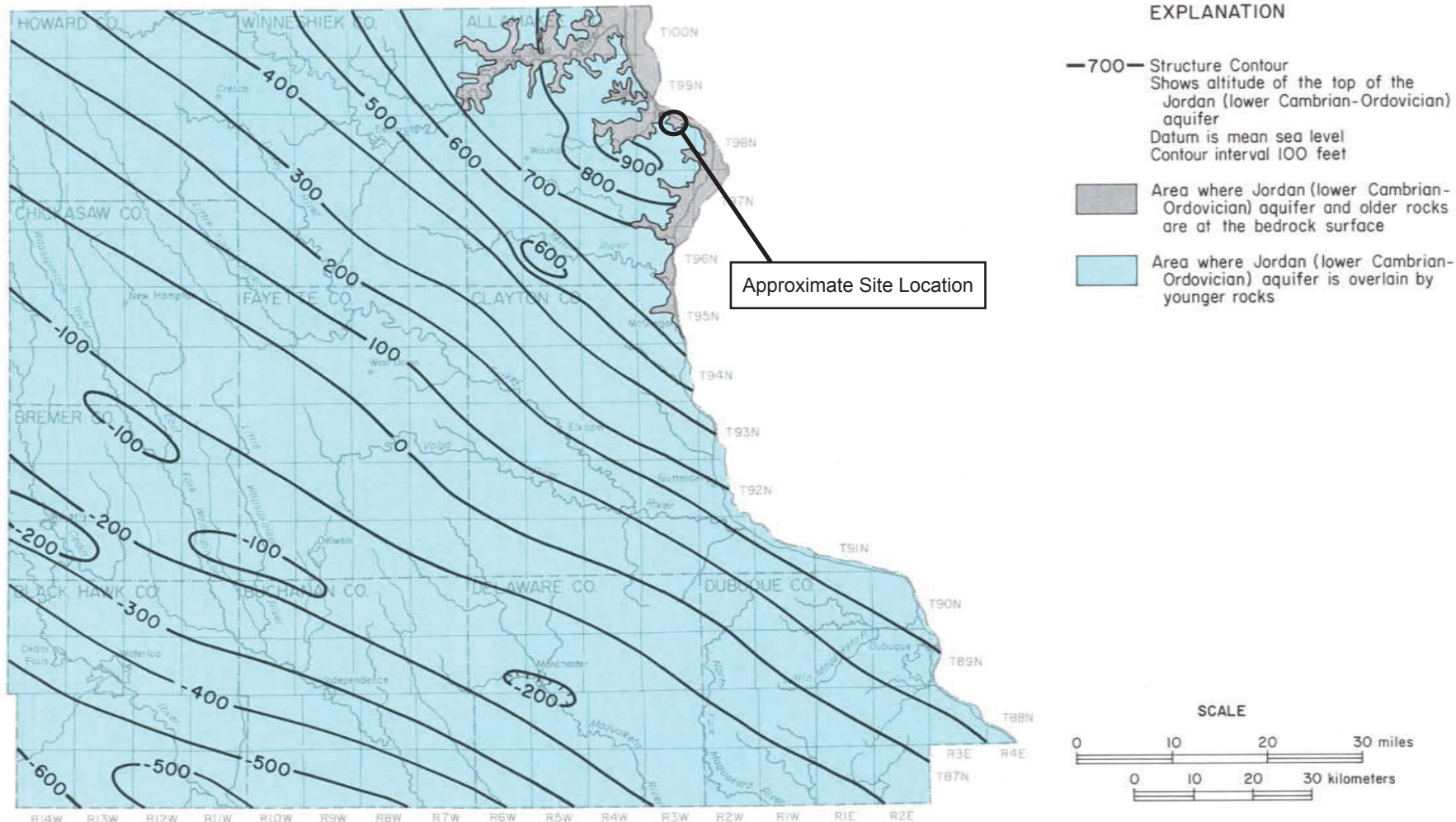


Figure 39. Altitude of the top of the Jordan (lower Cambrian-Ordovician) aquifer

Source: Horick, Paul J., Water Resources of Northeast Iowa, Iowa Department of Natural Resources Water Atlas Number 8, October

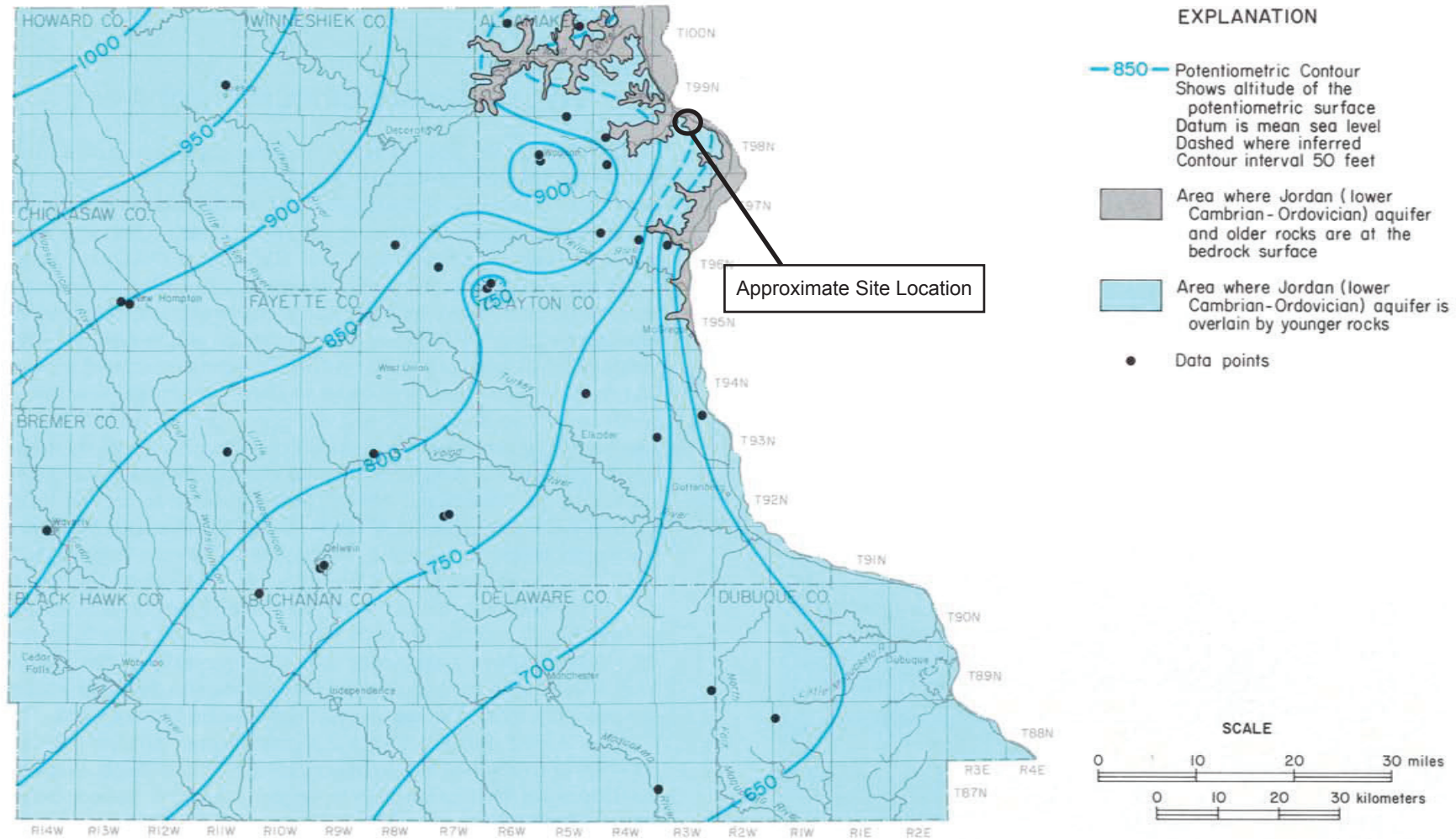





Figure 56. Potentiometric surface of the Jordan (lower Cambrian-Ordovician) aquifer

Source: Horick, Paul J., Water Resources of Northeast Iowa, Iowa Department of Natural Resources Water Atlas Number 8, October

Appendix B

Boring Logs and Well Construction Documentation

CaCO3	K (cm/sec)		MW-6	ELEVATION (ft, msl)	DEPTH (feet)	LITHOLOGY	MATERIALS DESCRIPTION
				-734.0	5		0.0 to 6.0 SILT Topsoil developed in silt from 0.0 to 1.5. Topsoil is dark brown. Clayey silt, trace sand is loess or colluvium (slopewash) derived from loess. Medium brown, changing gradually to yellow brown below 5.0.
				-729.0	10		6.0 to 37.0 TALUS Light brown sandy silt with dolomite chunks.
				-724.0	15		
				-719.0	20		
				-714.0	25		
				-709.0	30		
				-704.0	35		
				-699.0	40		37.0 to 93.5 INTERBEDDED SANDSTONE AND SILTSTONE Sandstone is fine-grained, with quartz silt matrix, glauconitic. Siltstone contains minor amount of very fine quartz sand and glauconite. Sandstone is laminated light greenish gray with creamy color. Siltstone is light greenish gray. Sandstone from 37.0 to 58.0.
				-694.0	45		
				-689.0	50		



PROJECT Interstate Power Company
 PROJECT NUMBER 717680-J
 SURFACE ELEVATION 738.3 Feet MSL
 TOTAL DEPTH OF HOLE 93.5 Feet

LOG OF MW-6
 LOCATION Lansing, Iowa
 GEOLOGIST Barbara Torney

CaCO3	K (cm/sec)		MW-6	ELEVATION (ft, msl)	DEPTH (feet)	LITHOLOGY	MATERIALS DESCRIPTION
				684.0	55		
				679.0	60		Siltstone from 58.0 to 88.0.
				674.0	65		
				669.0	70		Interbedded sandstone and siltstone from 68.0 to 78.0.
				664.0	75		
				659.0	80		Siltstone from 78.0 to 83.0
				654.0	85		No sample from 83.0 to 93.5. Likely Interbedded sandstone and siltstone by comparison to same interval on log of MW-4 and MW-5. Lower few feet may be primarily siltstone.
				649.0	90		
				644.0	95		
				639.0	100		



PROJECT <u>Interstate Power Company</u>	LOG OF MW-6
PROJECT NUMBER <u>717880-J</u>	
SURFACE ELEVATION <u>739.3 Feet MSL</u>	LOCATION <u>Lansing, Iowa</u>
TOTAL DEPTH OF HOLE <u>93.5 Feet</u>	GEOLOGIST <u>Barbara Torney</u>

SCS ENGINEERS

Environmental Consultants and Contractors

SOIL BORING LOG INFORMATION

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

Facility/Project Name IPL- Lansing Generating Station SCS#: 25215135.70		License/Permit/Monitoring Number		Boring Number B-301	
Boring Drilled By: Name of crew chief (first, last) and Firm Mike Mueller Cascade Drilling		Date Drilling Started 11/2/2015		Date Drilling Completed 11/2/2015	
Unique Well No.		DNR Well ID No.		Common Well Name MW-301	
Final Static Water Level Feet		Surface Elevation 639.4 Feet		Borehole Diameter 8.0 in	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		Local Grid Location			
State Plane 3,957,744 N, 5,541,108 E S/C/N		Lat _____ "		<input type="checkbox"/> N <input type="checkbox"/> E	
NW 1/4 of SW 1/4 of Section 2, T 98 N, R 3 W		Long _____ "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	

Facility ID	County Allamakee	Civil Town/City/ or Village Lansing
-------------	---------------------	--

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		
S1	23	10 31 38 48	1	POORLY GRADED SAND, medium grained, very dark gray brown (10YR 3/2).	SP										
			2												
S2	24	32 47 50	3	POORLY GRADED SAND WITH SILT, medium grained, dark yellowish brown (10YR 3/4).	SP-SM										
			4												
S3	22	18 33 47 43	5	POORLY GRADED SAND WITH SILT AND GRAVEL, medium grained sand, large grained gravel, dark yellowish brown (10YR 3/6).	SP-SM										
			6												
S4	24	36 46 50	7	POORLY GRADED SAND WITH SILT, medium grained, dark yellowish brown (10YR 3/6).	SP-SM										
			8												
S5	22	13 9 7 10	9												
			10												
			11												
			12												
			13												
			14												
			15												

Water @ 10 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:
--	---	---------------------------

Boring Number **B-301**

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S6	20	3 2	16	SILT, black (10YR 3/1).	ML									
		4	17											
S7	24	2 2	18	SILT WITH SAND, black (10YR 3/1).	ML									
		2 2	19											
S8	24	2 2	20	POORLY GRADED SAND WITH SILT, black (10YR 3/1).	SP-SM									
		4	21											
S9	24	2 9	23	SILT, dark olive gray (5Y 3/2).	ML									
		12 14	24											
			26	End of Boring at 26 ft bgs.										

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

Facility/Project Name IPL- Lansing Generating Station SCS#: 25215135.70		License/Permit/Monitoring Number		Boring Number B-302	
Boring Drilled By: Name of crew chief (first, last) and Firm Mike Mueller Cascade Drilling		Date Drilling Started 11/4/2015		Date Drilling Completed 11/4/2015	
Unique Well No.		DNR Well ID No.		Common Well Name MW-302	
Final Static Water Level Feet		Surface Elevation 635.9 Feet		Borehole Diameter 8.0 in	

Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		Lat _____"		Local Grid Location	
State Plane 3,957,929 N, 5,541,179 E S/C/N		Long _____"		<input type="checkbox"/> N <input type="checkbox"/> E	
NW 1/4 of SW 1/4 of Section 2 , T 98 N, R 3 W				Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	

Facility ID		County Allamakee		Civil Town/City/ or Village Lansing	
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties						RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S1	24	6 14 17 19	1	POORLY GRADED SAND, medium grained, dark grayish brown (10YR 4/2).	SP										
			2												
			3												
S2	24	26 45 50	4	SANDY SILT, trace small gravel, black (10YR 3/1).											
			5												
S3	24	12 13 10 8	6	Large gravel											
			7												
S4	11	9 11 13 12	8	Large gravel	ML										
			9												
S5	8	32 23 30 36	10	Large gravel											
			11												
			12												
			13												
			14												
			15												

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

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

Boring Number **B-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	
S6	24	55	16	SANDY SILT, trace small gravel, black (10YR 3/1). <i>(continued)</i>	ML									
		68	17											
S7	18		18	Silt, Black (10YR 3/1).	ML									
			19											
			20	End of Boring at 20 ft bgs.										

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

Facility/Project Name IPL - Lansing Generating Station SCS#: 25218221.00		License/Permit/Monitoring Number		Boring Number MW-302A	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling			Date Drilling Started 12/16/2019		Date Drilling Completed 12/17/2019
Unique Well No.		DNR Well ID No.	Common Well Name	Final Static Water Level 13.01 Feet	
			Surface Elevation 636.2 Feet		Borehole Diameter 6 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3957930.08 N, 5541186.04 E S/C/N SW 1/4 of NW 1/4 of Section 02, T 98 N, R 03 W			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
Long _____ ° _____ ' _____ "			Feet <input type="checkbox"/> S		Feet <input type="checkbox"/> W

Facility ID		County Allamakee		Civil Town/City/ or Village Lansing	
-------------	--	---------------------	--	--	--

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	Hydrovac to 9' to check for utilities.											
			2												
			3												
			4												
			5												
			6												
			7												
			8												
S1	46"		9	POORLY GRADED SAND with silt, clay and trace gravel, dark gray.	SP										
			10												
			11	SILT, gray, trace gravel.	ML										
			12												
			13	SILTY GRAVEL WITH SAND, gray, sand is fine to medium grained, gravel is subangular to angular.	GM										
S2	39"		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	Tel: Fax:
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




Boring Number MW-302A

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	
S3	48"		17	SILTY GRAVEL WITH SAND, gray, sand is fine to medium grained, gravel is subangular to angular. <i>(continued)</i>	GM									
			18	SILT, dark gray, trace roots.										
			19											
S4	40"		20		ML									
			21							W				
			22	LEAN CLAY, dark gray, roots.										
S5	48"		23											
			24		CL									
			25	Same but dark brown.							W			
S6	48"		26											
			27											
			28											
S7	48"		29	SILTY SAND, gray to dark gray, fine to medium grained.	SM									
			30											
			31	LEAN CLAY, tan with yellow to brown mottling and gray layers, trace silt.	CL							W		
			32											
			33	LEAN CLAY, reddish brown, massive, very dense.	CL									
			34											
			35											
			36	LEAN CLAY, gray.										
			37		CL							W		
			38											
			39	POORLY GRADED SAND, brown, fine to medium grain, trace gravel.										
			40											
			41		SP									
			42	Same with trace shells									W	

Boring Number MW-302A

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		
S8	48"		43	POORLY GRADED SAND, brown, fine to medium grained, trace gravel. <i>(continued)</i>	SP										
			44	SILTY GRAVEL, light brown, subangular.											
			45			GM									
			46	LEAN CLAY, mostly light brown, trace gray, trace silt.											
			47			CL					W				
			48												
			49	SILTY GRAVEL WITH SAND, light brown, gravel is subangular.	GM										
			50	End of boring at 50 feet.											

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

Facility/Project Name IPL- Lansing Generating Station SCS#: 25215135.70		License/Permit/Monitoring Number		Boring Number B-303	
Boring Drilled By: Name of crew chief (first, last) and Firm Mike Mueller Cascade Drilling		Date Drilling Started 11/2/2015		Date Drilling Completed 11/2/2015	
Drilling Method hollow stem auger		Unique Well No.		DNR Well ID No.	
Common Well Name MW-303		Final Static Water Level Feet		Surface Elevation 653.9 Feet	
Borehole Diameter 8.0 in		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		Local Grid Location	
State Plane 3,957,857 N, 5,541,622 E S/C/N		Lat _____"		<input type="checkbox"/> N <input type="checkbox"/> E	
NW 1/4 of SW 1/4 of Section 2, T 98 N, R 3 W		Long _____"		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	

Facility ID	County Allamakee	Civil Town/City/ or Village Lansing
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S1	24	5 16 17 24	1	SILTY SAND, very dark gray (5Y 3/1).	SM									
			2											
S2	24	11 8 10	3	POORLY GRADED SAND, medium grained, dark grayish brown (10 YR 4/2).	SP									
			4											
S3	24	11 38 50	5	POORLY GRADED SAND, medium grained, grayish brown (2.5Y 5/2).	SP									
			6											
S4	18	16 35 50	7											
			8											
S5	16	27 50 50	9											
			10											
			11											
			12											
			13											
			14											
			15											

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

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53718	Tel: 608-224-2830 Fax:
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Boring Number **B-303**

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	
S6	0	38 50	16	POORLY GRADED SAND, medium grained, grayish brown (2.5Y 5/2). (continued)	SP								Rock in Spoon	
		17 25	17											
S7	18	40 47	18	POORLY GRADED SAND, medium grained, very dark gray (5Y 3/1).	SP								Saturation @17 ft bgs.	
		37 48	19											
S8	17	44	20											
		11 24	21											
S9	18	26 27	23		SP									
		26 27	24											
S10	24	37 50	25											
		37 50	26											
			27	End of Boring at 27 ft bgs.										

SCS ENGINEERS

Environmental Consultants and Contractors

SOIL BORING LOG INFORMATION

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

Facility/Project Name IPL Lansing Generating Station SCS#: 25218221.00		License/Permit/Monitoring Number		Boring Number MW304	
Boring Drilled By: Name of crew chief (first, last) and Firm Eric Wetzel Roberts Environmental Drilling, Inc.		Date Drilling Started 5/15/2019		Date Drilling Completed 5/15/2019	
Unique Well No.		DNR Well ID No.		Common Well Name MW304	
Final Static Water Level 623.61 Feet MSL		Surface Elevation 635.5 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 3,957,893 N, 5,540,876 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 3 , T 98 N, R 3 W		Long ° ' "		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Allamakee		Civil Town/City/ or Village Lansing	

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	
12	3 6 3 3	3 6 3 3	1	SILT, mottled, (10YR 3/2), some black coal looking material.	ML									
			2											
18	1 2 2 1	1 2 2 1	3	LEAN CLAY, (10YR 4/3), soft, some organic material.	CL									
			4											
12	2 2 3 2	2 2 3 2	5	SILT, (10YR 2/2), uniform, trace fine sand and clay.	ML									
			6											
18	1 1 3 2	1 1 3 2	7											
			8											
18	1 2 1 1	1 2 1 1	9	POORLY GRADED SAND, fine to coarse, (10YR 3/4), (Alluvial).										
			10											
12	0 0 1 1	0 0 1 1	11		SP									
			12											
12	0 0 1 1	0 0 1 1	13											
			14											
			15											

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

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718	Tel: Fax:
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Boring Number MW304

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	
		00 11	16	POORLY GRADED SAND, fine to coarse, (10YR 3/4), (Alluvial). <i>(continued)</i>						W				
		25 66	17	Same as above but more coarse, (2.5YR 5/4), trace silt.	SP					W				
			18											
			19											
			20	End of Boring at 20 feet.										


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

Facility/Project Name IPL - Lansing Generating Station SCS#: 25218221.00		License/Permit/Monitoring Number		Boring Number MW-304A	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling			Date Drilling Started 12/18/2019		Date Drilling Completed 12/19/2019
Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level 10.7 Feet		Surface Elevation 635.6 Feet
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>	State Plane 3957884.99 N, 5540876.5 E S/C/N		Lat _____ ° _____ ' _____ "		Local Grid Location
SE 1/4 of NE 1/4 of Section 03 ,	T 98 N, R 03 W	Long _____ ° _____ ' _____ "	Feet <input type="checkbox"/> N	Feet <input type="checkbox"/> S	Feet <input type="checkbox"/> E
Feet <input type="checkbox"/> W	Borehole Diameter 6 in				

Facility ID	County Allamakee	Civil Town/City/ or Village Lansing
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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	Hydrovac to 9' to check for utilities.										
			2											
			3											
			4											
			5											
			6											
			7											
			8											
			9											
			10	SILT, grayish brown, toots and sticks.	ML									
S1	49"		11	POORLY GRADED SAND WITH SILT AND GRAVEL, fine to medium grained, reddish brown.	SP-SM					W				
			12											
			13											
			14	POORLY GRADED SAND, reddish brown, fine to medium grained.	SP									
			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	Tel: Fax:
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Boring Number MW-304A

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	
S2	21"		17	POORLY GRADED SAND, reddish brown, fine to medium grained. <i>(continued)</i>	SP									
			18											
S3	59"		19		SP									
			20	Same but light brown, mostly fine grained.										
S4	24"		21		ML									
			22											
S5	30"		23	SANDY SILT, brown, fine grained.	ML									
			24											
S6	57"		25		SM									
			26											
S6	57"		27		SP									
			28											
S6	57"		29		SP									
			30											
S6	57"		31	SILTY SAND, light brown, fine grained.	SM									
			32											
S6	57"		33		SP									
			34											
S6	57"		35		SP									
			36											
S6	57"		37	POORLY GRADED SAND, light brown, fine to medium grained.	SP									
			38											
S6	57"		39		SP									
			40											
S6	57"		41	POORLY GRADED SAND, orange, fine grained.	SP									
			42											
S6	57"		41		ML									
			42	SANDY SILT WITH GRAVEL, sand is fine grained.										

Boring Number MW-304A

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	
S7	54"		43	SANDY SILT WITH GRAVEL, sand is fine grained.(continued)	ML					W				
			44											
S8	9"		45	POORLY GRADED SAND, light brown, fine grain, trace coarse grained.	SP					W				
			46											
S9	48"		46	SANDY SILT WITH GRAVEL, light brown with trace yellow, fine grained.	ML					W				
			47											
			48											
			49											
			50											
	51		End of boring at 51 feet.											

SCS ENGINEERS

Environmental Consultants and Contractors

SOIL BORING LOG INFORMATION

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

Facility/Project Name IPL Lansing Generating Station SCS#: 25218221.00		License/Permit/Monitoring Number		Boring Number MW305	
Boring Drilled By: Name of crew chief (first, last) and Firm Eric Wetzel Roberts Environmental Drilling, Inc.		Date Drilling Started 5/16/2019		Date Drilling Completed 5/16/2019	
Unique Well No.		DNR Well ID No.		Common Well Name MW305	
Final Static Water Level 629.12 Feet MSL		Surface Elevation 631.8 Feet MSL		Borehole Diameter 8.5 in	

Local Grid Origin (estimated:) or Boring Location
 State Plane **3,958,109 N, 5,541,533 E S/C/N** Lat **° ' "** N E
SE 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W Long **° ' "** Feet S Feet W

Facility ID _____ County **Allamakee** Civil Town/City/ or Village **Lansing**

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	Hydrovaced to 9.5 feet.												
				10	FAT CLAY, dark greenish gray, (GLEY 13/10Y), soft, trace red sand, wood pieces and roots.												
	24	11	11	11		CH											
	24	00	02	13													
				14	Sand seams at 13.5 and 14.5 feet.												
				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: Fax:
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Boring Number MW305

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	FAT CLAY, dark greenish gray, (GLEY 13/10Y), soft, trace red sand, wood pieces and roots. <i>(continued)</i>	CH				W					
				End of Boring at 16 feet.										

SCS ENGINEERS

Environmental Consultants and Contractors

SOIL BORING LOG INFORMATION

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

Facility/Project Name IPL Lansing Generating Station SCS#: 25218221.00		License/Permit/Monitoring Number		Boring Number MW306	
Boring Drilled By: Name of crew chief (first, last) and Firm Eric Wetzel Roberts Environmental Drilling, Inc.		Date Drilling Started 5/16/2019		Date Drilling Completed 5/16/2019	
Unique Well No.		DNR Well ID No.		Common Well Name MW306	
Final Static Water Level 623.05 Feet MSL		Surface Elevation 636.7 Feet MSL		Borehole Diameter 8.5 in	

Local Grid Origin (estimated:) or Boring Location
 State Plane **3,958,977 N, 5,541,203 E S/C/N** Lat N E
NE 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W Long S W Feet S Feet W

Facility ID _____ County **Allamakee** Civil Town/City/ or Village **Lansing**

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	Hydrovaced to 12 feet.											
				2												
				3												
				4												
				5												
				6												
				7												
				8												
				9												
				10												
				11												
	12	12	12	12		POORLY GRADED SAND, medium to coarse, rusty in color, (10YR 4/6), trace fine silt.	SP									
				13												
				14												
				15												

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

Signature <i>[Signature]</i>	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718	Tel: Fax:
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Boring Number MW306

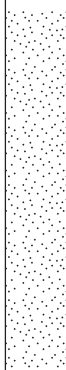
Page 2 of 2

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	
18	12	24	16	POORLY GRADED SAND, medium to coarse, rusty in color, (10YR 4/6), trace fine silt. <i>(continued)</i>	SP									
			16	Same as above but gray, (10YR 4/2).										
18	11	22	17											
			18											
18			19											
			20											
18			21											
			22											
18	3 1	22	23											
			24											
18	2 1	3 2	25											
			26	End of Boring at 26 feet.										

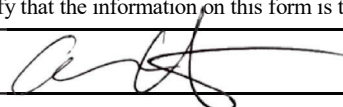
Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name IPL - Lansing Generating Station SCS#: 25218221.00		License/Permit/Monitoring Number		Boring Number MW-306A	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling			Date Drilling Started 12/17/2019	Date Drilling Completed 12/18/2019	Drilling Method Rotosonic
Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level 16.3 Feet	Surface Elevation 636.7 Feet	Borehole Diameter 6 in
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3958980.99 N, 5541196.46 E S / C / N			Lat _____ ° _____ ' _____ "	Local Grid Location	
NE 1/4 of NW 1/4 of Section 02 , T 98 N, R 03 W			Long _____ ° _____ ' _____ "	Feet <input type="checkbox"/> N <input type="checkbox"/> E	Feet <input type="checkbox"/> S <input type="checkbox"/> W

Facility ID	County Allamakee	Civil Town/City/ or Village Lansing
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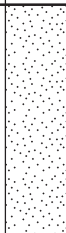
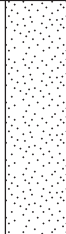
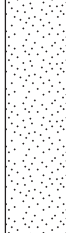
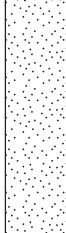
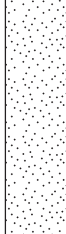

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments				
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200					
S1	52"		1	Hydrovac to 9' to check for utilities.														
		2																
		3																
		4																
		5																
		6																
		7																
		8																
		9																
					10	POORLY GRADED SAND, reddish brown, trace shells, medium grained.	SP											
		11																
		12																
		13																
		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	Tel: Fax:
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











Boring Number MW-306A

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	
S2	56"		17	POORLY GRADED SAND, reddish brown, trace shells, medium grained. <i>(continued)</i>	SP									
			18											
S3	57"		19	POORLY GRADED SAND, gray, fine to medium grained, trace coarse grained and shells.										
			20											
S4	54"		21	Same, mostly medium grained with fine grained.	SP									
			22											
S5	58"		23	Same, fine to medium grained with trace coarse grained.	SP									
			24											
S6	53"		25	Same with shell fragments.										
			26											
			27	LEAN CLAY, dark gray, massive, very dense with roots and sticks.	CL									
			28											
			29											
			30											
			31											
			32											
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42											

Boring Number MW-306A

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						
S7	58"		43	LEAN CLAY, dark gray, massive, very dense with roots and sticks. <i>(continued)</i>	CL														
			44	POORLY GRADED SAND, gray to dark gray, fine grained, trace coarse grain with shell fragments.															
S8	52"		45																
			46																
			47																
S9	58"		48		SP														
			49																
			50	POORLY GRADED SAND, light gray, fine to medium grained.	SP														
			51																
S9	58"		52	POORLY GRADED SAND, reddish tan, fine to medium grained with shell fragments.															
			53																
			54																
			55																
			56	End of boring at 56 feet.															

SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-307	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/22/2021		Date Drilling Completed 6/22/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 628.5 Feet		Surface Elevation 640.70 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3,957,777 N, 5,541,269 E S/C/N				Lat 43° 20' 2.56"		Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E	
SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W				Long -91° 10' 9.97"		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments			
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200				
S1	60		1	Hydrovaced to 12' below ground surface with some cave-in to about 10'.													
			2														
			3														
			4														
			5														
			6														
			7														
			8														
			9														
			10														
			11	POORLY GRADED SAND, medium grained, yellowish brown (10YR 5/4) with 4" layer of gray sand (10YR 5/1), shells and subroundd gravel.	SP												
			12														
			13														
			14														
			15														

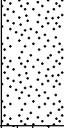
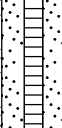

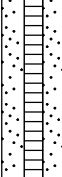


I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718	Tel: Fax:
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SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307**

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	
S2	60		16	Same as above , shells still present with more gray sand.	SP									
			17	SILT, dark gray to black (5Y 2.5/2), with trace very fine grained sand and gravel/cobbles.	ML			0.75	W/M					
S3	12		20	Same as above but gray (5Y 4/1).					W/M					
			21	End of boring at 21' below ground surface. Well placed from 20' with 10' screen at 20 to 10'.										

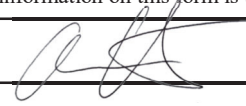
SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-307A	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/22/2021		Date Drilling Completed 6/22/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 622.8 Feet		Surface Elevation 640.60 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>				Lat 43° 20' 2.54"		Local Grid Location	
State Plane 3,957,775 N, 5,541,261 E S/C/N				Long -91° 10' 10.08"		Feet <input type="checkbox"/> N <input type="checkbox"/> S	
SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W						Feet <input type="checkbox"/> E <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments			
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200				
S1	60		1	Hydrovaced to 12' below ground surface with some cave-in to about 10'.													
			2														
			3														
			4														
			5														
			6														
			7														
			8														
			9														
			10														
			11	POORLY GRADED SAND, medium grained, yellowish brown (10YR 5/4) with 8" layer of gray sand (10YR 5/1) with trace shells and sub-rounded gravel.	SP												
			12														
			13														
			14														
			15														



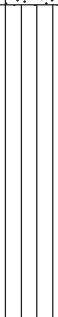

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature  Firm SCS Engineers
 2830 Dairy Drive, Madison, WI 53718
 Tel: _____ Fax: _____

SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307A**

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	
S2	48		16 17 18 19		SP				W					
S3	60		20 21 22 23 24	SILT, dark gray, dark gray to black, (5Y 2.5/2) with fine grained sand and trace gravel.	ML			1.5-2.5	M					
S4	60		25 26 27 28 29	LEAN CLAY, black (5Y 2.5/1), soft.				0.75	W					
S5	60		30 31 32 33 34	Same as above but very soft with trace fine to medium grained sand.	CL			0.0	M/W					
S6	24		35 36 37 38 39 40	POORLY GRADED GRAVEL WITH SAND, fine to coarse gravel, sub-rounded to sub-angular, sand is fine to coarse grained, dark brownish gray (2.5Y 4/2) with trace silt.	GP			0.0	W					

SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307A**

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	
S7	56		41		GP									
			42	SILT, dark gray (5Y 3/1), with trace sand, gravel and cobbles.	ML									
			43	WELL GRADED SAND, fine to medium grained, yellow (2.Y 7/6) with gravel and pieces of shell.	SW			0.0	W					
			44	SILT, dark gray (5Y 4/1) and transitions to olive brown (2.5Y 4/4), very soft.	ML									
			45	POORLY GRADED SAND, fine to medium grained, light olive brown (2.5Y 5/4) with trace silt.	SP									
S8	70		46		ML									
			47	SANDY SILT, light olive brown (2.5Y 5/3), very soft, sand is fine to medium grained.	SM									
			48	SILTY SAND, fine to coarse grained, olive yellow (2.5Y 6/8).	GP-GM			0.0	W					
			49	POORLY GRADED GRAVEL WITH SAND AND SILT, coarse gravel, sand and silt are light olive brown (2.5Y 5/4), sand is fine to coarse grained.	ML									
			50	SANDY SILT WITH GRAVEL, gray to dark gray (2.5Y 4/1), sand is fine to coarse grained, gravel is coarse, sub-rounded with trace cobbles, very soft.	ML									
			51											
			52	End of boring at 52' below ground surface.										

SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-308	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/22/2021		Date Drilling Completed 6/22/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 618.8 Feet		Surface Elevation 635.70 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>				Lat 43° 20' 7.07"		Local Grid Location	
State Plane 3,958,236 N, 5,541,333 E S/C/N				Long -91° 10' 8.94"		Feet <input type="checkbox"/> N <input type="checkbox"/> S	
SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W						Feet <input type="checkbox"/> E <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S1	60		1	Hydrovaced to 8 feet below ground surface and blind drilled the from 8 to 10'. WELL SORTED SAND, fine to coarse grained, very dark grayish brown (10YR 3/2). SILT, gray to dark gray (2.5Y 3/2) with sticks, roots, and trace sand throughout, very soft.	SW				0.0	W					
			2												
			3												
			4												
			5												
			6												
			7												
			8												
			9												
			10												
			11												
			12												
			13												
			14												
			15												

Blind drilled 2 ft of slough from 8 to 10' 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: Fax:
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SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-308**

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	
S2	60		16 17 18 19 20	Same as above but with trace roots, no sticks, and pockets of sand, very sort.	ML				0.0	W				
S3	40		20 21 22	Same as above but very trace roots. SANDY SILT, gray to dark gray, (2.5Y 3/2), no visible roots, very soft.	ML				0.0	W				slough in hole, actual recovery was ~2"
			22	End of boring at 22' below ground surface.										

SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-309	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/23/2021		Date Drilling Completed 6/23/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 619.4 Feet		Surface Elevation 636.10 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3,958,229 N, 5,541,010 E S/C/N				Lat 43° 20' 7.10"		Local Grid Location	
SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W				Long -91° 10' 13.31"		Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	Hydrovaced to 8' below ground surface.											
			2	Hole collapsed to 6' bgs.											
			3												
			4												
			5												
S1	20		6	WELL GRADED SAND, fine to coarse grained, grayish brown to brown (10YR 4/3) with trace coal (slough).	SP										
			7												
			8												
			9												
			10												
			11	SILT, dark gray to black (5Y 2.5/1) with trace roots, 4" layer of black organic soil with trace gravel and sticks.	ML-OL										
S2	60		12												
			13												
			14	SILTY SAND WITH GRAVEL, fine to coarse grained, gray to dark gray (5Y 4/1), gravel is	SM										
			15												

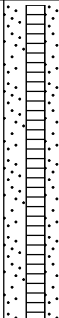
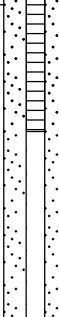
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature		Firm	SCS Engineers 2830 Dairy Drive, Madison, WI 53718	Tel:	Fax:
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**SOIL BORING LOG INFORMATION
SUPPLEMENT**

Boring Number **MW-309**

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	60		16	sub-rounded. SILT, dark gray (5Y 3/1), with roots and trace sticks, very soft.	ML									
			17											
S4	60		18	SANDY SILT, very dark gray (5Y 3/1) with roots, trace gravel and peices of limestone at bottom of sample, sand is fine to medium grain.	ML									
			19											
			20											
			21											
			22											
			23											
			24											
			25	End of boring at 25' below ground surface. Well placed from 22' with 10' screen at 22 to 12'.										



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

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

Well or Piezometer No: MW-301

Dates Started: 11/2/15 Date Completed: 11/2/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____	Name & Address of Construction Company: _____
Specify corner of site: <u>NW</u>	<u>Cascade Drilling</u>
Distance & direction along boundary: <u>540' SE</u>	<u>301 Alderson St.</u>
Distance & direction from boundary to wall: <u>230' NE</u>	<u>Schofield, WI 54476</u>
Elevations (± 0.01 ft MSL): _____	Name of Driller: <u>Mike Mueller</u>
Ground Surface: <u>639.35</u>	Drilling Method: <u>HSA</u>
Top of protective casing: <u>642.18</u>	Drilling Fluid: <u>None</u>
Top of well casing: <u>641.61</u>	Bore Hole Diameter: <u>8"</u>
Benchmark elevation: <u>622.86, NAVD 1988 datum</u>	Soil Sampling Method: <u>Spoon</u>
Benchmark description: <u>CP 300, iron rod in concrete</u>	Depth of Boring: <u>26</u>

C. MONITORING WELL INSTALLATION	
Casing material: <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: <u>15 ft</u>	Volume: _____
Outside casing diameter: <u>2.40"</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>.010</u>	Material of protective casing: <u>Steel 6"</u>
Screen length: <u>10 ft</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: <u>25 ft</u>	Protective cap: _____
Filter Pack: _____	Material: <u>steel</u>
Material: <u>Red Flint</u>	Vented: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: <u>#40</u>	Well Cap: _____
Volume: <u>300 lbs</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>17.63</u>	Stabilization Time: <u>2 hrs.</u>
Well development method: <u>Surged and pumped. Turbidity reduced but not eliminated.</u>	
Average depth of frostline: <u>4 ft.</u>	

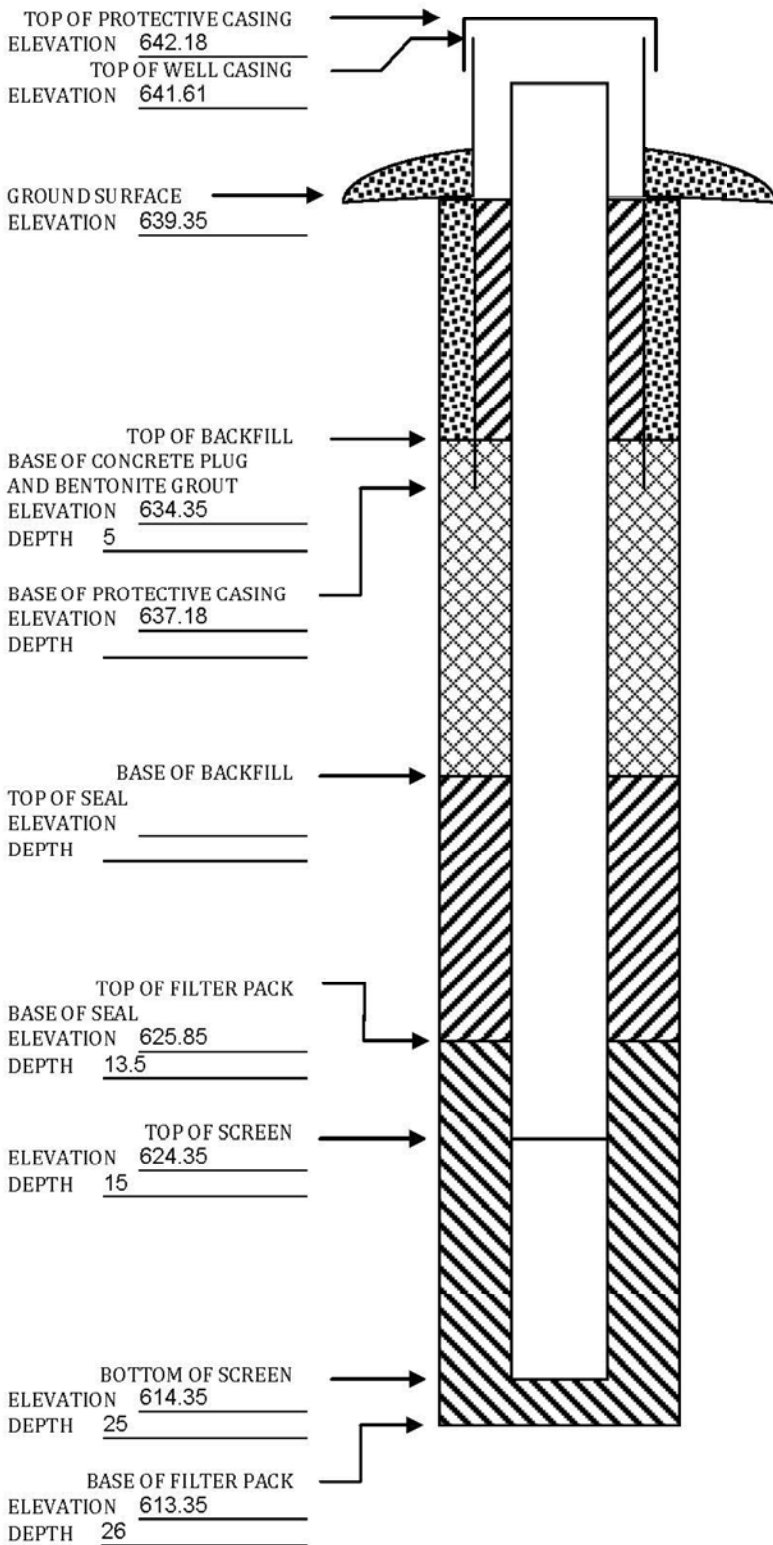
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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-Lansing Generating Station Permit No.: _____

Well or Piezometer No: MW-302

Dates Started: 11/4/15 Date Completed: 11/4/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____	Name & Address of Construction Company: _____
Specify corner of site: <u>NW</u>	<u>Cascade Drilling</u>
Distance & direction along boundary: <u>465' SE</u>	<u>301 Alderson St.</u>
Distance & direction from boundary to wall: <u>405' NE</u>	<u>Schofield, WI 54476</u>
Elevations (± 0.01 ft MSL): _____	Name of Driller: <u>Mike Mueller</u>
Ground Surface: <u>635.85</u>	Drilling Method: <u>HSA</u>
Top of protective casing: <u>638.72</u>	Drilling Fluid: <u>None</u>
Top of well casing: _____ <u>638.40</u>	Bore Hole Diameter: <u>8"</u>
Benchmark elevation: <u>633.86, NAVD 1988 datum</u>	Soil Sampling Method: <u>Spoon</u>
Benchmark description: <u>CP 300, iron rod in concrete</u>	Depth of Boring: <u>20 ft</u>

C. MONITORING WELL INSTALLATION	
Casing material: _____ <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: _____ <u>9'</u>	Volume: _____
Outside casing diameter: _____ <u>2.40"</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>.01"</u>	Material of protective casing: <u>Steel 6"</u>
Screen length: _____ <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: _____ <u>19'</u>	Protective cap: _____
Filter Pack: _____	Material: <u>steel</u>
Material: _____ <u>Red Flint</u>	Vented: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: _____ <u>#40</u>	Well Cap: _____
Volume: _____ <u>120 lbs</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" hole plug</u>	

D. GROUNDWATER MEASUREMENT (± 0.01 ft below top of inner well casing)	
Water level: <u>9.95</u>	Stabilization Time: <u>2 hrs.</u>
Well development method: <u>Surged and pumped. Turbidity reduced but not removed.</u>	
Average depth of frostline: <u>4 ft.</u>	

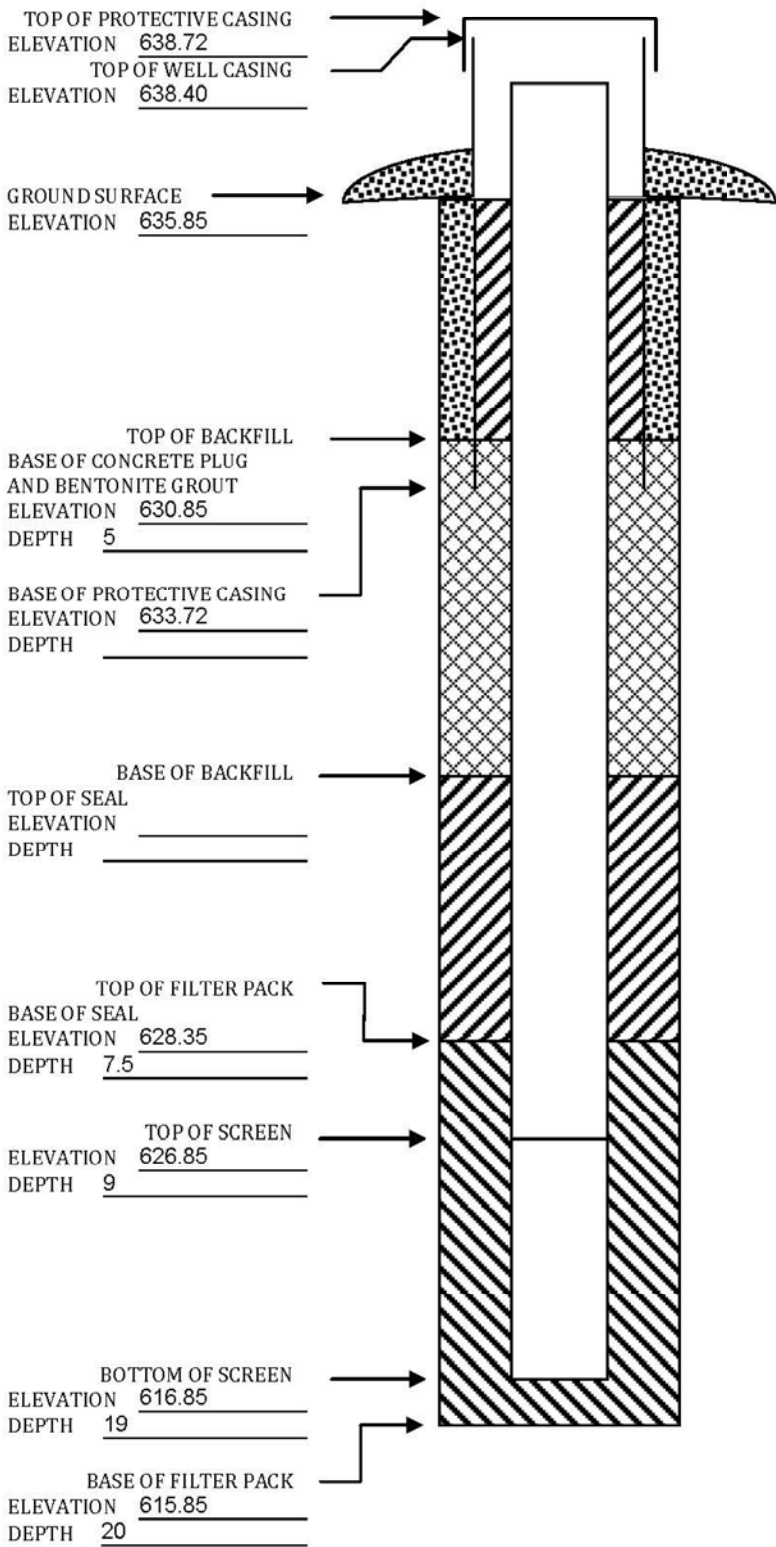
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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 - Lansing Generating Station Permit No. _____
Well or Piezometer No. MW-302A Dates Started 12/16/2019 Date Completed 12/19/2019

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

Specify corner of site NW Distance and direction along boundary 375 E
Distance and direction from boundary to surface monitoring well 0 S
Elevation (+0.01 ft. MSL) _____
Ground Surface 636.2' Top of protective casing 638.93'
Top of well casing 638.68' Benchmark elevation 653.26'
Benchmark description Brass cap in PCC walkway to weir structure on north side of entrance road

B. SOIL BORING INFORMATION

Construction Company Name Cascade Drilling
Address 301 Alderson St. City, State, Zip Code Schofield, WI. 54476
Name of driller Paul Dickinson
Drilling method Rotosonic Drilling fluid Water Bore Hole diameter 6"
Soil sampling method Sample bag Depth of boring 50'

C. MONITORING WELL INSTALLATION


Casing material <u>Sch. 40 PVC</u>	Placement method <u>Poured</u>
Length of casing <u>52.45'</u>	Volume <u>2 cu. ft.</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>2.04"</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>60 gal.</u>
Screen material <u>PVC</u>	Surface seal design: <u>Protop</u>
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>49'</u>	Protective cap: <u>6" Royer cap</u>
Filter Pack: _____	Material <u>Aluminum</u>
Material <u>Filter Sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#40 red flint, topped with #7</u>	Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Volume <u>2 cu. ft.</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic and rubber</u>
Material <u>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 15.88' Stabilization time < 1 minute
Well development method Surged and pumped
Average depth of frost line 4 ft

DRILLER'S CERTIFICATION

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

Signature  Certification # 9361 Date 12-19-2019

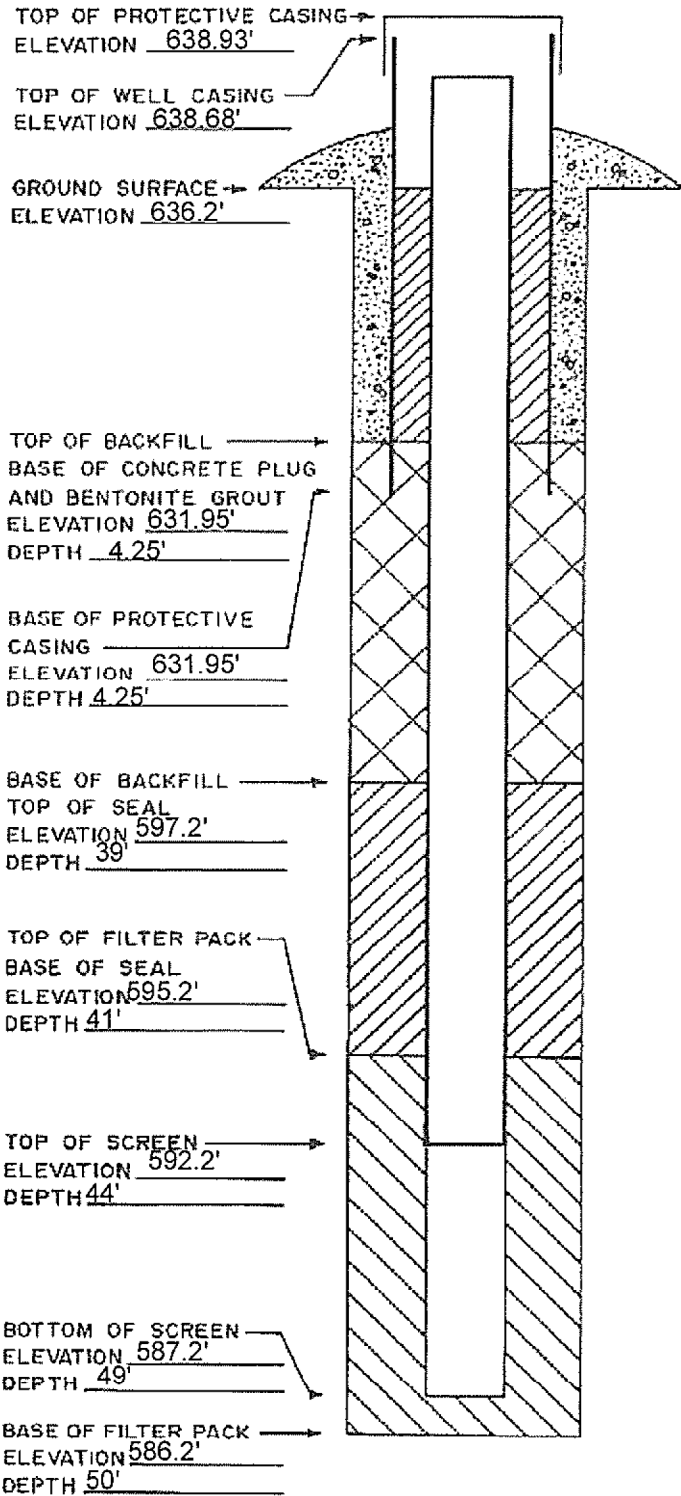
Attachments: Driller's log. Pipe schedules and grouting schedules. 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

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).





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

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

Well or Piezometer No: MW-303

Dates Started: 11/3/15 Date Completed: 11/4/15

A. SURVEYED LOCATIONS AND ELEVATIONS	B. SOIL BORING INFORMATION
Locations (± 0.5 ft): _____	Name & Address of Construction Company: _____
Specify corner of site: <u>NW</u>	<u>Cascade Drilling</u>
Distance & direction along boundary: <u>730' SE</u>	<u>301 Alderson St</u>
Distance & direction from boundary to wall: <u>760' NE</u>	<u>Schofield, WI 54476</u>
Elevations (± 0.01 ft MSL): _____	Name of Driller: <u>Mike Mueller</u>
Ground Surface: <u>653.85</u>	Drilling Method: <u>HSA</u>
Top of protective casing: <u>656.74</u>	Drilling Fluid: <u>None</u>
Top of well casing: _____ <u>656.27</u>	Bore Hole Diameter: <u>8"</u>
Benchmark elevation: <u>633.86, NAVD 1988 datum</u>	Soil Sampling Method: <u>Spoon</u>
Benchmark description: <u>CP 300, iron rod in concrete</u>	Depth of Boring: <u>27 feet</u>

C. MONITORING WELL INSTALLATION	
Casing material: _____ <u>PVC</u>	Placement method: <u>Gravity</u>
Length of casing: _____ <u>16</u>	Volume: _____
Outside casing diameter: _____ <u>2.40"</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>.01"</u>	Material of protective casing: <u>Steel 6"</u>
Screen length: _____ <u>10'</u>	Material of grout between protective casing and well casing: <u>sand</u>
Depth of well: _____ <u>26'</u>	Protective cap: _____
Filter Pack: _____	Material: <u>steel</u>
Material: _____ <u>Red Flint</u>	Vented: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Locking: <input type="checkbox"/> Yes <input type="checkbox"/> No
Grain size: _____ <u>#40</u>	Well Cap: _____
Volume: _____ <u>250 lbs</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>16.35</u>	Stabilization Time: <u>< 1 hr.</u>
Well development method: <u>Surged and pumped to reduce turbidity</u>	
Average depth of frostline: <u>4'</u>	

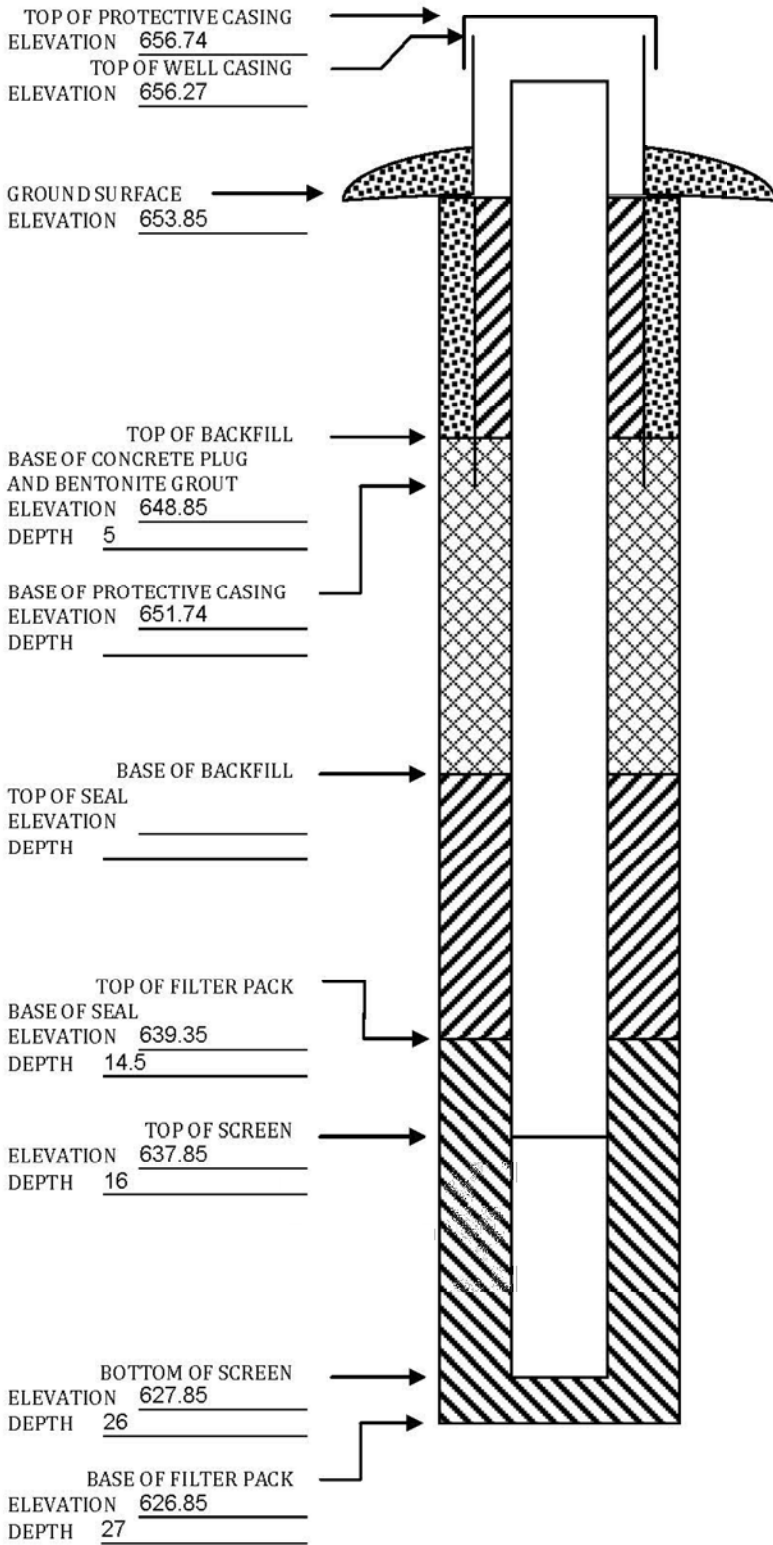
Attachments: Driller's log, Pipe schedules and grouting schedules. 8 1/2x11 inch map showing locations of all monitoring wells and piezometers.

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 - Lansing Generating Station Permit No. _____
Well or Piezometer No. MW304 Dates Started 5/15/2019 Date Completed 5/15/2019

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

Specify corner of site NW Distance and direction along boundary 1,340 S
Distance and direction from boundary to surface monitoring well 10 E
Elevation (+0.01 ft. MSL) _____
Ground Surface 635.47 Top of protective casing 636.68
Top of well casing 636.43 Benchmark elevation 653.26
Benchmark description Brass cap in PCC walkway to weir structure on north side of entrance road

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 None Bore Hole diameter 8.5"
Soil sampling method Split Spoon Depth of boring 22'

C. MONITORING WELL INSTALLATION

Casing material <u>PVC</u>	Placement method <u>Gravity</u>
Length of casing <u>20.26'</u>	Volume _____
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</u>	Surface seal design: <u>Concrete</u>
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>Bentonite chips</u>
Depth of Well <u>20'</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 _____	Well cap: _____
Volume <u>19.4 cubic feet</u>	Material <u>Plastic</u>
Seal (minimum 3 ft. length above filter pack): _____	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Material <u>Bentonite</u>	

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

Water level 13.21' Stabilization time <1 hour
Well development method Surged & pumped to reduce turbidity
Average depth of frost line 4

DRILLER'S CERTIFICATION

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

Signature  Certification # 11509 Date 8/8/2019

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.

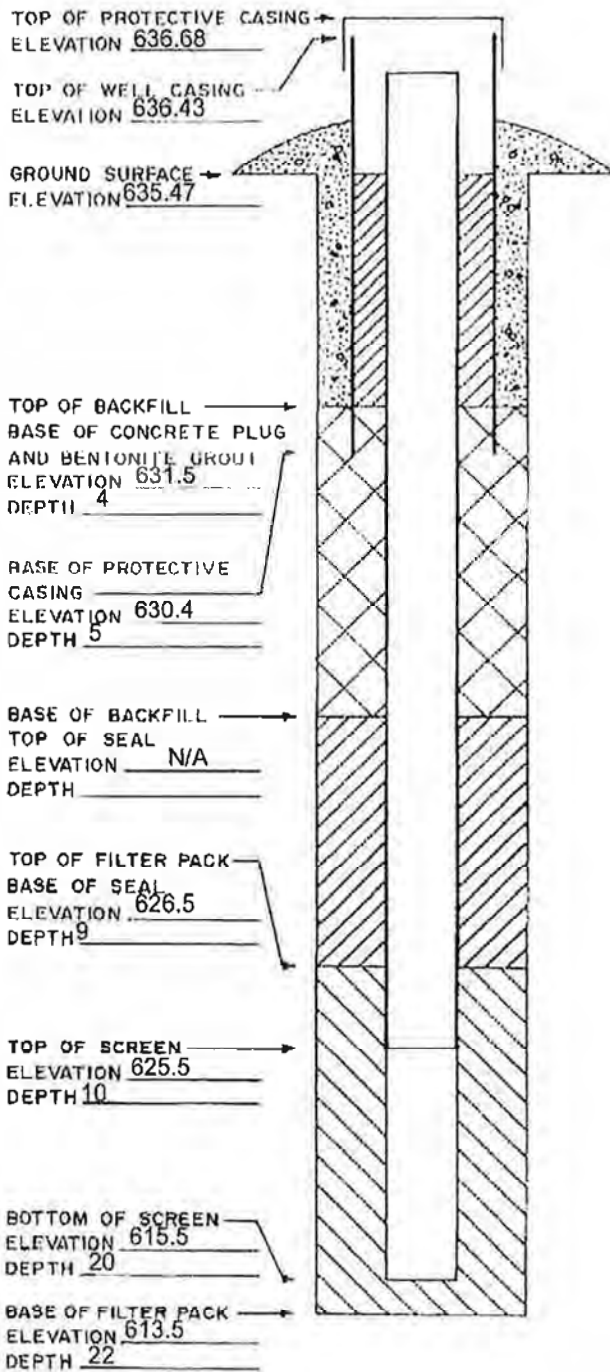
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

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 - Lansing Generating Station Permit No. _____
Well or Piezometer No. MW-304A Dates Started 12/18/2019 Date Completed 12/19/2019

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

Specify corner of site NW Distance and direction along boundary 1340 S
Distance and direction from boundary to surface monitoring well 10 E
Elevation (+0.01 ft. MSL) _____
Ground Surface 635.6 Top of protective casing 638.6
Top of well casing 638.36 Benchmark elevation 653.26
Benchmark description Brass cap in PCC walkway to weir structure on north side of entrance road

B. SOIL BORING INFORMATION

Construction Company Name Cascade Drilling
Address 301 Alderson St. City, State, Zip Code Schofield, WI. 54476
Name of driller Paul Dickinson
Drilling method Rotosonic Drilling fluid Water Bore Hole diameter 6"
Soil sampling method Sample bag Depth of boring 51'

C. MONITORING WELL INSTALLATION

Casing material <u>Sch. 80 PVC</u>	Placement method <u>Poured</u>
Length of casing <u>52.45'</u>	Volume <u>2 cu. ft.</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>1.939"</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>60 gal.</u>
Screen material <u>PVC</u>	Surface seal design: <u>Protop</u>
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>50'</u>	Protective cap: <u>6" Royer cap</u>
Filter Pack:	Material <u>Aluminum</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>#40 red flint, topped with #7</u>	Well cap:
Volume <u>1.5cu. ft.</u>	Material <u>Plastic and rubber</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 13.35' Stabilization time >1hr
Well development method Surged and pumped
Average depth of frost line 4 ft

DRILLER'S CERTIFICATION

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

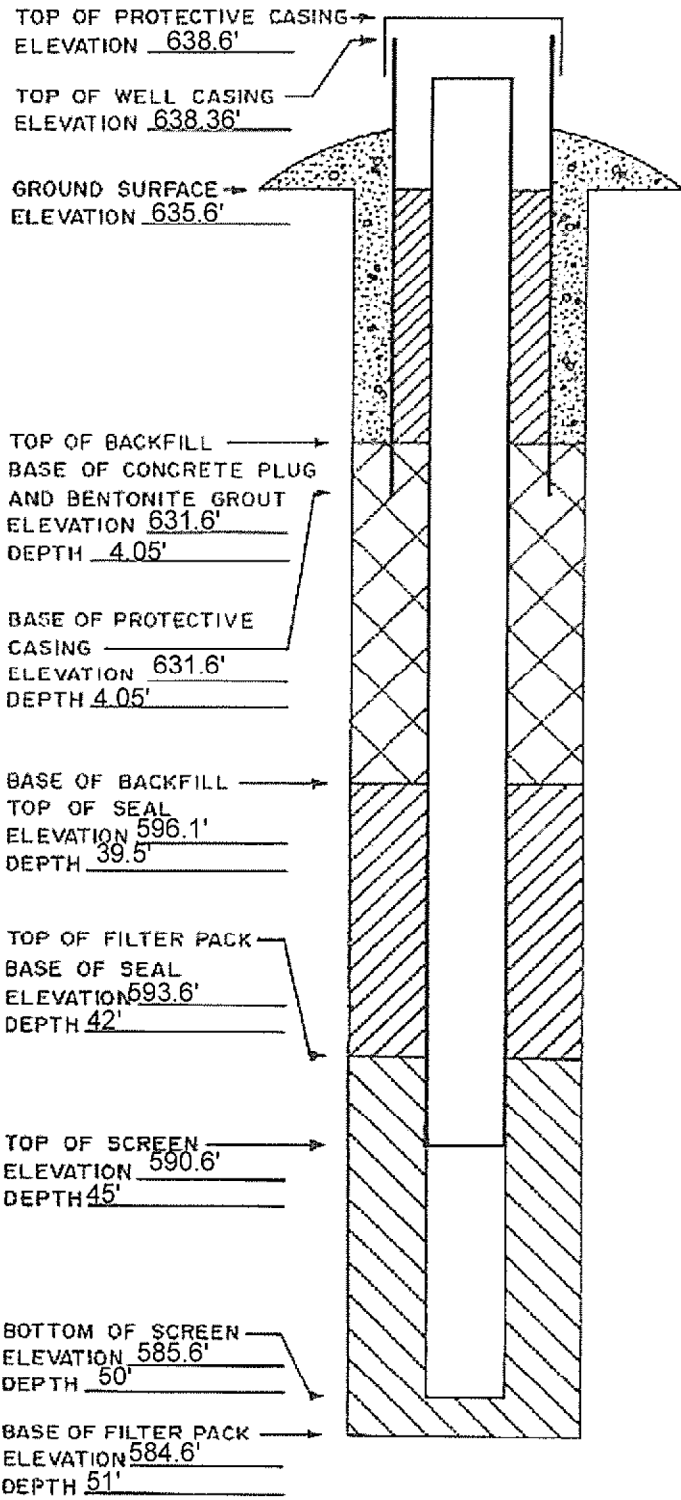
Signature [Signature] Certification # 7361 Date 12-19-2019

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 - Lansing Generating Station Permit No. _____
Well or Piezometer No. MW305 Dates Started 5/16/2019 Date Completed 5/16/2019

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

Specify corner of site NW Distance and direction along boundary 1,125 S
Distance and direction from boundary to surface monitoring well 630 E
Elevation (+0.01 ft. MSL) _____
Ground Surface 631.75 Top of protective casing 634.32
Top of well casing 633.87 Benchmark elevation 653.26
Benchmark description Brass cap in PCC walkway to weir structure on north side of entrance road

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</u>	Placement method <u>Gravity</u>
Length of casing <u>5'</u>	Volume <u>2.7 cubic ft</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</u>	Surface seal design: <u>Concrete</u>
Screen opening size <u>0.01'</u>	Material of protective casing: <u>Steel</u>
	Material of grout between protective casing and well casing: <u>Bentonite chips</u>
Screen length <u>10'</u>	Protective cap: _____
Depth of Well <u>14.5'</u>	Material <u>steel</u>
Filter Pack:	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Material <u>Filter Sand</u>	Well cap: _____
Grain Size _____	Material <u>Plastic</u>
Volume <u>23 bags</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Seal (minimum 3 ft. length above filter pack): _____	
Material <u>Bentonite</u>	

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

Water level 12.13' Stabilization time < 1 hr
Well development method Surged and pumped to remove turbidity
Average depth of frost line 4 ft

DRILLER'S CERTIFICATION

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

Signature  Certification # 11509 Date 8/8/2019

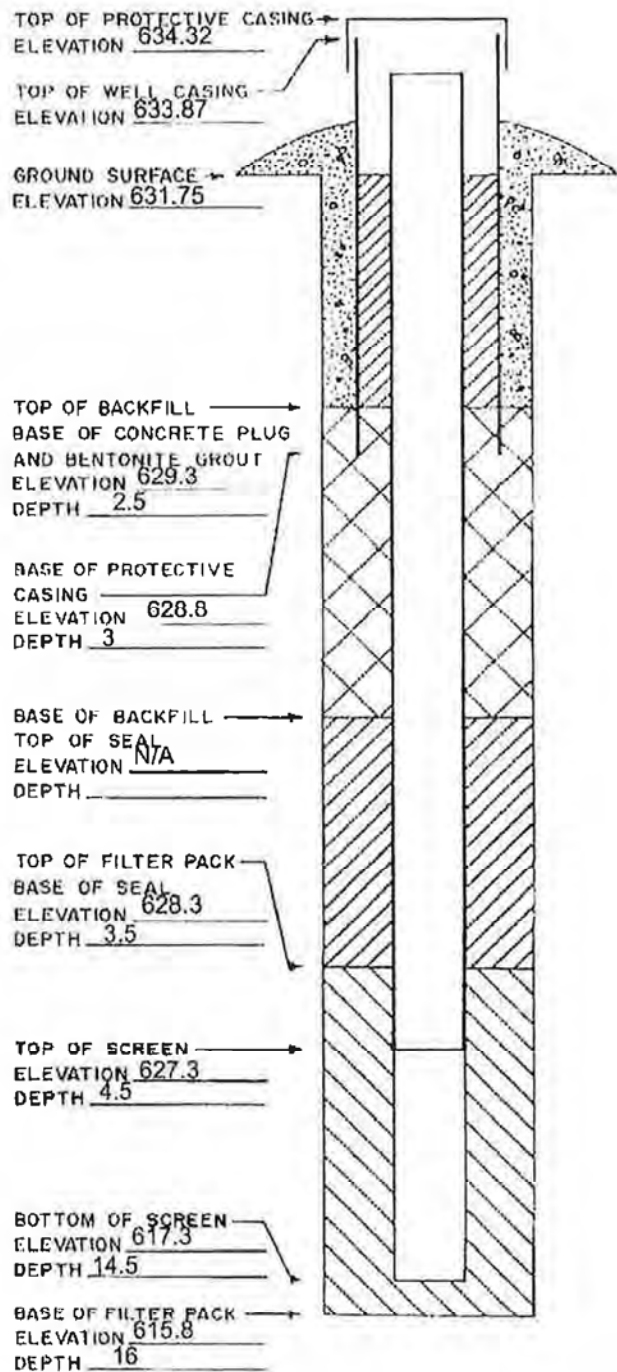
Attachments: Driller's log, Pipe schedules and grouting schedules, 8 1/2 inch x 11 inch map showing locations of all monitoring wells and piezometers.

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 - Lansing Generating Station Permit No. _____
Well or Piezometer No. MW306 Dates Started 5/16/2019 Date Completed 5/16/2019

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

Specify corner of site NW Distance and direction along boundary 420 SE
Distance and direction from boundary to surface monitoring well 60 SW
Elevation (+0.01 ft. MSL) _____
Ground Surface 636.74 Top of protective casing 637.71
Top of well casing 637.48 Benchmark elevation 653.26
Benchmark description Brass cap in PCC walkway to weir structure on north side of entrance road

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 26'

C. MONITORING WELL INSTALLATION

Casing material PVC Placement method Gravly
Length of casing 26' Volume _____
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 Surface seal design: Concrete
Screen opening size 0.01' Material of protective casing: Steel
Material of grout between
Screen length 10' protective casing and well casing: Bentonite chips
Depth of Well 25' Protective cap: _____
Filter Pack: Material Steel
Material Filter Sand Vented?: Y N Locking?: Y N
Grain Size _____ Well cap: _____
Volume 37 cubic feet Material Plastic
Seal (minimum 3 ft. length above filter pack): Vented?: Y N
Material Bentonite

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

Water level 13.11' Stabilization time <1 hr
Well development method Surged and pumped to reduce turbidity
Average depth of frost line 4 ft

DRILLER'S CERTIFICATION

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

Signature  Certification # 11509 Date 8/8/2019

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.

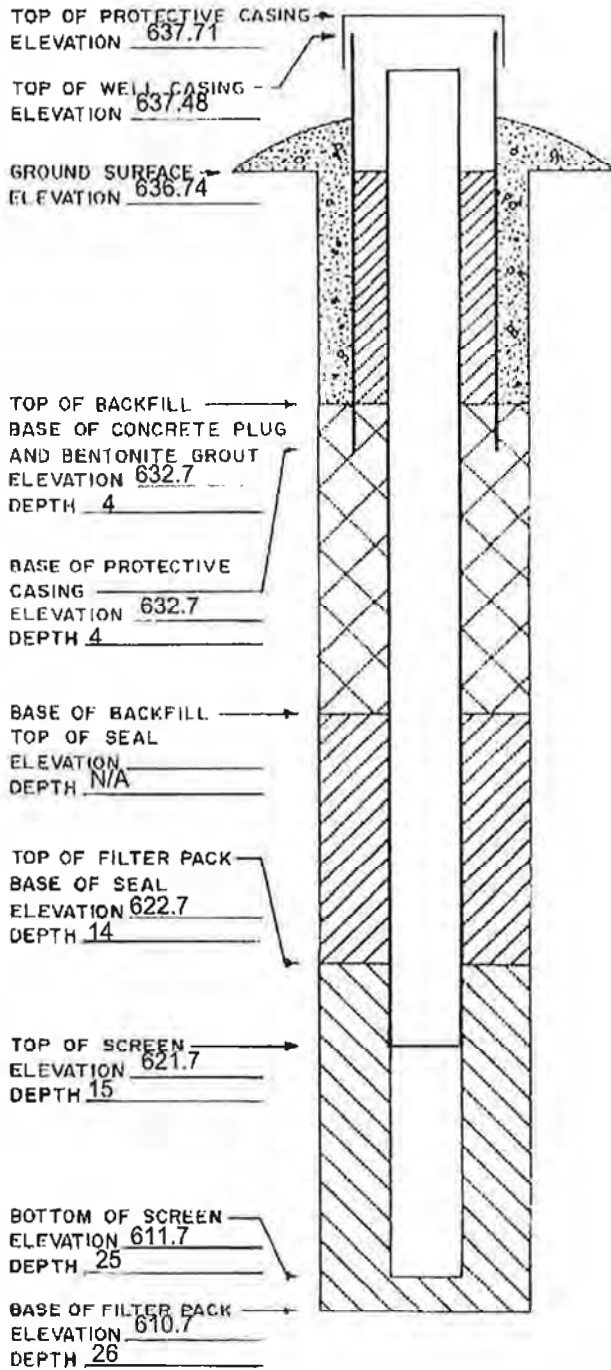
Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

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 - Lansing Generating Station Permit No. _____
Well or Piezometer No. MW-306A Dates Started 5/17/2019 Date Completed 12/19/2019

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

Specify corner of site NW Distance and direction along boundary 420 SE
Distance and direction from boundary to surface monitoring well 60 SW
Elevation (+0.01 ft. MSL) _____
Ground Surface 636.7 Top of protective casing 639.56
Top of well casing 639.33 Benchmark elevation 653.26
Benchmark description Brass cap in PCC walkway to weir structure on north side of entrance road

B. SOIL BORING INFORMATION

Construction Company Name Cascade Drilling
Address 301 Alderson St. City, State, Zip Code Schofield, WI. 54476
Name of driller Paul Dickinson
Drilling method Rotosonic Drilling fluid Water Bore Hole diameter 6"
Soil sampling method Sample bag Depth of boring 56'

C. MONITORING WELL INSTALLATION

Casing material <u>Sch. 80 PVC</u>	Placement method <u>Poured</u>
Length of casing <u>58.06'</u>	Volume <u>2 cu. ft.</u>
Outside casing diameter <u>2.4"</u>	Backfill (if different from seal): _____
Inside casing diameter <u>1.939"</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>60 gal.</u>
Screen material <u>PVC</u>	Surface seal design: <u>Protop</u>
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>55'</u>	Protective cap: <u>6" Royer cap</u>
Filter Pack: _____	Material <u>Aluminum</u>
Material <u>Filter Sand</u>	Vented?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Grain Size <u>#40 red flint, topped with #7</u>	Locking?: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Volume <u>1.5cu. ft.</u>	Well cap: _____
Seal (minimum 3 ft. length above filter pack): _____	Material <u>Plastic and rubber</u>
Material <u>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 19.56' Stabilization time < 1 minute
Well development method Surged and pumped
Average depth of frost line 4 ft

DRILLER'S CERTIFICATION

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

Signature [Signature] Certification # 9361 Date 12-19-2019

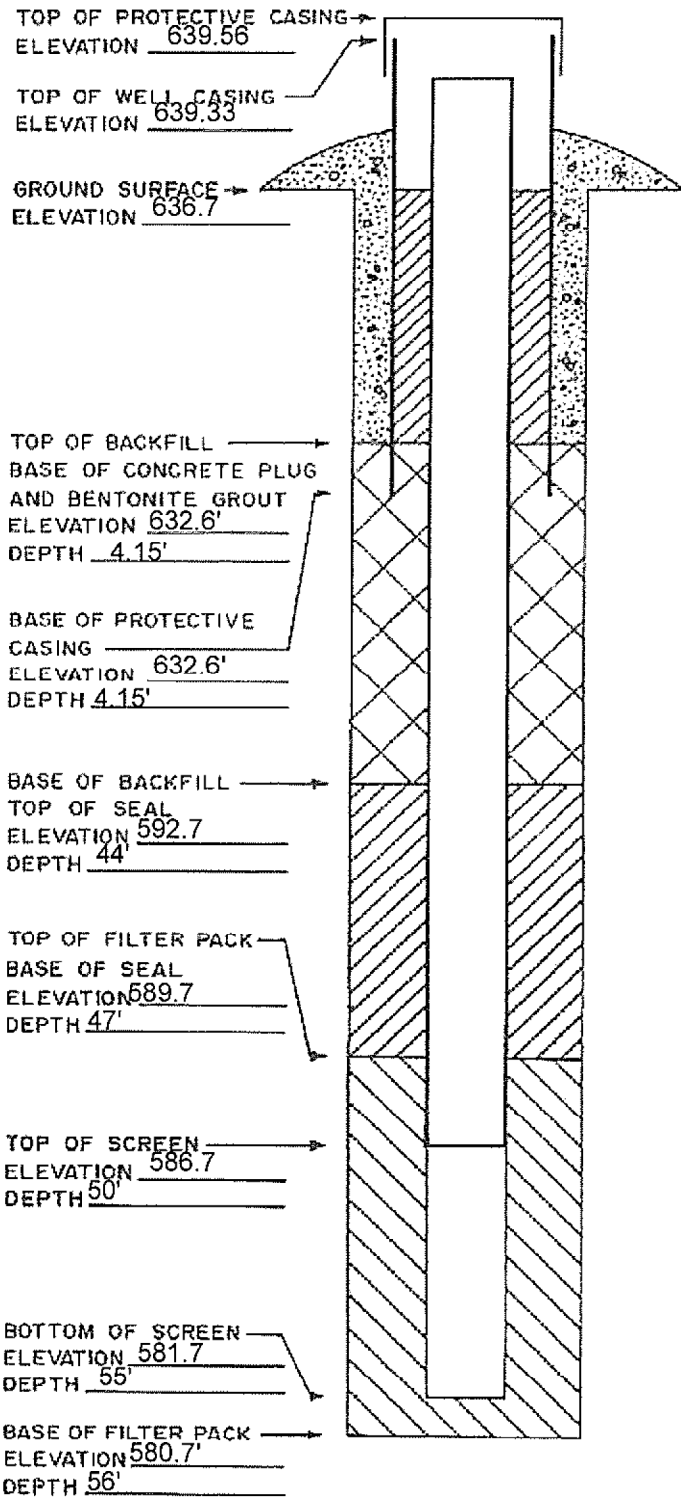
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Questions? Call or Email: Nina Booker Environmental Engineer Sr., 515-725-8309, nina.booker@dnr.iowa.gov

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).



SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-307	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/22/2021		Date Drilling Completed 6/22/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 628.5 Feet		Surface Elevation 640.70 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3,957,777 N, 5,541,269 E S/C/N				Lat 43° 20' 2.56"		Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E	
SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W				Long -91° 10' 9.97"		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S1	60		1	Hydrovaced to 12' below ground surface with some cave-in to about 10'.										
			2											
			3											
			4											
			5											
			6											
			7											
			8											
			9											
			10											
			11	POORLY GRADED SAND, medium grained, yellowish brown (10YR 5/4) with 4" layer of gray sand (10YR 5/1), shells and subroundd gravel.	SP									
			12											
			13											
			14											
			15											

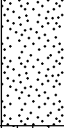
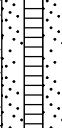

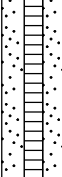
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718	Tel: Fax:
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SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307**

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	
S2	60		16	Same as above , shells still present with more gray sand.	SP									
			17	SILT, dark gray to black (5Y 2.5/2), with trace very fine grained sand and gravel/cobbles.	ML			0.75	W/M					
S3	12		20	Same as above but gray (5Y 4/1).					W/M					
			21	End of boring at 21' below ground surface. Well placed from 20' with 10' screen at 20 to 10'.										

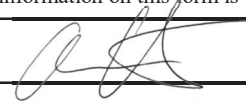
SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-307A	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/22/2021		Date Drilling Completed 6/22/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 622.8 Feet		Surface Elevation 640.60 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3,957,775 N, 5,541,261 E S/C/N SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W				Lat 43° 20' 2.54" Long -91° 10' 10.08"		Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments			
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200				
S1	60		1	Hydrovaced to 12' below ground surface with some cave-in to about 10'.													
			2														
			3														
			4														
			5														
			6														
			7														
			8														
			9														
			10														
			11	POORLY GRADED SAND, medium grained, yellowish brown (10YR 5/4) with 8" layer of gray sand (10YR 5/1) with trace shells and sub-rounded gravel.	SP												
			12														
			13														
			14														
			15														



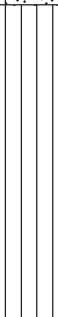

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature  Firm SCS Engineers
 2830 Dairy Drive, Madison, WI 53718
 Tel: _____ Fax: _____

SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307A**

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	
S2	48		16 17 18 19		SP				W					
S3	60		20 21 22 23 24	SILT, dark gray, dark gray to black, (5Y 2.5/2) with fine grained sand and trace gravel.	ML			1.5-2.5	M					
S4	60		25 26 27 28 29	LEAN CLAY, black (5Y 2.5/1), soft.				0.75	W					
S5	60		30 31 32 33 34	Same as above but very soft with trace fine to medium grained sand.	CL			0.0	M/W					
S6	24		35 36 37 38 39 40	POORLY GRADED GRAVEL WITH SAND, fine to coarse gravel, sub-rounded to sub-angular, sand is fine to coarse grained, dark brownish gray (2.5Y 4/2) with trace silt.	GP			0.0	W					

SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-307A**

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	
S7	56		41		GP									
			42	SILT, dark gray (5Y 3/1), with trace sand, gravel and cobbles.	ML									
			43	WELL GRADED SAND, fine to medium grained, yellow (2.Y 7/6) with gravel and pieces of shell.	SW			0.0	W					
			44	SILT, dark gray (5Y 4/1) and transitions to olive brown (2.5Y 4/4), very soft.	ML									
			45	POORLY GRADED SAND, fine to medium grained, light olive brown (2.5Y 5/4) with trace silt.	SP									
S8	70		46											
			47	SANDY SILT, light olive brown (2.5Y 5/3), very soft, sand is fine to medium grained.	ML									
			48	SILTY SAND, fine to coarse grained, olive yellow (2.5Y 6/8).	SM			0.0	W					
			49	POORLY GRADED GRAVEL WITH SAND AND SILT, coarse gravel, sand and silt are light olive brown (2.5Y 5/4), sand is fine to coarse grained.	GP-GM									
			50	SANDY SILT WITH GRAVEL, gray to dark gray (2.5Y 4/1), sand is fine to coarse grained, gravel is coarse, sub-rounded with trace cobbles, very soft.	ML									
			51											
			52	End of boring at 52' below ground surface.										

SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-308	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/22/2021		Date Drilling Completed 6/22/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 618.8 Feet		Surface Elevation 635.70 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 3,958,236 N, 5,541,333 E S/C/N SW 1/4 of NW 1/4 of Section 2, T 98 N, R 3 W				Lat 43° 20' 7.07" Long -91° 10' 8.94"		Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Allamakee		County Code		Civil Town/City/ or Village Lansing, Iowa	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S1	60		1	Hydrovaced to 8 feet below ground surface and blind drilled the from 8 to 10'.											
			2												
			3												
			4												
			5												
			6												
			7												
			8												
			9												
			10												
			11	WELL SORTED SAND, fine to coarse grained, very dark grayish brown (10YR 3/2).	SW										
			12	SILT, gray to dark gray (2.5Y 3/2) with sticks, roots, and trace sand throughout, very soft.	ML										
			13												
			14												
			15												

Blind drilled 2 ft of slough from 8 to 10' bgs.

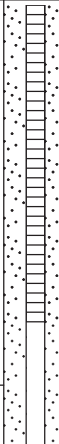
I hereby certify that the information on this form is true and correct to the best of my knowledge.

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

SOIL BORING LOG INFORMATION SUPPLEMENT

Boring Number **MW-308**

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	
S2	60		16	Same as above but with trace roots, no sticks, and pockets of sand, very sort.	ML				0.0	W				
			17											
S3	40		20	Same as above but very trace roots.	ML				0.0	W				
			21	SANDY SILT, gray to dark gray, (2.5Y 3/2), no visible roots, very soft.										
				End of boring at 22' below ground surface.										

slough in hole, actual recovery was ~2"

SOIL BORING LOG INFORMATION

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

Facility/Project Name Lansing Generating Station		SCS#: 25221161.00		License/Permit/Monitoring Number		Boring Number MW-309	
Boring Drilled By: Name of crew chief (first, last) and Firm Paul Dickinson Cascade Drilling				Date Drilling Started 6/23/2021		Date Drilling Completed 6/23/2021	
DNR Well ID No.		Common Well Name		Final Static Water Level 619.4 Feet		Surface Elevation 636.10 Feet	
						Borehole Diameter 6.0 in.	
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>				Lat 43° 20' 7.10"		Local Grid Location	
State Plane 3,958,229 N, 5,541,010 E S/C/N				Long -91° 10' 13.31"		Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2,		T 98 N, R 3 W		County Allamakee		County Code	
Facility ID				Civil Town/City/ or Village Lansing, Iowa			

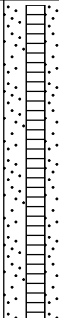
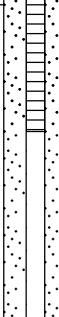
Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	Hydrovaced to 8' below ground surface.											
			2	Hole collapsed to 6' bgs.											
S1	20		6	WELL GRADED SAND, fine to coarse grained, grayish brown to brown (10YR 4/3) with trace coal (slough).	SP										Slough from 6 to 10 feet.
S2	60		10	SILT, dark gray to black (5Y 2.5/1) with trace roots, 4" layer of black organic soil with trace gravel and sticks.	ML-OL										
			14	SILTY SAND WITH GRAVEL, fine to coarse grained, gray to dark gray (5Y 4/1), gravel is	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:	
				Fax:	

**SOIL BORING LOG INFORMATION
SUPPLEMENT**

Boring Number **MW-309**

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	60		16	sub-rounded. SILT, dark gray (5Y 3/1), with roots and trace sticks, very soft.	ML									
			17											18
S4	60		20	SANDY SILT, very dark gray (5Y 3/1) with roots, trace gravel and peices of limestone at bottom of sample, sand is fine to medium grain.	ML									
			21											22
			25	End of boring at 25' below ground surface. Well placed from 22' with 10' screen at 22 to 12'.										



Appendix C

Laboratory Reports



ANALYTICAL REPORT

PREPARED FOR

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

Generated 12/11/2023 4:37:40 PM

JOB DESCRIPTION

Lansing Generating Station 25223070

JOB NUMBER

310-268726-1

Eurofins Cedar Falls

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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



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Case Narrative

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Job ID: 310-268726-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-268726-1

Receipt

The samples were received on 11/2/2023 9:30 AM. 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 0.0° C and 1.0° C.

HPLC/IC

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MW-301 (310-268726-1), MW-302 (310-268726-2), MW-307 (310-268726-9) and MW-6 (310-268726-11). 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.

RAD

Methods 903.0, 9315: Radium-226 160-635670 The bracketing daily (check), run the day after sample (240-191649-R-3-A MSD) was run, was slightly outside the established QC criteria. The efficiency is set at 3% and the bracketing check achieved 3.2. The daily (check) run the day the sample was run, passed. Additionally the affected sample is the MSD which passed within its QC limits demonstrating no adverse effect from the potential bias.

The bracketing daily (background), run the day after the sample was run, was slightly outside the established QC criteria. The daily (background) run the day the sample was run, passed. Additionally the affected sample is the MSD which passed within its QC limits demonstrating no adverse effect from the potential bias.

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: Lansing Generating Station 25223070

Job ID: 310-268726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-268726-1	MW-301	Water	10/31/23 10:10	11/02/23 09:30
310-268726-2	MW-302	Water	10/30/23 16:30	11/02/23 09:30
310-268726-3	MW-302A	Water	10/31/23 09:50	11/02/23 09:30
310-268726-4	MW-304	Water	10/30/23 13:10	11/02/23 09:30
310-268726-5	MW-304A	Water	10/30/23 14:30	11/02/23 09:30
310-268726-6	MW-305	Water	10/31/23 11:55	11/02/23 09:30
310-268726-7	MW-306	Water	10/30/23 11:30	11/02/23 09:30
310-268726-8	MW-306A	Water	10/30/23 12:30	11/02/23 09:30
310-268726-9	MW-307	Water	10/30/23 13:40	11/02/23 09:30
310-268726-10	MW-307A	Water	10/30/23 15:05	11/02/23 09:30
310-268726-11	MW-6	Water	10/30/23 16:00	11/02/23 09:30
310-268726-12	Field Blank	Water	10/30/23 16:40	11/02/23 09:30

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- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Detection Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-301

Lab Sample ID: 310-268726-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	29		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	58		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	2.9		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	160		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	650		100	76	ug/L	1		6020B	Total/NA
Calcium	83		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	250		100	36	ug/L	1		6020B	Total/NA
Lithium	8.1	J	10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	11		2.0	0.91	ug/L	1		6020B	Total/NA
Total Dissolved Solids	340		50	34	mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	622.20				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-96.0				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.62				mg/L	1		Field Sampling	Total/NA
Field pH	7.71				SU	1		Field Sampling	Total/NA
Field Conductivity	639.4				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	12.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.49				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302

Lab Sample ID: 310-268726-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		5.0	2.3	mg/L	5		9056A	Total/NA
Arsenic	64		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	830		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	590		100	76	ug/L	1		6020B	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020B	Total/NA
Chromium	10	B	5.0	1.1	ug/L	1		6020B	Total/NA
Cobalt	1.3	B	0.50	0.17	ug/L	1		6020B	Total/NA
Iron	45000		100	36	ug/L	1		6020B	Total/NA
Molybdenum	1.4	J	2.0	0.91	ug/L	1		6020B	Total/NA
Thallium	0.34	J	1.0	0.26	ug/L	1		6020B	Total/NA
Total Dissolved Solids	520		50	34	mg/L	1		SM 2540C	Total/NA
pH	7.0	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	627.05				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-177.4				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.26				mg/L	1		Field Sampling	Total/NA
Field pH	7.21				SU	1		Field Sampling	Total/NA
Field Conductivity	1185				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.82				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302A

Lab Sample ID: 310-268726-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	622.91				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	36.1				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	5.16				mg/L	1		Field Sampling	Total/NA
Field pH	7.34				SU	1		Field Sampling	Total/NA
Field Conductivity	616.4				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	11.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				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: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-304

Lab Sample ID: 310-268726-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	290		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	621.21				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-29.7				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	7.54				mg/L	1		Field Sampling	Total/NA
Field pH	7.17				SU	1		Field Sampling	Total/NA
Field Conductivity	575.6				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	12.0				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304A

Lab Sample ID: 310-268726-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	160		100	36	ug/L	1		6020B	Total/NA
Arsenic	0.76	J	2.0	0.53	ug/L	1		6020B	Total/NA
Groundwater Elevation	623.57				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-120.7				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.18				mg/L	1		Field Sampling	Total/NA
Field pH	7.93				SU	1		Field Sampling	Total/NA
Field Conductivity	472.9				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.9				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	23.95				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-268726-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	6700		100	36	ug/L	1		6020B	Total/NA
Arsenic	1.8	J	2.0	0.53	ug/L	1		6020B	Total/NA
Groundwater Elevation	626.89				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-153.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.71				mg/L	1		Field Sampling	Total/NA
Field pH	7.17				SU	1		Field Sampling	Total/NA
Field Conductivity	745.0				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	15.1				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	4.18				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-268726-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	53000		100	36	ug/L	1		6020B	Total/NA
Arsenic	9.5		2.0	0.53	ug/L	1		6020B	Total/NA
Groundwater Elevation	620.41				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-158.8				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.20				mg/L	1		Field Sampling	Total/NA
Field pH	7.05				SU	1		Field Sampling	Total/NA
Field Conductivity	2071				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	16.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	33.15				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306A

Lab Sample ID: 310-268726-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	1700		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	621.02				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-306A (Continued)

Lab Sample ID: 310-268726-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxidation Reduction Potential	-84.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	1.25				mg/L	1		Field Sampling	Total/NA
Field pH	7.43				SU	1		Field Sampling	Total/NA
Field Conductivity	650.0				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.2				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307

Lab Sample ID: 310-268726-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	36		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	2.3		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	340		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	920		100	76	ug/L	1		6020B	Total/NA
Calcium	56		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	56	J	100	36	ug/L	1		6020B	Total/NA
Lithium	16		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	5.5		2.0	0.91	ug/L	1		6020B	Total/NA
Total Dissolved Solids	250		50	34	mg/L	1		SM 2540C	Total/NA
pH	8.2	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	628.65				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-102.1				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.19				mg/L	1		Field Sampling	Total/NA
Field pH	8.32				SU	1		Field Sampling	Total/NA
Field Conductivity	489.7				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.5				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307A

Lab Sample ID: 310-268726-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	200		100	36	ug/L	1		6020B	Total/NA
Arsenic	1.0	J	2.0	0.53	ug/L	1		6020B	Total/NA
Groundwater Elevation	625.01				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-52.4				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.49				mg/L	1		Field Sampling	Total/NA
Field pH	7.71				SU	1		Field Sampling	Total/NA
Field Conductivity	609.6				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	11.9				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-6

Lab Sample ID: 310-268726-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.5		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	22		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	46		2.0	0.64	ug/L	1		6020B	Total/NA
Calcium	73		0.50	0.19	mg/L	1		6020B	Total/NA
Total Dissolved Solids	280		50	34	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	663.59				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-6 (Continued)

Lab Sample ID: 310-268726-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxidation Reduction Potential	-12.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	7.94				mg/L	1		Field Sampling	Total/NA
Field pH	7.38				SU	1		Field Sampling	Total/NA
Field Conductivity	565.2				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	9.7				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-268726-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	5.8	HF	1.0	1.0	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: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-301

Lab Sample ID: 310-268726-1

Date Collected: 10/31/23 10:10

Matrix: Water

Date Received: 11/02/23 09:30

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	29		5.0	2.3	mg/L			11/17/23 02:41	5
Fluoride	<0.38		1.0	0.38	mg/L			11/17/23 02:41	5
Sulfate	58		5.0	2.1	mg/L			11/17/23 02:41	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		11/07/23 09:30	11/09/23 17:20	1
Arsenic	2.9		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:20	1
Barium	160		2.0	0.64	ug/L		11/07/23 09:30	11/09/23 17:20	1
Beryllium	<0.33		1.0	0.33	ug/L		11/07/23 09:30	11/09/23 17:20	1
Boron	650		100	76	ug/L		11/07/23 09:30	11/09/23 17:20	1
Cadmium	<0.10		0.20	0.10	ug/L		11/07/23 09:30	11/09/23 17:20	1
Calcium	83		0.50	0.19	mg/L		11/07/23 09:30	11/09/23 17:20	1
Chromium	<1.1		5.0	1.1	ug/L		11/07/23 09:30	11/09/23 17:20	1
Cobalt	<0.17		0.50	0.17	ug/L		11/07/23 09:30	11/09/23 17:20	1
Iron	250		100	36	ug/L		11/07/23 09:30	11/09/23 17:20	1
Lead	<0.24		0.50	0.24	ug/L		11/07/23 09:30	11/09/23 17:20	1
Lithium	8.1 J		10	2.5	ug/L		11/07/23 09:30	11/09/23 17:20	1
Molybdenum	11		2.0	0.91	ug/L		11/07/23 09:30	11/09/23 17:20	1
Selenium	<1.4		5.0	1.4	ug/L		11/07/23 09:30	11/09/23 17:20	1
Thallium	<0.26		1.0	0.26	ug/L		11/07/23 09:30	11/10/23 16:12	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		11/16/23 11:57	11/17/23 13:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	340		50	34	mg/L			11/03/23 18:27	1
pH (SM 4500 H+ B)	7.8	HF	1.0	1.0	SU			11/02/23 11:57	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	0.288		0.184	0.186	1.00	0.247	pCi/L	11/07/23 10:39	12/08/23 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	88.6		30 - 110					11/07/23 10:39	12/08/23 15:00	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	0.0367	U	0.280	0.280	1.00	0.520	pCi/L	11/07/23 10:42	12/07/23 15:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	88.6		30 - 110					11/07/23 10:42	12/07/23 15:42	1
Y Carrier	80.4		30 - 110					11/07/23 10:42	12/07/23 15:42	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-301
 Date Collected: 10/31/23 10:10
 Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-1
 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	0.324	U	0.335	0.336	5.00	0.520	pCi/L		12/11/23 15:53	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	622.20				ft			10/31/23 10:10	1
Oxidation Reduction Potential	-96.0				mV			10/31/23 10:10	1
Oxygen, Dissolved	0.62				mg/L			10/31/23 10:10	1
Field pH	7.71				SU			10/31/23 10:10	1
Field Conductivity	639.4				umhos/cm			10/31/23 10:10	1
Field Temperature	12.4				Degrees C			10/31/23 10:10	1
Field Turbidity	0.49				NTU			10/31/23 10:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-302

Lab Sample ID: 310-268726-2

Date Collected: 10/30/23 16:30

Matrix: Water

Date Received: 11/02/23 09:30

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		5.0	2.3	mg/L			11/17/23 03:47	5
Fluoride	<0.38		1.0	0.38	mg/L			11/17/23 03:47	5
Sulfate	<2.1		5.0	2.1	mg/L			11/17/23 03:47	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		11/07/23 09:30	11/09/23 17:23	1
Arsenic	64		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:23	1
Barium	830		2.0	0.64	ug/L		11/07/23 09:30	11/09/23 17:23	1
Beryllium	<0.33		1.0	0.33	ug/L		11/07/23 09:30	11/09/23 17:23	1
Boron	590		100	76	ug/L		11/07/23 09:30	11/09/23 17:23	1
Cadmium	<0.10		0.20	0.10	ug/L		11/07/23 09:30	11/09/23 17:23	1
Calcium	130		0.50	0.19	mg/L		11/07/23 09:30	11/09/23 17:23	1
Chromium	10 B		5.0	1.1	ug/L		11/07/23 09:30	11/09/23 17:23	1
Cobalt	1.3 B		0.50	0.17	ug/L		11/07/23 09:30	11/09/23 17:23	1
Iron	45000		100	36	ug/L		11/07/23 09:30	11/09/23 17:23	1
Lead	<0.24		0.50	0.24	ug/L		11/07/23 09:30	11/09/23 17:23	1
Lithium	<2.5		10	2.5	ug/L		11/07/23 09:30	11/09/23 17:23	1
Molybdenum	1.4 J		2.0	0.91	ug/L		11/07/23 09:30	11/09/23 17:23	1
Selenium	<1.4		5.0	1.4	ug/L		11/07/23 09:30	11/09/23 17:23	1
Thallium	0.34 J		1.0	0.26	ug/L		11/07/23 09:30	11/09/23 17:23	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		11/16/23 11:57	11/17/23 13:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	520		50	34	mg/L			11/03/23 18:27	1
pH (SM 4500 H+ B)	7.0 HF		1.0	1.0	SU			11/02/23 11:58	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	0.714		0.337	0.343	1.00	0.413	pCi/L	11/07/23 10:39	12/08/23 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.6		30 - 110					11/07/23 10:39	12/08/23 15:00	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	1.96		0.594	0.621	1.00	0.644	pCi/L	11/07/23 10:42	12/07/23 15:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.6		30 - 110					11/07/23 10:42	12/07/23 15:42	1
Y Carrier	81.9		30 - 110					11/07/23 10:42	12/07/23 15:42	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-302
 Date Collected: 10/30/23 16:30
 Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-2
 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	2.68		0.683	0.709	5.00	0.644	pCi/L		12/11/23 15:53	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	627.05				ft			10/30/23 16:30	1
Oxidation Reduction Potential	-177.4				mV			10/30/23 16:30	1
Oxygen, Dissolved	0.26				mg/L			10/30/23 16:30	1
Field pH	7.21				SU			10/30/23 16:30	1
Field Conductivity	1185				umhos/cm			10/30/23 16:30	1
Field Temperature	13.4				Degrees C			10/30/23 16:30	1
Field Turbidity	0.82				NTU			10/30/23 16:30	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-302A

Lab Sample ID: 310-268726-3

Date Collected: 10/31/23 09:50

Matrix: Water

Date Received: 11/02/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<36		100	36	ug/L		11/07/23 09:30	11/09/23 17:40	1
Arsenic	<0.53		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:40	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	622.91				ft			10/31/23 09:50	1
Oxidation Reduction Potential	36.1				mV			10/31/23 09:50	1
Oxygen, Dissolved	5.16				mg/L			10/31/23 09:50	1
Field pH	7.34				SU			10/31/23 09:50	1
Field Conductivity	616.4				umhos/cm			10/31/23 09:50	1
Field Temperature	11.4				Degrees C			10/31/23 09:50	1
Field Turbidity	0.00				NTU			10/31/23 09:50	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-304
 Date Collected: 10/30/23 13:10
 Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-4
 Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	290		100	36	ug/L		11/07/23 09:30	11/09/23 17:44	1
Arsenic	<0.53		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:44	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	621.21				ft			10/30/23 13:10	1
Oxidation Reduction Potential	-29.7				mV			10/30/23 13:10	1
Oxygen, Dissolved	7.54				mg/L			10/30/23 13:10	1
Field pH	7.17				SU			10/30/23 13:10	1
Field Conductivity	575.6				umhos/cm			10/30/23 13:10	1
Field Temperature	12.0				Degrees C			10/30/23 13:10	1
Field Turbidity	0.00				NTU			10/30/23 13:10	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-304A

Lab Sample ID: 310-268726-5

Date Collected: 10/30/23 14:30

Matrix: Water

Date Received: 11/02/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	160		100	36	ug/L		11/07/23 09:30	11/09/23 17:47	1
Arsenic	0.76	J	2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:47	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	623.57				ft			10/30/23 14:30	1
Oxidation Reduction Potential	-120.7				mV			10/30/23 14:30	1
Oxygen, Dissolved	0.18				mg/L			10/30/23 14:30	1
Field pH	7.93				SU			10/30/23 14:30	1
Field Conductivity	472.9				umhos/cm			10/30/23 14:30	1
Field Temperature	10.9				Degrees C			10/30/23 14:30	1
Field Turbidity	23.95				NTU			10/30/23 14:30	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-305

Lab Sample ID: 310-268726-6

Date Collected: 10/31/23 11:55

Matrix: Water

Date Received: 11/02/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	6700		100	36	ug/L		11/07/23 09:30	11/09/23 17:51	1
Arsenic	1.8	J	2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	626.89				ft			10/31/23 11:55	1
Oxidation Reduction Potential	-153.3				mV			10/31/23 11:55	1
Oxygen, Dissolved	0.71				mg/L			10/31/23 11:55	1
Field pH	7.17				SU			10/31/23 11:55	1
Field Conductivity	745.0				umhos/cm			10/31/23 11:55	1
Field Temperature	15.1				Degrees C			10/31/23 11:55	1
Field Turbidity	4.18				NTU			10/31/23 11:55	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-306

Lab Sample ID: 310-268726-7

Date Collected: 10/30/23 11:30

Matrix: Water

Date Received: 11/02/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	53000		100	36	ug/L		11/07/23 09:30	11/09/23 17:54	1
Arsenic	9.5		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:54	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	620.41				ft			10/30/23 11:30	1
Oxidation Reduction Potential	-158.8				mV			10/30/23 11:30	1
Oxygen, Dissolved	0.20				mg/L			10/30/23 11:30	1
Field pH	7.05				SU			10/30/23 11:30	1
Field Conductivity	2071				umhos/cm			10/30/23 11:30	1
Field Temperature	16.3				Degrees C			10/30/23 11:30	1
Field Turbidity	33.15				NTU			10/30/23 11:30	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-306A

Lab Sample ID: 310-268726-8

Date Collected: 10/30/23 12:30

Matrix: Water

Date Received: 11/02/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1700		100	36	ug/L		11/07/23 09:30	11/09/23 17:58	1
Arsenic	<0.53		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 17:58	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	621.02				ft			10/30/23 12:30	1
Oxidation Reduction Potential	-84.3				mV			10/30/23 12:30	1
Oxygen, Dissolved	1.25				mg/L			10/30/23 12:30	1
Field pH	7.43				SU			10/30/23 12:30	1
Field Conductivity	650.0				umhos/cm			10/30/23 12:30	1
Field Temperature	14.2				Degrees C			10/30/23 12:30	1
Field Turbidity	0.00				NTU			10/30/23 12:30	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-307

Lab Sample ID: 310-268726-9

Date Collected: 10/30/23 13:40

Matrix: Water

Date Received: 11/02/23 09:30

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		5.0	2.3	mg/L			11/17/23 04:00	5
Fluoride	<0.38		1.0	0.38	mg/L			11/17/23 04:00	5
Sulfate	36		5.0	2.1	mg/L			11/17/23 04:00	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		11/07/23 09:30	11/09/23 18:01	1
Arsenic	2.3		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 18:01	1
Barium	340		2.0	0.64	ug/L		11/07/23 09:30	11/09/23 18:01	1
Beryllium	<0.33		1.0	0.33	ug/L		11/07/23 09:30	11/09/23 18:01	1
Boron	920		100	76	ug/L		11/07/23 09:30	11/09/23 18:01	1
Cadmium	<0.10		0.20	0.10	ug/L		11/07/23 09:30	11/09/23 18:01	1
Calcium	56		0.50	0.19	mg/L		11/07/23 09:30	11/09/23 18:01	1
Chromium	<1.1		5.0	1.1	ug/L		11/07/23 09:30	11/09/23 18:01	1
Cobalt	<0.17		0.50	0.17	ug/L		11/07/23 09:30	11/09/23 18:01	1
Iron	56 J		100	36	ug/L		11/07/23 09:30	11/09/23 18:01	1
Lead	<0.24		0.50	0.24	ug/L		11/07/23 09:30	11/09/23 18:01	1
Lithium	16		10	2.5	ug/L		11/07/23 09:30	11/09/23 18:01	1
Molybdenum	5.5		2.0	0.91	ug/L		11/07/23 09:30	11/09/23 18:01	1
Selenium	<1.4		5.0	1.4	ug/L		11/07/23 09:30	11/09/23 18:01	1
Thallium	<0.26		1.0	0.26	ug/L		11/07/23 09:30	11/09/23 18:01	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		11/16/23 11:57	11/17/23 13:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	250		50	34	mg/L			11/03/23 18:27	1
pH (SM 4500 H+ B)	8.2	HF	1.0	1.0	SU			11/02/23 11:59	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	0.203	U	0.170	0.171	1.00	0.251	pCi/L	11/07/23 10:39	12/08/23 15:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.4		30 - 110					11/07/23 10:39	12/08/23 15:01	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	1.74		0.499	0.525	1.00	0.551	pCi/L	11/07/23 10:42	12/07/23 15:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	85.4		30 - 110					11/07/23 10:42	12/07/23 15:43	1
Y Carrier	82.6		30 - 110					11/07/23 10:42	12/07/23 15:43	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-307

Lab Sample ID: 310-268726-9

Date Collected: 10/30/23 13:40

Matrix: Water

Date Received: 11/02/23 09:30

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	1.95		0.527	0.552	5.00	0.551	pCi/L		12/11/23 15:53	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	628.65				ft			10/30/23 13:40	1
Oxidation Reduction Potential	-102.1				mV			10/30/23 13:40	1
Oxygen, Dissolved	0.19				mg/L			10/30/23 13:40	1
Field pH	8.32				SU			10/30/23 13:40	1
Field Conductivity	489.7				umhos/cm			10/30/23 13:40	1
Field Temperature	13.5				Degrees C			10/30/23 13:40	1
Field Turbidity	0.00				NTU			10/30/23 13:40	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-307A

Lab Sample ID: 310-268726-10

Date Collected: 10/30/23 15:05

Matrix: Water

Date Received: 11/02/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	200		100	36	ug/L		11/07/23 09:30	11/09/23 18:08	1
Arsenic	1.0	J	2.0	0.53	ug/L		11/07/23 09:30	11/09/23 18:08	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	625.01				ft			10/30/23 15:05	1
Oxidation Reduction Potential	-52.4				mV			10/30/23 15:05	1
Oxygen, Dissolved	0.49				mg/L			10/30/23 15:05	1
Field pH	7.71				SU			10/30/23 15:05	1
Field Conductivity	609.6				umhos/cm			10/30/23 15:05	1
Field Temperature	11.9				Degrees C			10/30/23 15:05	1
Field Turbidity	0.00				NTU			10/30/23 15:05	1



Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-6

Lab Sample ID: 310-268726-11

Date Collected: 10/30/23 16:00

Matrix: Water

Date Received: 11/02/23 09:30

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.5		5.0	2.3	mg/L			11/17/23 04:13	5
Fluoride	<0.38		1.0	0.38	mg/L			11/17/23 04:13	5
Sulfate	22		5.0	2.1	mg/L			11/17/23 04:13	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		11/07/23 09:30	11/09/23 18:11	1
Arsenic	<0.53		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 18:11	1
Barium	46		2.0	0.64	ug/L		11/07/23 09:30	11/09/23 18:11	1
Beryllium	<0.33		1.0	0.33	ug/L		11/07/23 09:30	11/09/23 18:11	1
Boron	<76		100	76	ug/L		11/07/23 09:30	11/09/23 18:11	1
Cadmium	<0.10		0.20	0.10	ug/L		11/07/23 09:30	11/09/23 18:11	1
Calcium	73		0.50	0.19	mg/L		11/07/23 09:30	11/09/23 18:11	1
Chromium	<1.1		5.0	1.1	ug/L		11/07/23 09:30	11/09/23 18:11	1
Cobalt	<0.17		0.50	0.17	ug/L		11/07/23 09:30	11/09/23 18:11	1
Iron	<36		100	36	ug/L		11/07/23 09:30	11/09/23 18:11	1
Lead	<0.24		0.50	0.24	ug/L		11/07/23 09:30	11/09/23 18:11	1
Lithium	<2.5		10	2.5	ug/L		11/07/23 09:30	11/09/23 18:11	1
Molybdenum	<0.91		2.0	0.91	ug/L		11/07/23 09:30	11/09/23 18:11	1
Selenium	<1.4		5.0	1.4	ug/L		11/07/23 09:30	11/09/23 18:11	1
Thallium	<0.26		1.0	0.26	ug/L		11/07/23 09:30	11/09/23 18:11	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		11/16/23 11:57	11/17/23 13:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	280		50	34	mg/L			11/03/23 18:27	1
pH (SM 4500 H+ B)	7.5	HF	1.0	1.0	SU			11/02/23 12:00	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	0.0812	U	0.161	0.161	1.00	0.286	pCi/L	11/07/23 10:39	12/08/23 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.3		30 - 110					11/07/23 10:39	12/08/23 14:59	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	0.153	U	0.369	0.370	1.00	0.643	pCi/L	11/07/23 10:42	12/07/23 15:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.3		30 - 110					11/07/23 10:42	12/07/23 15:43	1
Y Carrier	80.7		30 - 110					11/07/23 10:42	12/07/23 15:43	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-6

Lab Sample ID: 310-268726-11

Date Collected: 10/30/23 16:00

Matrix: Water

Date Received: 11/02/23 09:30

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	0.234	U	0.403	0.404	5.00	0.643	pCi/L		12/11/23 15:53	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	663.59				ft			10/30/23 16:00	1
Oxidation Reduction Potential	-12.3				mV			10/30/23 16:00	1
Oxygen, Dissolved	7.94				mg/L			10/30/23 16:00	1
Field pH	7.38				SU			10/30/23 16:00	1
Field Conductivity	565.2				umhos/cm			10/30/23 16:00	1
Field Temperature	9.7				Degrees C			10/30/23 16:00	1
Field Turbidity	0.00				NTU			10/30/23 16:00	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: Field Blank

Lab Sample ID: 310-268726-12

Date Collected: 10/30/23 16:40

Matrix: Water

Date Received: 11/02/23 09:30

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			11/17/23 04:26	1
Fluoride	<0.075		0.20	0.075	mg/L			11/17/23 04:26	1
Sulfate	<0.42		1.0	0.42	mg/L			11/17/23 04:26	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		11/07/23 09:30	11/09/23 18:29	1
Arsenic	<0.53		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 18:29	1
Barium	<0.64		2.0	0.64	ug/L		11/07/23 09:30	11/09/23 18:29	1
Beryllium	<0.33		1.0	0.33	ug/L		11/07/23 09:30	11/09/23 18:29	1
Boron	<76		100	76	ug/L		11/07/23 09:30	11/09/23 18:29	1
Cadmium	<0.10		0.20	0.10	ug/L		11/07/23 09:30	11/09/23 18:29	1
Calcium	<0.19		0.50	0.19	mg/L		11/07/23 09:30	11/09/23 18:29	1
Chromium	<1.1		5.0	1.1	ug/L		11/07/23 09:30	11/09/23 18:29	1
Cobalt	<0.17		0.50	0.17	ug/L		11/07/23 09:30	11/09/23 18:29	1
Lead	<0.24		0.50	0.24	ug/L		11/07/23 09:30	11/09/23 18:29	1
Lithium	<2.5		10	2.5	ug/L		11/07/23 09:30	11/09/23 18:29	1
Molybdenum	<0.91		2.0	0.91	ug/L		11/07/23 09:30	11/09/23 18:29	1
Selenium	<1.4		5.0	1.4	ug/L		11/07/23 09:30	11/09/23 18:29	1
Thallium	<0.26		1.0	0.26	ug/L		11/07/23 09:30	11/09/23 18:29	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		11/16/23 11:57	11/17/23 13:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<34		50	34	mg/L			11/03/23 18:27	1
pH (SM 4500 H+ B)	5.8	HF	1.0	1.0	SU			11/02/23 12:01	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	0.141	U	0.194	0.194	1.00	0.326	pCi/L	11/07/23 10:39	12/08/23 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.1		30 - 110					11/07/23 10:39	12/08/23 14:59	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	0.0261	U	0.259	0.259	1.00	0.479	pCi/L	11/07/23 10:42	12/07/23 15:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.1		30 - 110					11/07/23 10:42	12/07/23 15:43	1
Y Carrier	87.5		30 - 110					11/07/23 10:42	12/07/23 15:43	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: Field Blank

Lab Sample ID: 310-268726-12

Date Collected: 10/30/23 16:40

Matrix: Water

Date Received: 11/02/23 09:30

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	0.167	U	0.324	0.324	5.00	0.479	pCi/L		12/11/23 15:53	1

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Definitions/Glossary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
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	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

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: Lansing Generating Station 25223070

Job ID: 310-268726-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-406439/3
Matrix: Water
Analysis Batch: 406439

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.45		1.0	0.45	mg/L			11/17/23 02:15	1
Fluoride	<0.075		0.20	0.075	mg/L			11/17/23 02:15	1
Sulfate	<0.42		1.0	0.42	mg/L			11/17/23 02:15	1

Lab Sample ID: LCS 310-406439/4
Matrix: Water
Analysis Batch: 406439

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.00	2.15		mg/L		107	90 - 110
Sulfate	10.0	10.5		mg/L		105	90 - 110

Lab Sample ID: 310-268726-1 MS
Matrix: Water
Analysis Batch: 406439

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	<0.38		5.00	5.41		mg/L		108	80 - 120
Sulfate	58		25.0	83.5		mg/L		103	80 - 120

Lab Sample ID: 310-268726-1 MSD
Matrix: Water
Analysis Batch: 406439

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	<0.38		5.00	5.54		mg/L		111	80 - 120	2	15
Sulfate	58		25.0	84.0		mg/L		105	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-405038/1-A
Matrix: Water
Analysis Batch: 405578

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 405038

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<1.0		2.0	1.0	ug/L		11/07/23 09:30	11/09/23 16:53	1
Barium	<0.64		2.0	0.64	ug/L		11/07/23 09:30	11/09/23 16:53	1
Beryllium	<0.33		1.0	0.33	ug/L		11/07/23 09:30	11/09/23 16:53	1
Boron	<76		100	76	ug/L		11/07/23 09:30	11/09/23 16:53	1
Cadmium	<0.10		0.20	0.10	ug/L		11/07/23 09:30	11/09/23 16:53	1
Calcium	<0.19		0.50	0.19	mg/L		11/07/23 09:30	11/09/23 16:53	1
Chromium	1.27	J	5.0	1.1	ug/L		11/07/23 09:30	11/09/23 16:53	1
Cobalt	0.207	J	0.50	0.17	ug/L		11/07/23 09:30	11/09/23 16:53	1
Iron	<36		100	36	ug/L		11/07/23 09:30	11/09/23 16:53	1
Lead	<0.24		0.50	0.24	ug/L		11/07/23 09:30	11/09/23 16:53	1
Lithium	<2.5		10	2.5	ug/L		11/07/23 09:30	11/09/23 16:53	1
Molybdenum	<0.91		2.0	0.91	ug/L		11/07/23 09:30	11/09/23 16:53	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

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

Lab Sample ID: MB 310-405038/1-A
Matrix: Water
Analysis Batch: 405578

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 405038

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<1.4		5.0	1.4	ug/L		11/07/23 09:30	11/09/23 16:53	1
Thallium	<0.26		1.0	0.26	ug/L		11/07/23 09:30	11/09/23 16:53	1
Arsenic	<0.53		2.0	0.53	ug/L		11/07/23 09:30	11/09/23 16:53	1

Lab Sample ID: LCS 310-405038/2-A
Matrix: Water
Analysis Batch: 405578

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 405038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	221		ug/L		111	80 - 120
Barium	100	105		ug/L		105	80 - 120
Beryllium	100	106		ug/L		106	80 - 120
Boron	200	206		ug/L		103	80 - 120
Cadmium	100	99.0		ug/L		99	80 - 120
Calcium	2.00	1.93		mg/L		97	80 - 120
Chromium	100	107		ug/L		107	80 - 120
Cobalt	100	104		ug/L		104	80 - 120
Iron	200	217		ug/L		108	80 - 120
Lead	200	211		ug/L		106	80 - 120
Lithium	200	215		ug/L		107	80 - 120
Molybdenum	200	209		ug/L		105	80 - 120
Selenium	400	387		ug/L		97	80 - 120
Thallium	200	192		ug/L		96	80 - 120
Arsenic	200	219		ug/L		110	80 - 120

Lab Sample ID: 310-268726-9 DU
Matrix: Water
Analysis Batch: 405578

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 405038

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<1.0		<1.0		ug/L		NC	20
Barium	340		317		ug/L		6	20
Beryllium	<0.33		<0.33		ug/L		NC	20
Boron	920		900		ug/L		3	20
Cadmium	<0.10		<0.10		ug/L		NC	20
Calcium	56		52.0		mg/L		7	20
Chromium	<1.1		2.98	J	ug/L		NC	20
Cobalt	<0.17		0.293	J	ug/L		NC	20
Iron	56	J	73.6	J F5	ug/L		27	20
Lead	<0.24		<0.24		ug/L		NC	20
Lithium	16		15.2		ug/L		6	20
Molybdenum	5.5		5.14		ug/L		6	20
Selenium	<1.4		<1.4		ug/L		NC	20
Thallium	<0.26		<0.26		ug/L		NC	20
Arsenic	2.3		2.13		ug/L		8	20

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QC Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-406263/1-A
 Matrix: Water
 Analysis Batch: 406467

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 406263

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		11/16/23 11:57	11/17/23 12:44	1

Lab Sample ID: LCS 310-406263/2-A
 Matrix: Water
 Analysis Batch: 406467

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 406263

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.75		ug/L		105	80 - 120

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

Lab Sample ID: MB 310-404879/1
 Matrix: Water
 Analysis Batch: 404879

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			11/03/23 18:27	1

Lab Sample ID: LCS 310-404879/2
 Matrix: Water
 Analysis Batch: 404879

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	964		mg/L		96	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-404577/22
 Matrix: Water
 Analysis Batch: 404577

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 160-635670/1-A
 Matrix: Water
 Analysis Batch: 640078

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 635670

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226	-0.001590	U	0.125	0.125	1.00	0.254	pCi/L	11/07/23 10:39	12/08/23 15:00	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	101		30 - 110					11/07/23 10:39	12/08/23 15:00	1

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

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

Lab Sample ID: LCS 160-635670/2-A
Matrix: Water
Analysis Batch: 640078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 635670

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium 226	11.3	10.34		1.26	1.00	0.286	pCi/L	91	75 - 125	
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	96.5		30 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-635671/1-A
Matrix: Water
Analysis Batch: 639854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 635671

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium 228	0.01302	U	0.276	0.276	1.00	0.506	pCi/L	11/07/23 10:42	12/07/23 15:41	1	
Carrier	MB %Yield	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac			
Barium	101		30 - 110			11/07/23 10:42	12/07/23 15:41	1			
Y Carrier	86.4		30 - 110			11/07/23 10:42	12/07/23 15:41	1			

Lab Sample ID: LCS 160-635671/2-A
Matrix: Water
Analysis Batch: 639854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 635671

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium 228	7.66	8.836		1.21	1.00	0.518	pCi/L	115	75 - 125	
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	96.5		30 - 110							
Y Carrier	84.5		30 - 110							

QC Association Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

HPLC/IC

Analysis Batch: 406439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	9056A	
310-268726-2	MW-302	Total/NA	Water	9056A	
310-268726-9	MW-307	Total/NA	Water	9056A	
310-268726-11	MW-6	Total/NA	Water	9056A	
310-268726-12	Field Blank	Total/NA	Water	9056A	
MB 310-406439/3	Method Blank	Total/NA	Water	9056A	
LCS 310-406439/4	Lab Control Sample	Total/NA	Water	9056A	
310-268726-1 MS	MW-301	Total/NA	Water	9056A	
310-268726-1 MSD	MW-301	Total/NA	Water	9056A	

Metals

Prep Batch: 405038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	3005A	
310-268726-2	MW-302	Total/NA	Water	3005A	
310-268726-3	MW-302A	Total/NA	Water	3005A	
310-268726-4	MW-304	Total/NA	Water	3005A	
310-268726-5	MW-304A	Total/NA	Water	3005A	
310-268726-6	MW-305	Total/NA	Water	3005A	
310-268726-7	MW-306	Total/NA	Water	3005A	
310-268726-8	MW-306A	Total/NA	Water	3005A	
310-268726-9	MW-307	Total/NA	Water	3005A	
310-268726-10	MW-307A	Total/NA	Water	3005A	
310-268726-11	MW-6	Total/NA	Water	3005A	
310-268726-12	Field Blank	Total/NA	Water	3005A	
MB 310-405038/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-405038/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-268726-9 DU	MW-307	Total/NA	Water	3005A	

Analysis Batch: 405578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	6020B	405038
310-268726-2	MW-302	Total/NA	Water	6020B	405038
310-268726-3	MW-302A	Total/NA	Water	6020B	405038
310-268726-4	MW-304	Total/NA	Water	6020B	405038
310-268726-5	MW-304A	Total/NA	Water	6020B	405038
310-268726-6	MW-305	Total/NA	Water	6020B	405038
310-268726-7	MW-306	Total/NA	Water	6020B	405038
310-268726-8	MW-306A	Total/NA	Water	6020B	405038
310-268726-9	MW-307	Total/NA	Water	6020B	405038
310-268726-10	MW-307A	Total/NA	Water	6020B	405038
310-268726-11	MW-6	Total/NA	Water	6020B	405038
310-268726-12	Field Blank	Total/NA	Water	6020B	405038
MB 310-405038/1-A	Method Blank	Total/NA	Water	6020B	405038
LCS 310-405038/2-A	Lab Control Sample	Total/NA	Water	6020B	405038
310-268726-9 DU	MW-307	Total/NA	Water	6020B	405038

Analysis Batch: 405689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	6020B	405038

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QC Association Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Metals

Prep Batch: 406263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	7470A	
310-268726-2	MW-302	Total/NA	Water	7470A	
310-268726-9	MW-307	Total/NA	Water	7470A	
310-268726-11	MW-6	Total/NA	Water	7470A	
310-268726-12	Field Blank	Total/NA	Water	7470A	
MB 310-406263/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-406263/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 406467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	7470A	406263
310-268726-2	MW-302	Total/NA	Water	7470A	406263
310-268726-9	MW-307	Total/NA	Water	7470A	406263
310-268726-11	MW-6	Total/NA	Water	7470A	406263
310-268726-12	Field Blank	Total/NA	Water	7470A	406263
MB 310-406263/1-A	Method Blank	Total/NA	Water	7470A	406263
LCS 310-406263/2-A	Lab Control Sample	Total/NA	Water	7470A	406263

General Chemistry

Analysis Batch: 404577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-268726-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-268726-9	MW-307	Total/NA	Water	SM 4500 H+ B	
310-268726-11	MW-6	Total/NA	Water	SM 4500 H+ B	
310-268726-12	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-404577/22	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 404879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	SM 2540C	
310-268726-2	MW-302	Total/NA	Water	SM 2540C	
310-268726-9	MW-307	Total/NA	Water	SM 2540C	
310-268726-11	MW-6	Total/NA	Water	SM 2540C	
310-268726-12	Field Blank	Total/NA	Water	SM 2540C	
MB 310-404879/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-404879/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 635670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	PrecSep-21	
310-268726-2	MW-302	Total/NA	Water	PrecSep-21	
310-268726-9	MW-307	Total/NA	Water	PrecSep-21	
310-268726-11	MW-6	Total/NA	Water	PrecSep-21	
310-268726-12	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-635670/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-635670/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

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QC Association Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Rad

Prep Batch: 635671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	PrecSep_0	
310-268726-2	MW-302	Total/NA	Water	PrecSep_0	
310-268726-9	MW-307	Total/NA	Water	PrecSep_0	
310-268726-11	MW-6	Total/NA	Water	PrecSep_0	
310-268726-12	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-635671/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-635671/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Field Service / Mobile Lab

Analysis Batch: 406770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-268726-1	MW-301	Total/NA	Water	Field Sampling	
310-268726-2	MW-302	Total/NA	Water	Field Sampling	
310-268726-3	MW-302A	Total/NA	Water	Field Sampling	
310-268726-4	MW-304	Total/NA	Water	Field Sampling	
310-268726-5	MW-304A	Total/NA	Water	Field Sampling	
310-268726-6	MW-305	Total/NA	Water	Field Sampling	
310-268726-7	MW-306	Total/NA	Water	Field Sampling	
310-268726-8	MW-306A	Total/NA	Water	Field Sampling	
310-268726-9	MW-307	Total/NA	Water	Field Sampling	
310-268726-10	MW-307A	Total/NA	Water	Field Sampling	
310-268726-11	MW-6	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-301
Date Collected: 10/31/23 10:10
Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	406439	QTZ5	EET CF	11/17/23 02:41
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:20
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405689	A6US	EET CF	11/10/23 16:12
Total/NA	Prep	7470A			406263	NFT2	EET CF	11/16/23 11:57
Total/NA	Analysis	7470A		1	406467	NFT2	EET CF	11/17/23 13:18
Total/NA	Analysis	SM 2540C		1	404879	D7CP	EET CF	11/03/23 18:27
Total/NA	Analysis	SM 4500 H+ B		1	404577	W9YR	EET CF	11/02/23 11:57
Total/NA	Prep	PrecSep-21			635670	KAC	EET SL	11/07/23 10:39
Total/NA	Analysis	903.0		1	640078	FLC	EET SL	12/08/23 15:00
Total/NA	Prep	PrecSep_0			635671	KAC	EET SL	11/07/23 10:42
Total/NA	Analysis	904.0		1	639854	FLC	EET SL	12/07/23 15:42
Total/NA	Analysis	Ra226_Ra228 Pos		1	640096	FLC	EET SL	12/11/23 15:53
Total/NA	Analysis	Field Sampling		1	406770	BJOR	EET CF	10/31/23 10:10

Client Sample ID: MW-302
Date Collected: 10/30/23 16:30
Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	406439	QTZ5	EET CF	11/17/23 03:47
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:23
Total/NA	Prep	7470A			406263	NFT2	EET CF	11/16/23 11:57
Total/NA	Analysis	7470A		1	406467	NFT2	EET CF	11/17/23 13:20
Total/NA	Analysis	SM 2540C		1	404879	D7CP	EET CF	11/03/23 18:27
Total/NA	Analysis	SM 4500 H+ B		1	404577	W9YR	EET CF	11/02/23 11:58
Total/NA	Prep	PrecSep-21			635670	KAC	EET SL	11/07/23 10:39
Total/NA	Analysis	903.0		1	640078	FLC	EET SL	12/08/23 15:00
Total/NA	Prep	PrecSep_0			635671	KAC	EET SL	11/07/23 10:42
Total/NA	Analysis	904.0		1	639854	FLC	EET SL	12/07/23 15:42
Total/NA	Analysis	Ra226_Ra228 Pos		1	640096	FLC	EET SL	12/11/23 15:53
Total/NA	Analysis	Field Sampling		1	406770	BJOR	EET CF	10/30/23 16:30

Client Sample ID: MW-302A
Date Collected: 10/31/23 09:50
Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:40
Total/NA	Analysis	Field Sampling		1	406770	BJOR	EET CF	10/31/23 09:50

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-304

Date Collected: 10/30/23 13:10

Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:44
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 13:10

Client Sample ID: MW-304A

Date Collected: 10/30/23 14:30

Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:47
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 14:30

Client Sample ID: MW-305

Date Collected: 10/31/23 11:55

Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:51
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/31/23 11:55

Client Sample ID: MW-306

Date Collected: 10/30/23 11:30

Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:54
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 11:30

Client Sample ID: MW-306A

Date Collected: 10/30/23 12:30

Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 17:58
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 12:30

Client Sample ID: MW-307

Date Collected: 10/30/23 13:40

Date Received: 11/02/23 09:30

Lab Sample ID: 310-268726-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	406439	QTZ5	EET CF	11/17/23 04:00

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: MW-307

Lab Sample ID: 310-268726-9

Date Collected: 10/30/23 13:40

Matrix: Water

Date Received: 11/02/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 18:01
Total/NA	Prep	7470A			406263	NFT2	EET CF	11/16/23 11:57
Total/NA	Analysis	7470A		1	406467	NFT2	EET CF	11/17/23 13:22
Total/NA	Analysis	SM 2540C		1	404879	D7CP	EET CF	11/03/23 18:27
Total/NA	Analysis	SM 4500 H+ B		1	404577	W9YR	EET CF	11/02/23 11:59
Total/NA	Prep	PrecSep-21			635670	KAC	EET SL	11/07/23 10:39
Total/NA	Analysis	903.0		1	640078	FLC	EET SL	12/08/23 15:01
Total/NA	Prep	PrecSep_0			635671	KAC	EET SL	11/07/23 10:42
Total/NA	Analysis	904.0		1	639854	FLC	EET SL	12/07/23 15:43
Total/NA	Analysis	Ra226_Ra228 Pos		1	640096	FLC	EET SL	12/11/23 15:53
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 13:40

Client Sample ID: MW-307A

Lab Sample ID: 310-268726-10

Date Collected: 10/30/23 15:05

Matrix: Water

Date Received: 11/02/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 18:08
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 15:05

Client Sample ID: MW-6

Lab Sample ID: 310-268726-11

Date Collected: 10/30/23 16:00

Matrix: Water

Date Received: 11/02/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	406439	QTZ5	EET CF	11/17/23 04:13
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 18:11
Total/NA	Prep	7470A			406263	NFT2	EET CF	11/16/23 11:57
Total/NA	Analysis	7470A		1	406467	NFT2	EET CF	11/17/23 13:24
Total/NA	Analysis	SM 2540C		1	404879	D7CP	EET CF	11/03/23 18:27
Total/NA	Analysis	SM 4500 H+ B		1	404577	W9YR	EET CF	11/02/23 12:00
Total/NA	Prep	PrecSep-21			635670	KAC	EET SL	11/07/23 10:39
Total/NA	Analysis	903.0		1	640078	FLC	EET SL	12/08/23 14:59
Total/NA	Prep	PrecSep_0			635671	KAC	EET SL	11/07/23 10:42
Total/NA	Analysis	904.0		1	639854	FLC	EET SL	12/07/23 15:43
Total/NA	Analysis	Ra226_Ra228 Pos		1	640096	FLC	EET SL	12/11/23 15:53
Total/NA	Analysis	Field Sampling		1	406770	BJ0R	EET CF	10/30/23 16:00

Lab Chronicle

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

Client Sample ID: Field Blank

Lab Sample ID: 310-268726-12

Date Collected: 10/30/23 16:40

Matrix: Water

Date Received: 11/02/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	406439	QTZ5	EET CF	11/17/23 04:26
Total/NA	Prep	3005A			405038	DHM5	EET CF	11/07/23 09:30
Total/NA	Analysis	6020B		1	405578	A6US	EET CF	11/09/23 18:29
Total/NA	Prep	7470A			406263	NFT2	EET CF	11/16/23 11:57
Total/NA	Analysis	7470A		1	406467	NFT2	EET CF	11/17/23 13:26
Total/NA	Analysis	SM 2540C		1	404879	D7CP	EET CF	11/03/23 18:27
Total/NA	Analysis	SM 4500 H+ B		1	404577	W9YR	EET CF	11/02/23 12:01
Total/NA	Prep	PrecSep-21			635670	KAC	EET SL	11/07/23 10:39
Total/NA	Analysis	903.0		1	640078	FLC	EET SL	12/08/23 14:59
Total/NA	Prep	PrecSep_0			635671	KAC	EET SL	11/07/23 10:42
Total/NA	Analysis	904.0		1	639854	FLC	EET SL	12/07/23 15:43
Total/NA	Analysis	Ra226_Ra228 Pos		1	640096	FLC	EET SL	12/11/23 15:53

Laboratory References:

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

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: Lansing Generating Station 25223070

Job ID: 310-268726-1

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	12-08-24
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-24
Connecticut	State	PH-0241	03-31-25
Florida	NELAP	E87689	06-30-24
HI - RadChem Recognition	State	n/a	06-30-24
Illinois	NELAP	200023	11-30-24
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-24
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-24
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-24
Massachusetts	State	M-MO054	06-30-24
MI - RadChem Recognition	State	9005	06-30-24
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-24
New Jersey	NELAP	MO002	06-30-24
New Mexico	State	MO00054	06-30-24
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-24
North Dakota	State	R-207	06-30-24
Oklahoma	NELAP	9997	08-31-24
Oregon	NELAP	4157	09-01-24
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-24
Texas	NELAP	T104704193	07-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00028	05-18-26
Utah	NELAP	MO000542021-14	07-31-24
Virginia	NELAP	10310	06-15-25
Washington	State	C592	08-30-24
West Virginia DEP	State	381	12-31-23

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

Method Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25223070

Job ID: 310-268726-1

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
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
Pos			
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
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
- 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.
- TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

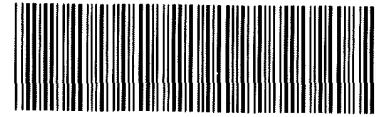
Laboratory References:

- EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
- EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566





Environment Testing
America



310-268726 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS Engineers</u>			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>11-2-23</u>	<u>0930</u>	<u>MY</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input 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 # _____ of <u>2</u>	
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>X</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>1.0</u>	Corrected Temp (°C):	<u>1.0</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 Engineers</u>			
City/State: <small>CITY</small>	<small>STATE</small>	Project:	
Receipt Information			
Date/Time Received:	<small>DATE</small> <u>11-2-23</u>	<small>TIME</small> <u>0930</u>	Received By: <u>MY</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input 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 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>X</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>0.0</u>		Corrected Temp (°C): <u>0.0</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

Carrier Tracking No(s):
State of Origin:

Lab PM: Sandra Fredrick
E-Mail: Sandra.Fredrick@et.eurofins.com

Analysis Requested

Perform MRM/SD (Yes or No)
Field Filtered Sample (Yes or No)

Sample Date
Sample Time
Sample Type
Matrix
Preservation Code

Company: SCS Engineers
Address: 2830 Dairy Drive
City: Madison
State: WI
Zip: 53718
Phone: 608-224-2830
Email: mblodgett@scsengineers.com
Project Name: Lansing Generating Station 25223070
Site: Lansing IA

Due Date Requested:
TAT Requested (days):
Compliance Project: Yes No
PO #: 25223070
WO #:
Project #: 25223070
SSOW#:

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	Preservation Code	9020 Metals, total (Sb, As, Ba, Be, B, Bi, Cd, Cr, Co, Fe, Pb, P, Li, Mo, Se, Tl)	6020 Metals (As, Fe only)	1470 Mercury total	TDS and pH	Chloride, Fluoride, Sulfate	EPA 903/904 Residuum 226 + 228
MW-301	10/31/23	1016	G	W	W	X	X	X	X	X	X
MW-302	10/30/23	1630	G	W	W	X	X	X	X	X	X
MW-302A	10/31/23	950	G	W	W	X	X	X	X	X	X
MW-999	10/30/23		G	W	W	X	X	X	X	X	X
MW-304	10/30/23	1310	G	W	W	X	X	X	X	X	X
MW-304A	10/30/23	1430	G	W	W	X	X	X	X	X	X
MW-305	10/31/23	1155	G	W	W	X	X	X	X	X	X
MW-306	10/30/23	1130	G	W	W	X	X	X	X	X	X
MW-306A	10/30/23	1230	G	W	W	X	X	X	X	X	X
MW-307	10/30/23	1340	G	W	W	X	X	X	X	X	X
MW-307A	10/30/23	1505	G	W	W	X	X	X	X	X	X

Special Instructions/Note
303 unable to sample

Preservation Codes:
A - HCl
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NH4SO4
F - MeOH
G - Anchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNO2
P - Na2OAS
Q - Na2SO4
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - pH 4.5
W - MCAA
X - other (specify)
Z - other (specify)
Other:

Total Number of Containers

Return To Client Disposal By Lab Archive For _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements

Empty Kit Relinquished by

Relinquished by: Bn Salsome
Date/Time: 10/23 11/17/2023 1600
Company: Company

Relinquished by: _____
Date/Time: _____
Company: Company

Relinquished by: _____
Date/Time: _____
Company: Company

Custody Seals Intact: Yes No
Custody Seal No

Cooler Temperature(s) °C and Other Remarks:

Method of Shipment: _____
Date/Time: _____
Company: Company

Received by: _____
Date/Time: _____
Company: Company

Received by: _____
Date/Time: 11/23 0930
Company: Company

Ver 01/16/2019



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

eurofins
 Environment Test
 America

Chain of Custody Record

Client Information		Lab PI#: Saridra Fredrick		Center Tracking No(s):	
Client Contact: Meghan Blodgett		E-Mail: Saridra.Fredrick@eurofins.com		State of Origin:	
Company: SCS Engineers		PWSID:		Job #:	
Address: 2830 Dairy Drive		Due Date Requested:		COC No.:	
City: Madison		TAT Requested (days):		Pages: Page 2 of 2	
State, Zip: WI 53718		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Preservation Codes:	
Phone: 608-224-2830		PO #: 25223070		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - H2SO4 H - Amelcer I - Acetic Acid J - DI Water K - EDTA L - EDA Other:	
Email: mblodgett@scsengineers.com		WQ #:		M - Hexane N - None O - AAmB02 P - Na2CO3 Q - Na2SO3 R - Na2SO4 S - TSP T - TSP Dodecahydrate U - Acetone V - NCA W - pH 4.5 Z - other (specify)	
Project Name: Lansing Generating Station 25223070		Project #: 25223070		Total Number of Containers	
Site: Lansing IA		SSOW#:		Special Instructions/Note	

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-grab)	Matrix (W-water, S-solid, O-Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested										Special Instructions/Note								
							6020 Metals (As, Fe only)	7470 Mercury Total	TDS and pH	Chloride, Fluoride, Sulfate	EPA 9039/04 Radium 226 + 228	6020 Metals, total (Sb, As, Ba, Be, B, Cd, Cr, Co, Fe, Pb, Li, Mo, Se, Tl)	D	D	D	D		D	D	D	D				
MW-6	10/30/23	16:00	G	W	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Field Blank	10/30/23	16:40	G	W	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

<input 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)		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Bri Salome Date/Time: 11/11/2023 16:00 Company: Company		Method of Shipment:	
Relinquished by: Bri Salome Date/Time: 11/11/2023 16:00 Company: Company		Received by: _____ Date/Time: _____ Company: _____	
Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-268726-1

Login Number: 268726

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	



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-268726-1

Login Number: 268726

List Number: 2

Creator: Pinette, Meadow L

List Source: Eurofins St. Louis

List Creation: 11/06/23 02:03 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: Lansing Generating Station 25223070

Job ID: 310-268726-1

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)
310-268726-1	MW-301	88.6
310-268726-2	MW-302	91.6
310-268726-9	MW-307	85.4
310-268726-11	MW-6	93.3
310-268726-12	Field Blank	95.1
LCS 160-635670/2-A	Lab Control Sample	96.5
MB 160-635670/1-A	Method Blank	101

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)
310-268726-1	MW-301	88.6	80.4
310-268726-2	MW-302	91.6	81.9
310-268726-9	MW-307	85.4	82.6
310-268726-11	MW-6	93.3	80.7
310-268726-12	Field Blank	95.1	87.5
LCS 160-635671/2-A	Lab Control Sample	96.5	84.5
MB 160-635671/1-A	Method Blank	101	86.4

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier

Groundwater Monitoring Results - Field Parameters
Lansing Generating Station / SCS Engineers Project #25223070.0
October 2023

Sample	Sample Date/Time	Groundwater Elevation (ft AMSL)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity (NTU)
MW-6	10/30/2023 1600	663.59	9.7	7.38	7.94	565.2	-12.3	0.00
MW-301	10/31/2023 1010	622.20	12.4	7.71	0.62	639.4	-96.0	0.49
MW-302	10/30/2023 1630	627.05	13.4	7.21	0.26	1185	-177.4	0.82
MW-302A	10/31/2023 0950	622.91	11.4	7.34	5.16	616.4	36.1	0.00
MW-304	10/30/2023 1310	621.21	12.0	7.17	7.54	575.6	-29.7	0.00
MW-304A	10/30/2023 1430	623.57	10.9	7.93	0.18	472.9	-120.7	23.95
MW-305	10/31/2023 1155	626.89	15.1	7.17	0.71	745.0	-153.3	4.18
MW-306	10/30/2023 1130	620.41	16.3	7.05	0.20	2,071	-158.8	33.15
MW-306A	10/30/2023 1230	621.02	14.2	7.43	1.25	650.0	-84.3	0.00
MW-307	10/30/2023 1340	628.65	13.5	8.32	0.19	489.7	-102.1	0.00
MW-307A	10/30/2023 1505	625.01	11.9	7.71	0.49	609.6	-52.4	0.00

Abbreviations:

AMSL = above mean sea level
µmhos/cm = microSiemens per centimeter

mg/L = milligrams per liter
mV = millivolts

ORP = Oxidation Reduction (REDOX)
NTU = Nephelometric Turbidity Units

Laboratory Notes/Qualifiers:

none

Created by: EMS
Last revision by: EMS
Checked by: JR

Date: 11/1/2023
Date: 11/1/2023
Date: 11/17/2023

C:\Users\hld0\AppData\Local\Microsoft\Windows\NetCache\Content.Outlook\USG3GGGC\{October 2023_Lansing_CCR_Field.xlsx}Data



ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718
Generated 5/7/2024 9:42:17 AM Revision 1

JOB DESCRIPTION

Lansing Generating Station 25224070

JOB NUMBER

310-278159-1

Eurofins Cedar Falls

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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5/7/2024 9:42:17 AM
Revision 1

Authorized for release by
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Case Narrative

Client: SCS Engineers
Project: Lansing Generating Station 25224070

Job ID: 310-278159-1

Job ID: 310-278159-1

Eurofins Cedar Falls

Job Narrative 310-278159-1

Revision

The report being provided is a revision of the original report sent on 05/05/24. The report (revision 1) is being revised due to: Client requested Molybdenum data removed from the following wells:

MW-302A
MW-304
MW-304A
MW-305
MW-306
MW-306A
MW-307A

Receipt

The samples were received on 4/4/2024 9:45 AM. 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 2.4° C.

HPLC/IC

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MW-301 (310-278159-1), MW-302 (310-278159-2), MW-307 (310-278159-9) and MW-6 (310-278159-11). 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.

RAD

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

Metals

Method 3005A: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW-306 (310-278159-7). The sample(s) was preserved to the appropriate pH in the laboratory.

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

General Chemistry

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

Eurofins Cedar Falls

Sample Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-278159-1	MW-301	Water	04/01/24 16:20	04/04/24 09:45
310-278159-2	MW-302	Water	04/02/24 09:35	04/04/24 09:45
310-278159-3	MW-302A	Water	04/02/24 10:45	04/04/24 09:45
310-278159-4	MW-304	Water	04/01/24 12:15	04/04/24 09:45
310-278159-5	MW-304A	Water	04/01/24 13:00	04/04/24 09:45
310-278159-6	MW-305	Water	04/02/24 12:25	04/04/24 09:45
310-278159-7	MW-306	Water	04/02/24 11:50	04/04/24 09:45
310-278159-8	MW-306A	Water	04/02/24 12:40	04/04/24 09:45
310-278159-9	MW-307	Water	04/01/24 14:15	04/04/24 09:45
310-278159-10	MW-307A	Water	04/01/24 15:10	04/04/24 09:45
310-278159-11	MW-6	Water	04/01/24 13:07	04/04/24 09:45
310-278159-12	Field Blank	Water	04/02/24 10:40	04/04/24 09:45

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- 14
- 15
- 16

Detection Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-301

Lab Sample ID: 310-278159-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	56		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	1.3	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	120		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	480		100	76	ug/L	1		6020B	Total/NA
Calcium	69		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	160		100	36	ug/L	1		6020B	Total/NA
Lithium	6.9	J	10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	5.8		2.0	0.91	ug/L	1		6020B	Total/NA
Total Dissolved Solids	360		50	34	mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	622.11				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	11.7				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.54				mg/L	1		Field Sampling	Total/NA
Field pH	7.84				SU	1		Field Sampling	Total/NA
Field Conductivity	586.8				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	9.2				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302

Lab Sample ID: 310-278159-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		5.0	2.3	mg/L	5		9056A	Total/NA
Arsenic	45		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	700		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	430		100	76	ug/L	1		6020B	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	1.4		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	45000		100	36	ug/L	1		6020B	Total/NA
Total Dissolved Solids	580		50	34	mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	625.60				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-175.9				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.14				mg/L	1		Field Sampling	Total/NA
Field pH	7.06				SU	1		Field Sampling	Total/NA
Field Conductivity	1175				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	7.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-302A

Lab Sample ID: 310-278159-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	622.53				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	22.9				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	5.67				mg/L	1		Field Sampling	Total/NA
Field pH	7.37				SU	1		Field Sampling	Total/NA
Field Conductivity	607.2				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				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: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-304

Lab Sample ID: 310-278159-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	621.05				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	161.2				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	7.97				mg/L	1		Field Sampling	Total/NA
Field pH	7.28				SU	1		Field Sampling	Total/NA
Field Conductivity	543.9				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	9.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-304A

Lab Sample ID: 310-278159-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.69	J	2.0	0.53	ug/L	1		6020B	Total/NA
Iron	380		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	623.25				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	122.9				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.47				mg/L	1		Field Sampling	Total/NA
Field pH	8.02				SU	1		Field Sampling	Total/NA
Field Conductivity	499.7				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.2				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	59.83				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-305

Lab Sample ID: 310-278159-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.66	J	2.0	0.53	ug/L	1		6020B	Total/NA
Iron	5500		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	626.49				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-126.0				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	1.18				mg/L	1		Field Sampling	Total/NA
Field pH	7.23				SU	1		Field Sampling	Total/NA
Field Conductivity	656.8				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	6.8				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306

Lab Sample ID: 310-278159-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	8.1		2.0	0.53	ug/L	1		6020B	Total/NA
Iron	50000		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	620.18				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-167.8				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.13				mg/L	1		Field Sampling	Total/NA
Field pH	6.97				SU	1		Field Sampling	Total/NA
Field Conductivity	2002				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	11.9				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	1.51				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-306A

Lab Sample ID: 310-278159-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	1700		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	620.56				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-91.7				mV	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-306A (Continued)

Lab Sample ID: 310-278159-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxygen, Dissolved	1.31				mg/L	1		Field Sampling	Total/NA
Field pH	7.36				SU	1		Field Sampling	Total/NA
Field Conductivity	619.1				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	12.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307

Lab Sample ID: 310-278159-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	61		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	1.9	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	240		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	770		100	76	ug/L	1		6020B	Total/NA
Calcium	44		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	48	J	100	36	ug/L	1		6020B	Total/NA
Lithium	12		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	7.7		2.0	0.91	ug/L	1		6020B	Total/NA
Selenium	1.8	J	5.0	1.4	ug/L	1		6020B	Total/NA
Total Dissolved Solids	230		50	34	mg/L	1		SM 2540C	Total/NA
pH	8.4	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	628.61				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-173.6				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.48				mg/L	1		Field Sampling	Total/NA
Field pH	8.62				SU	1		Field Sampling	Total/NA
Field Conductivity	421.4				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	8.8				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-307A

Lab Sample ID: 310-278159-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.1	J	2.0	0.53	ug/L	1		6020B	Total/NA
Iron	180		100	36	ug/L	1		6020B	Total/NA
Groundwater Elevation	624.61				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-74.0				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.19				mg/L	1		Field Sampling	Total/NA
Field pH	7.56				SU	1		Field Sampling	Total/NA
Field Conductivity	587.9				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-6

Lab Sample ID: 310-278159-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.6		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	21		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	44		2.0	0.64	ug/L	1		6020B	Total/NA
Calcium	68		0.50	0.19	mg/L	1		6020B	Total/NA
Total Dissolved Solids	300		50	34	mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	1.0	1.0	SU	1		SM 4500 H+ B	Total/NA
Groundwater Elevation	663.16				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-6 (Continued)

Lab Sample ID: 310-278159-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oxidation Reduction Potential	76.5				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.61				mg/L	1		Field Sampling	Total/NA
Field pH	7.12				SU	1		Field Sampling	Total/NA
Field Conductivity	528.2				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	9.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank

Lab Sample ID: 310-278159-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	1.0	1.0	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: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-301

Lab Sample ID: 310-278159-1

Date Collected: 04/01/24 16:20

Matrix: Water

Date Received: 04/04/24 09:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		5.0	2.3	mg/L			04/18/24 10:14	5
Fluoride	<0.38		1.0	0.38	mg/L			04/18/24 10:14	5
Sulfate	56		5.0	2.1	mg/L			04/18/24 10:14	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		04/09/24 09:00	04/17/24 21:10	1
Arsenic	1.3	J	2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:10	1
Barium	120		2.0	0.64	ug/L		04/09/24 09:00	04/17/24 21:10	1
Beryllium	<0.33		1.0	0.33	ug/L		04/09/24 09:00	04/17/24 21:10	1
Boron	480		100	76	ug/L		04/09/24 09:00	04/17/24 21:10	1
Cadmium	<0.10		0.20	0.10	ug/L		04/09/24 09:00	04/17/24 21:10	1
Calcium	69		0.50	0.19	mg/L		04/09/24 09:00	04/17/24 21:10	1
Chromium	<1.1		5.0	1.1	ug/L		04/09/24 09:00	04/17/24 21:10	1
Cobalt	<0.17		0.50	0.17	ug/L		04/09/24 09:00	04/17/24 21:10	1
Iron	160		100	36	ug/L		04/09/24 09:00	04/17/24 21:10	1
Lead	<0.24		0.50	0.24	ug/L		04/09/24 09:00	04/17/24 21:10	1
Lithium	6.9	J	10	2.5	ug/L		04/09/24 09:00	04/17/24 21:10	1
Molybdenum	5.8		2.0	0.91	ug/L		04/09/24 09:00	04/17/24 21:10	1
Selenium	<1.4		5.0	1.4	ug/L		04/09/24 09:00	04/17/24 21:10	1
Thallium	<0.26		1.0	0.26	ug/L		04/09/24 09:00	04/17/24 21:10	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		04/17/24 08:11	04/24/24 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	360		50	34	mg/L			04/04/24 21:39	1
pH (SM 4500 H+ B)	7.8	HF	1.0	1.0	SU			04/04/24 12:28	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	-0.0193	U	0.105	0.105	1.00	0.235	pCi/L	04/09/24 10:01	05/02/24 14:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	89.8		30 - 110					04/09/24 10:01	05/02/24 14:37	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	0.168	U	0.467	0.467	1.00	0.824	pCi/L	04/09/24 10:05	04/30/24 12:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	89.8		30 - 110					04/09/24 10:05	04/30/24 12:58	1
Y Carrier	84.1		30 - 110					04/09/24 10:05	04/30/24 12:58	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-301
 Date Collected: 04/01/24 16:20
 Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-1
 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	0.168	U	0.479	0.479	5.00	0.824	pCi/L		05/05/24 14:45	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	622.11				ft			04/01/24 16:20	1
Oxidation Reduction Potential	11.7				mV			04/01/24 16:20	1
Oxygen, Dissolved	0.54				mg/L			04/01/24 16:20	1
Field pH	7.84				SU			04/01/24 16:20	1
Field Conductivity	586.8				umhos/cm			04/01/24 16:20	1
Field Temperature	9.2				Degrees C			04/01/24 16:20	1
Field Turbidity	0.00				NTU			04/01/24 16:20	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-302

Lab Sample ID: 310-278159-2

Date Collected: 04/02/24 09:35

Matrix: Water

Date Received: 04/04/24 09:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		5.0	2.3	mg/L			04/18/24 10:26	5
Fluoride	<0.38		1.0	0.38	mg/L			04/18/24 10:26	5
Sulfate	<2.1		5.0	2.1	mg/L			04/18/24 10:26	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		04/09/24 09:00	04/17/24 21:13	1
Arsenic	45		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:13	1
Barium	700		2.0	0.64	ug/L		04/09/24 09:00	04/17/24 21:13	1
Beryllium	<0.33		1.0	0.33	ug/L		04/09/24 09:00	04/17/24 21:13	1
Boron	430		100	76	ug/L		04/09/24 09:00	04/17/24 21:13	1
Cadmium	<0.10		0.20	0.10	ug/L		04/09/24 09:00	04/17/24 21:13	1
Calcium	130		0.50	0.19	mg/L		04/09/24 09:00	04/17/24 21:13	1
Chromium	<1.1		5.0	1.1	ug/L		04/09/24 09:00	04/17/24 21:13	1
Cobalt	1.4		0.50	0.17	ug/L		04/09/24 09:00	04/17/24 21:13	1
Iron	45000		100	36	ug/L		04/09/24 09:00	04/17/24 21:13	1
Lead	<0.24		0.50	0.24	ug/L		04/09/24 09:00	04/17/24 21:13	1
Lithium	<2.5		10	2.5	ug/L		04/09/24 09:00	04/17/24 21:13	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/09/24 09:00	04/17/24 21:13	1
Selenium	<1.4		5.0	1.4	ug/L		04/09/24 09:00	04/17/24 21:13	1
Thallium	<0.26		1.0	0.26	ug/L		04/09/24 09:00	04/17/24 21:13	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		04/17/24 08:11	04/24/24 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	580		50	34	mg/L			04/05/24 13:40	1
pH (SM 4500 H+ B)	6.9	HF	1.0	1.0	SU			04/04/24 12:36	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	0.901		0.298	0.308	1.00	0.287	pCi/L	04/09/24 10:01	05/02/24 14:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	80.7		30 - 110					04/09/24 10:01	05/02/24 14:38	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	1.13		0.610	0.619	1.00	0.854	pCi/L	04/09/24 10:05	04/30/24 12:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	80.7		30 - 110					04/09/24 10:05	04/30/24 12:58	1
Y Carrier	81.5		30 - 110					04/09/24 10:05	04/30/24 12:58	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-302

Lab Sample ID: 310-278159-2

Date Collected: 04/02/24 09:35

Matrix: Water

Date Received: 04/04/24 09:45

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	2.04		0.679	0.691	5.00	0.854	pCi/L		05/05/24 14:45	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	625.60				ft			04/02/24 09:35	1
Oxidation Reduction Potential	-175.9				mV			04/02/24 09:35	1
Oxygen, Dissolved	0.14				mg/L			04/02/24 09:35	1
Field pH	7.06				SU			04/02/24 09:35	1
Field Conductivity	1175				umhos/cm			04/02/24 09:35	1
Field Temperature	7.4				Degrees C			04/02/24 09:35	1
Field Turbidity	0.00				NTU			04/02/24 09:35	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-302A

Lab Sample ID: 310-278159-3

Date Collected: 04/02/24 10:45

Matrix: Water

Date Received: 04/04/24 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:15	1
Iron	<36		100	36	ug/L		04/09/24 09:00	04/17/24 21:15	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	622.53				ft			04/02/24 10:45	1
Oxidation Reduction Potential	22.9				mV			04/02/24 10:45	1
Oxygen, Dissolved	5.67				mg/L			04/02/24 10:45	1
Field pH	7.37				SU			04/02/24 10:45	1
Field Conductivity	607.2				umhos/cm			04/02/24 10:45	1
Field Temperature	10.6				Degrees C			04/02/24 10:45	1
Field Turbidity	0.00				NTU			04/02/24 10:45	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-304
 Date Collected: 04/01/24 12:15
 Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-4
 Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:17	1
Iron	<36		100	36	ug/L		04/09/24 09:00	04/17/24 21:17	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	621.05				ft			04/01/24 12:15	1
Oxidation Reduction Potential	161.2				mV			04/01/24 12:15	1
Oxygen, Dissolved	7.97				mg/L			04/01/24 12:15	1
Field pH	7.28				SU			04/01/24 12:15	1
Field Conductivity	543.9				umhos/cm			04/01/24 12:15	1
Field Temperature	9.4				Degrees C			04/01/24 12:15	1
Field Turbidity	0.00				NTU			04/01/24 12:15	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-304A

Lab Sample ID: 310-278159-5

Date Collected: 04/01/24 13:00

Matrix: Water

Date Received: 04/04/24 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.69	J	2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:20	1
Iron	380		100	36	ug/L		04/09/24 09:00	04/17/24 21:20	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	623.25				ft			04/01/24 13:00	1
Oxidation Reduction Potential	122.9				mV			04/01/24 13:00	1
Oxygen, Dissolved	0.47				mg/L			04/01/24 13:00	1
Field pH	8.02				SU			04/01/24 13:00	1
Field Conductivity	499.7				umhos/cm			04/01/24 13:00	1
Field Temperature	10.2				Degrees C			04/01/24 13:00	1
Field Turbidity	59.83				NTU			04/01/24 13:00	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-305

Lab Sample ID: 310-278159-6

Date Collected: 04/02/24 12:25

Matrix: Water

Date Received: 04/04/24 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.66	J	2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:22	1
Iron	5500		100	36	ug/L		04/09/24 09:00	04/17/24 21:22	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	626.49				ft			04/02/24 12:25	1
Oxidation Reduction Potential	-126.0				mV			04/02/24 12:25	1
Oxygen, Dissolved	1.18				mg/L			04/02/24 12:25	1
Field pH	7.23				SU			04/02/24 12:25	1
Field Conductivity	656.8				umhos/cm			04/02/24 12:25	1
Field Temperature	6.8				Degrees C			04/02/24 12:25	1
Field Turbidity	0.00				NTU			04/02/24 12:25	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-306

Lab Sample ID: 310-278159-7

Date Collected: 04/02/24 11:50

Matrix: Water

Date Received: 04/04/24 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.1		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:25	1
Iron	50000		100	36	ug/L		04/09/24 09:00	04/17/24 21:25	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	620.18				ft			04/02/24 11:50	1
Oxidation Reduction Potential	-167.8				mV			04/02/24 11:50	1
Oxygen, Dissolved	0.13				mg/L			04/02/24 11:50	1
Field pH	6.97				SU			04/02/24 11:50	1
Field Conductivity	2002				umhos/cm			04/02/24 11:50	1
Field Temperature	11.9				Degrees C			04/02/24 11:50	1
Field Turbidity	1.51				NTU			04/02/24 11:50	1



Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-306A

Lab Sample ID: 310-278159-8

Date Collected: 04/02/24 12:40

Matrix: Water

Date Received: 04/04/24 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:27	1
Iron	1700		100	36	ug/L		04/09/24 09:00	04/17/24 21:27	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	620.56				ft			04/02/24 12:40	1
Oxidation Reduction Potential	-91.7				mV			04/02/24 12:40	1
Oxygen, Dissolved	1.31				mg/L			04/02/24 12:40	1
Field pH	7.36				SU			04/02/24 12:40	1
Field Conductivity	619.1				umhos/cm			04/02/24 12:40	1
Field Temperature	12.3				Degrees C			04/02/24 12:40	1
Field Turbidity	0.00				NTU			04/02/24 12:40	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-307

Lab Sample ID: 310-278159-9

Date Collected: 04/01/24 14:15

Matrix: Water

Date Received: 04/04/24 09:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		5.0	2.3	mg/L			04/18/24 10:38	5
Fluoride	<0.38		1.0	0.38	mg/L			04/18/24 10:38	5
Sulfate	61		5.0	2.1	mg/L			04/18/24 10:38	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		04/09/24 09:00	04/17/24 21:39	1
Arsenic	1.9	J	2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:39	1
Barium	240		2.0	0.64	ug/L		04/09/24 09:00	04/17/24 21:39	1
Beryllium	<0.33		1.0	0.33	ug/L		04/09/24 09:00	04/17/24 21:39	1
Boron	770		100	76	ug/L		04/09/24 09:00	04/17/24 21:39	1
Cadmium	<0.10		0.20	0.10	ug/L		04/09/24 09:00	04/17/24 21:39	1
Calcium	44		0.50	0.19	mg/L		04/09/24 09:00	04/17/24 21:39	1
Chromium	<1.1		5.0	1.1	ug/L		04/09/24 09:00	04/17/24 21:39	1
Cobalt	<0.17		0.50	0.17	ug/L		04/09/24 09:00	04/17/24 21:39	1
Iron	48	J	100	36	ug/L		04/09/24 09:00	04/17/24 21:39	1
Lead	<0.24		0.50	0.24	ug/L		04/09/24 09:00	04/17/24 21:39	1
Lithium	12		10	2.5	ug/L		04/09/24 09:00	04/17/24 21:39	1
Molybdenum	7.7		2.0	0.91	ug/L		04/09/24 09:00	04/17/24 21:39	1
Selenium	1.8	J	5.0	1.4	ug/L		04/09/24 09:00	04/17/24 21:39	1
Thallium	<0.26		1.0	0.26	ug/L		04/09/24 09:00	04/17/24 21:39	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		04/17/24 08:11	04/24/24 13:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	230		50	34	mg/L			04/04/24 21:39	1
pH (SM 4500 H+ B)	8.4	HF	1.0	1.0	SU			04/04/24 12:30	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	0.0320	U	0.142	0.142	1.00	0.264	pCi/L	04/09/24 10:01	05/02/24 14:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.9		30 - 110					04/09/24 10:01	05/02/24 14:38	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	0.433	U	0.386	0.388	1.00	0.611	pCi/L	04/09/24 10:05	04/30/24 12:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.9		30 - 110					04/09/24 10:05	04/30/24 12:58	1
Y Carrier	81.1		30 - 110					04/09/24 10:05	04/30/24 12:58	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-307
 Date Collected: 04/01/24 14:15
 Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-9
 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	0.465	U	0.411	0.413	5.00	0.611	pCi/L		05/05/24 14:45	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	628.61				ft			04/01/24 14:15	1
Oxidation Reduction Potential	-173.6				mV			04/01/24 14:15	1
Oxygen, Dissolved	0.48				mg/L			04/01/24 14:15	1
Field pH	8.62				SU			04/01/24 14:15	1
Field Conductivity	421.4				umhos/cm			04/01/24 14:15	1
Field Temperature	8.8				Degrees C			04/01/24 14:15	1
Field Turbidity	0.00				NTU			04/01/24 14:15	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-307A

Lab Sample ID: 310-278159-10

Date Collected: 04/01/24 15:10

Matrix: Water

Date Received: 04/04/24 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1	J	2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:43	1
Iron	180		100	36	ug/L		04/09/24 09:00	04/17/24 21:43	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	624.61				ft			04/01/24 15:10	1
Oxidation Reduction Potential	-74.0				mV			04/01/24 15:10	1
Oxygen, Dissolved	0.19				mg/L			04/01/24 15:10	1
Field pH	7.56				SU			04/01/24 15:10	1
Field Conductivity	587.9				umhos/cm			04/01/24 15:10	1
Field Temperature	10.6				Degrees C			04/01/24 15:10	1
Field Turbidity	0.00				NTU			04/01/24 15:10	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-6

Lab Sample ID: 310-278159-11

Date Collected: 04/01/24 13:07

Matrix: Water

Date Received: 04/04/24 09:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.6		5.0	2.3	mg/L			04/18/24 10:50	5
Fluoride	<0.38		1.0	0.38	mg/L			04/18/24 10:50	5
Sulfate	21		5.0	2.1	mg/L			04/18/24 10:50	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		04/09/24 09:00	04/17/24 21:46	1
Arsenic	<0.53		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:46	1
Barium	44		2.0	0.64	ug/L		04/09/24 09:00	04/17/24 21:46	1
Beryllium	<0.33		1.0	0.33	ug/L		04/09/24 09:00	04/17/24 21:46	1
Boron	<76		100	76	ug/L		04/09/24 09:00	04/17/24 21:46	1
Cadmium	<0.10		0.20	0.10	ug/L		04/09/24 09:00	04/17/24 21:46	1
Calcium	68		0.50	0.19	mg/L		04/09/24 09:00	04/17/24 21:46	1
Chromium	<1.1		5.0	1.1	ug/L		04/09/24 09:00	04/17/24 21:46	1
Cobalt	<0.17		0.50	0.17	ug/L		04/09/24 09:00	04/17/24 21:46	1
Iron	<36		100	36	ug/L		04/09/24 09:00	04/17/24 21:46	1
Lead	<0.24		0.50	0.24	ug/L		04/09/24 09:00	04/17/24 21:46	1
Lithium	<2.5		10	2.5	ug/L		04/09/24 09:00	04/17/24 21:46	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/09/24 09:00	04/17/24 21:46	1
Selenium	<1.4		5.0	1.4	ug/L		04/09/24 09:00	04/17/24 21:46	1
Thallium	<0.26		1.0	0.26	ug/L		04/09/24 09:00	04/17/24 21:46	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		04/17/24 08:11	04/24/24 13:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	300		50	34	mg/L			04/04/24 21:39	1
pH (SM 4500 H+ B)	7.5	HF	1.0	1.0	SU			04/04/24 12:29	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	0.0274	U	0.131	0.131	1.00	0.249	pCi/L	04/09/24 10:01	05/02/24 14:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.8		30 - 110					04/09/24 10:01	05/02/24 14:38	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	0.430	U	0.376	0.378	1.00	0.591	pCi/L	04/09/24 10:05	04/30/24 12:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.8		30 - 110					04/09/24 10:05	04/30/24 12:59	1
Y Carrier	83.4		30 - 110					04/09/24 10:05	04/30/24 12:59	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-6

Lab Sample ID: 310-278159-11

Date Collected: 04/01/24 13:07

Matrix: Water

Date Received: 04/04/24 09:45

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	0.457	U	0.398	0.400	5.00	0.591	pCi/L		05/05/24 14:45	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	663.16				ft			04/01/24 13:07	1
Oxidation Reduction Potential	76.5				mV			04/01/24 13:07	1
Oxygen, Dissolved	6.61				mg/L			04/01/24 13:07	1
Field pH	7.12				SU			04/01/24 13:07	1
Field Conductivity	528.2				umhos/cm			04/01/24 13:07	1
Field Temperature	9.6				Degrees C			04/01/24 13:07	1
Field Turbidity	0.00				NTU			04/01/24 13:07	1



Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: Field Blank

Lab Sample ID: 310-278159-12

Date Collected: 04/02/24 10:40

Matrix: Water

Date Received: 04/04/24 09:45

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			04/18/24 11:02	1
Fluoride	<0.075		0.20	0.075	mg/L			04/18/24 11:02	1
Sulfate	<0.42		1.0	0.42	mg/L			04/18/24 11:02	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		04/09/24 09:00	04/17/24 21:48	1
Arsenic	<0.53		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 21:48	1
Barium	<0.64		2.0	0.64	ug/L		04/09/24 09:00	04/17/24 21:48	1
Beryllium	<0.33		1.0	0.33	ug/L		04/09/24 09:00	04/17/24 21:48	1
Boron	<76		100	76	ug/L		04/09/24 09:00	04/17/24 21:48	1
Cadmium	<0.10		0.20	0.10	ug/L		04/09/24 09:00	04/17/24 21:48	1
Calcium	<0.19		0.50	0.19	mg/L		04/09/24 09:00	04/17/24 21:48	1
Chromium	<1.1		5.0	1.1	ug/L		04/09/24 09:00	04/17/24 21:48	1
Cobalt	<0.17		0.50	0.17	ug/L		04/09/24 09:00	04/17/24 21:48	1
Iron	<36		100	36	ug/L		04/09/24 09:00	04/17/24 21:48	1
Lead	<0.24		0.50	0.24	ug/L		04/09/24 09:00	04/17/24 21:48	1
Lithium	<2.5		10	2.5	ug/L		04/09/24 09:00	04/17/24 21:48	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/09/24 09:00	04/17/24 21:48	1
Selenium	<1.4		5.0	1.4	ug/L		04/09/24 09:00	04/17/24 21:48	1
Thallium	<0.26		1.0	0.26	ug/L		04/09/24 09:00	04/17/24 21:48	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		04/17/24 08:11	04/24/24 13:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<34		50	34	mg/L			04/05/24 13:40	1
pH (SM 4500 H+ B)	5.9	HF	1.0	1.0	SU			04/04/24 12:31	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	0.0106	U	0.0985	0.0985	1.00	0.193	pCi/L	04/09/24 10:01	05/02/24 14:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	99.0		30 - 110					04/09/24 10:01	05/02/24 14:30	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	0.683		0.349	0.354	1.00	0.476	pCi/L	04/09/24 10:05	04/30/24 12:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	99.0		30 - 110					04/09/24 10:05	04/30/24 12:59	1
Y Carrier	84.5		30 - 110					04/09/24 10:05	04/30/24 12:59	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: Field Blank

Lab Sample ID: 310-278159-12

Date Collected: 04/02/24 10:40

Matrix: Water

Date Received: 04/04/24 09:45

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	0.694		0.363	0.367	5.00	0.476	pCi/L		05/05/24 14:45	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Definitions/Glossary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

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	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

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: Lansing Generating Station 25224070

Job ID: 310-278159-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-419308/3
Matrix: Water
Analysis Batch: 419308

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			04/18/24 09:50	1
Fluoride	<0.075		0.20	0.075	mg/L			04/18/24 09:50	1
Sulfate	<0.42		1.0	0.42	mg/L			04/18/24 09:50	1

Lab Sample ID: LCS 310-419308/4
Matrix: Water
Analysis Batch: 419308

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.86		mg/L		99	90 - 110
Fluoride	2.00	2.08		mg/L		104	90 - 110
Sulfate	10.0	10.5		mg/L		105	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-418166/1-A
Matrix: Water
Analysis Batch: 419086

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		2.0	1.0	ug/L		04/09/24 09:00	04/17/24 20:42	1
Arsenic	<0.53		2.0	0.53	ug/L		04/09/24 09:00	04/17/24 20:42	1
Barium	<0.64		2.0	0.64	ug/L		04/09/24 09:00	04/17/24 20:42	1
Beryllium	<0.33		1.0	0.33	ug/L		04/09/24 09:00	04/17/24 20:42	1
Boron	<76		100	76	ug/L		04/09/24 09:00	04/17/24 20:42	1
Cadmium	<0.10		0.20	0.10	ug/L		04/09/24 09:00	04/17/24 20:42	1
Calcium	<0.19		0.50	0.19	mg/L		04/09/24 09:00	04/17/24 20:42	1
Chromium	<1.1		5.0	1.1	ug/L		04/09/24 09:00	04/17/24 20:42	1
Cobalt	<0.17		0.50	0.17	ug/L		04/09/24 09:00	04/17/24 20:42	1
Iron	<36		100	36	ug/L		04/09/24 09:00	04/17/24 20:42	1
Lead	<0.24		0.50	0.24	ug/L		04/09/24 09:00	04/17/24 20:42	1
Lithium	<2.5		10	2.5	ug/L		04/09/24 09:00	04/17/24 20:42	1
Molybdenum	<0.91		2.0	0.91	ug/L		04/09/24 09:00	04/17/24 20:42	1
Selenium	<1.4		5.0	1.4	ug/L		04/09/24 09:00	04/17/24 20:42	1
Thallium	<0.26		1.0	0.26	ug/L		04/09/24 09:00	04/17/24 20:42	1

Lab Sample ID: LCS 310-418166/2-A
Matrix: Water
Analysis Batch: 419086

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	201		ug/L		101	80 - 120
Arsenic	200	203		ug/L		101	80 - 120
Barium	100	104		ug/L		104	80 - 120
Beryllium	100	92.4		ug/L		92	80 - 120
Boron	200	191		ug/L		95	80 - 120
Cadmium	100	96.2		ug/L		96	80 - 120
Calcium	2.00	1.63		mg/L		82	80 - 120
Chromium	100	99.4		ug/L		99	80 - 120

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QC Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

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

Lab Sample ID: LCS 310-418166/2-A
Matrix: Water
Analysis Batch: 419086

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	100	102		ug/L		102	80 - 120
Iron	200	189		ug/L		94	80 - 120
Lead	200	204		ug/L		102	80 - 120
Lithium	200	189		ug/L		94	80 - 120
Molybdenum	200	193		ug/L		96	80 - 120
Selenium	400	379		ug/L		95	80 - 120
Thallium	100	96.6		ug/L		97	80 - 120

Lab Sample ID: 310-278159-9 DU
Matrix: Water
Analysis Batch: 419086

Client Sample ID: MW-307
Prep Type: Total/NA
Prep Batch: 418166

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<1.0		<1.0		ug/L		NC	20
Arsenic	1.9	J	1.81	J	ug/L		3	20
Barium	240		253		ug/L		4	20
Beryllium	<0.33		<0.33		ug/L		NC	20
Boron	770		764		ug/L		0.9	20
Cadmium	<0.10		<0.10		ug/L		NC	20
Calcium	44		44.0		mg/L		0.9	20
Chromium	<1.1		<1.1		ug/L		NC	20
Cobalt	<0.17		<0.17		ug/L		NC	20
Iron	48	J	48.6	J	ug/L		0.9	20
Lead	<0.24		<0.24		ug/L		NC	20
Lithium	12		11.5		ug/L		2	20
Molybdenum	7.7		7.49		ug/L		3	20
Selenium	1.8	J	2.18	J	ug/L		20	20
Thallium	<0.26		<0.26		ug/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-418931/1-A
Matrix: Water
Analysis Batch: 419773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418931

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.14		0.20	0.14	ug/L		04/17/24 08:11	04/24/24 13:17	1

Lab Sample ID: LCS 310-418931/2-A
Matrix: Water
Analysis Batch: 419773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418931

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.65		ug/L		99	80 - 120

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QC Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

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

Lab Sample ID: 310-278159-1 MS
 Matrix: Water
 Analysis Batch: 419773

Client Sample ID: MW-301
 Prep Type: Total/NA
 Prep Batch: 418931

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.14		1.67	1.72		ug/L		103	80 - 120

Lab Sample ID: 310-278159-1 MSD
 Matrix: Water
 Analysis Batch: 419773

Client Sample ID: MW-301
 Prep Type: Total/NA
 Prep Batch: 418931

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.14		1.67	1.74		ug/L		105	80 - 120	1	20

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

Lab Sample ID: MB 310-417916/1
 Matrix: Water
 Analysis Batch: 417916

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			04/04/24 21:39	1

Lab Sample ID: LCS 310-417916/2
 Matrix: Water
 Analysis Batch: 417916

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	932		mg/L		93	90 - 110

Lab Sample ID: MB 310-418008/1
 Matrix: Water
 Analysis Batch: 418008

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			04/05/24 13:40	1

Lab Sample ID: LCS 310-418008/2
 Matrix: Water
 Analysis Batch: 418008

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	928		mg/L		93	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-417865/1
 Matrix: Water
 Analysis Batch: 417865

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

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

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QC Sample Results

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-656006/1-A
Matrix: Water
Analysis Batch: 659654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 656006

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium 226	0.01882	U	0.0689	0.0690	1.00	0.139	pCi/L	04/09/24 10:01	05/02/24 14:19	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Barium	98.5		30 - 110				04/09/24 10:01		05/02/24 14:19	1

Lab Sample ID: LCS 160-656006/2-A
Matrix: Water
Analysis Batch: 659654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 656006

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium 226	11.3	10.88		1.23	1.00	0.133	pCi/L	96	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	91.6		30 - 110						

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-656009/1-A
Matrix: Water
Analysis Batch: 659273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 656009

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium 228	0.5625		0.361	0.364	1.00	0.534	pCi/L	04/09/24 10:05	04/30/24 12:41	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Barium	98.5		30 - 110				04/09/24 10:05		04/30/24 12:41	1
Y Carrier	81.1		30 - 110				04/09/24 10:05		04/30/24 12:41	1

Lab Sample ID: LCS 160-656009/2-A
Matrix: Water
Analysis Batch: 659273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 656009

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium 228	8.98	9.872		1.38	1.00	0.672	pCi/L	110	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	91.6		30 - 110						
Y Carrier	79.3		30 - 110						

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

HPLC/IC

Analysis Batch: 419308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	9056A	
310-278159-2	MW-302	Total/NA	Water	9056A	
310-278159-9	MW-307	Total/NA	Water	9056A	
310-278159-11	MW-6	Total/NA	Water	9056A	
310-278159-12	Field Blank	Total/NA	Water	9056A	
MB 310-419308/3	Method Blank	Total/NA	Water	9056A	
LCS 310-419308/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 418166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	3005A	
310-278159-2	MW-302	Total/NA	Water	3005A	
310-278159-3	MW-302A	Total/NA	Water	3005A	
310-278159-4	MW-304	Total/NA	Water	3005A	
310-278159-5	MW-304A	Total/NA	Water	3005A	
310-278159-6	MW-305	Total/NA	Water	3005A	
310-278159-7	MW-306	Total/NA	Water	3005A	
310-278159-8	MW-306A	Total/NA	Water	3005A	
310-278159-9	MW-307	Total/NA	Water	3005A	
310-278159-10	MW-307A	Total/NA	Water	3005A	
310-278159-11	MW-6	Total/NA	Water	3005A	
310-278159-12	Field Blank	Total/NA	Water	3005A	
MB 310-418166/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-418166/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-278159-9 DU	MW-307	Total/NA	Water	3005A	

Prep Batch: 418931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	7470A	
310-278159-2	MW-302	Total/NA	Water	7470A	
310-278159-9	MW-307	Total/NA	Water	7470A	
310-278159-11	MW-6	Total/NA	Water	7470A	
310-278159-12	Field Blank	Total/NA	Water	7470A	
MB 310-418931/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-418931/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-278159-1 MS	MW-301	Total/NA	Water	7470A	
310-278159-1 MSD	MW-301	Total/NA	Water	7470A	

Analysis Batch: 419086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	6020B	418166
310-278159-2	MW-302	Total/NA	Water	6020B	418166
310-278159-3	MW-302A	Total/NA	Water	6020B	418166
310-278159-4	MW-304	Total/NA	Water	6020B	418166
310-278159-5	MW-304A	Total/NA	Water	6020B	418166
310-278159-6	MW-305	Total/NA	Water	6020B	418166
310-278159-7	MW-306	Total/NA	Water	6020B	418166
310-278159-8	MW-306A	Total/NA	Water	6020B	418166
310-278159-9	MW-307	Total/NA	Water	6020B	418166

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Metals (Continued)

Analysis Batch: 419086 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-10	MW-307A	Total/NA	Water	6020B	418166
310-278159-11	MW-6	Total/NA	Water	6020B	418166
310-278159-12	Field Blank	Total/NA	Water	6020B	418166
MB 310-418166/1-A	Method Blank	Total/NA	Water	6020B	418166
LCS 310-418166/2-A	Lab Control Sample	Total/NA	Water	6020B	418166
310-278159-9 DU	MW-307	Total/NA	Water	6020B	418166

Analysis Batch: 419773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	7470A	418931
310-278159-2	MW-302	Total/NA	Water	7470A	418931
310-278159-9	MW-307	Total/NA	Water	7470A	418931
310-278159-11	MW-6	Total/NA	Water	7470A	418931
310-278159-12	Field Blank	Total/NA	Water	7470A	418931
MB 310-418931/1-A	Method Blank	Total/NA	Water	7470A	418931
LCS 310-418931/2-A	Lab Control Sample	Total/NA	Water	7470A	418931
310-278159-1 MS	MW-301	Total/NA	Water	7470A	418931
310-278159-1 MSD	MW-301	Total/NA	Water	7470A	418931

General Chemistry

Analysis Batch: 417865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	SM 4500 H+ B	
310-278159-2	MW-302	Total/NA	Water	SM 4500 H+ B	
310-278159-9	MW-307	Total/NA	Water	SM 4500 H+ B	
310-278159-11	MW-6	Total/NA	Water	SM 4500 H+ B	
310-278159-12	Field Blank	Total/NA	Water	SM 4500 H+ B	
LCS 310-417865/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 417916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	SM 2540C	
310-278159-9	MW-307	Total/NA	Water	SM 2540C	
310-278159-11	MW-6	Total/NA	Water	SM 2540C	
MB 310-417916/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-417916/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 418008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-2	MW-302	Total/NA	Water	SM 2540C	
310-278159-12	Field Blank	Total/NA	Water	SM 2540C	
MB 310-418008/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-418008/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 656006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	PrecSep-21	
310-278159-2	MW-302	Total/NA	Water	PrecSep-21	
310-278159-9	MW-307	Total/NA	Water	PrecSep-21	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Rad (Continued)

Prep Batch: 656006 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-11	MW-6	Total/NA	Water	PrecSep-21	
310-278159-12	Field Blank	Total/NA	Water	PrecSep-21	
MB 160-656006/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-656006/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 656009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	PrecSep_0	
310-278159-2	MW-302	Total/NA	Water	PrecSep_0	
310-278159-9	MW-307	Total/NA	Water	PrecSep_0	
310-278159-11	MW-6	Total/NA	Water	PrecSep_0	
310-278159-12	Field Blank	Total/NA	Water	PrecSep_0	
MB 160-656009/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-656009/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Field Service / Mobile Lab

Analysis Batch: 418094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-1	MW-301	Total/NA	Water	Field Sampling	
310-278159-2	MW-302	Total/NA	Water	Field Sampling	
310-278159-3	MW-302A	Total/NA	Water	Field Sampling	
310-278159-4	MW-304	Total/NA	Water	Field Sampling	
310-278159-5	MW-304A	Total/NA	Water	Field Sampling	
310-278159-6	MW-305	Total/NA	Water	Field Sampling	
310-278159-7	MW-306	Total/NA	Water	Field Sampling	
310-278159-8	MW-306A	Total/NA	Water	Field Sampling	
310-278159-9	MW-307	Total/NA	Water	Field Sampling	
310-278159-11	MW-6	Total/NA	Water	Field Sampling	

Analysis Batch: 418097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278159-10	MW-307A	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-301

Date Collected: 04/01/24 16:20

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	419308	QTZ5	EET CF	04/18/24 10:14
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:10
Total/NA	Prep	7470A			418931	A6US	EET CF	04/17/24 08:11
Total/NA	Analysis	7470A		1	419773	A6US	EET CF	04/24/24 13:28
Total/NA	Analysis	SM 2540C		1	417916	D7CP	EET CF	04/04/24 21:39
Total/NA	Analysis	SM 4500 H+ B		1	417865	W9YR	EET CF	04/04/24 12:28
Total/NA	Prep	PrecSep-21			656006	KAK	EET SL	04/09/24 10:01
Total/NA	Analysis	903.0		1	659818	SCB	EET SL	05/02/24 14:37
Total/NA	Prep	PrecSep_0			656009	KAK	EET SL	04/09/24 10:05
Total/NA	Analysis	904.0		1	659271	SCB	EET SL	04/30/24 12:58
Total/NA	Analysis	Ra226_Ra228 Pos		1	660051	FLC	EET SL	05/05/24 14:45
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 16:20

Client Sample ID: MW-302

Date Collected: 04/02/24 09:35

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	419308	QTZ5	EET CF	04/18/24 10:26
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:13
Total/NA	Prep	7470A			418931	A6US	EET CF	04/17/24 08:11
Total/NA	Analysis	7470A		1	419773	A6US	EET CF	04/24/24 13:34
Total/NA	Analysis	SM 2540C		1	418008	D7CP	EET CF	04/05/24 13:40
Total/NA	Analysis	SM 4500 H+ B		1	417865	W9YR	EET CF	04/04/24 12:36
Total/NA	Prep	PrecSep-21			656006	KAK	EET SL	04/09/24 10:01
Total/NA	Analysis	903.0		1	659818	SCB	EET SL	05/02/24 14:38
Total/NA	Prep	PrecSep_0			656009	KAK	EET SL	04/09/24 10:05
Total/NA	Analysis	904.0		1	659271	SCB	EET SL	04/30/24 12:58
Total/NA	Analysis	Ra226_Ra228 Pos		1	660051	FLC	EET SL	05/05/24 14:45
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 09:35

Client Sample ID: MW-302A

Date Collected: 04/02/24 10:45

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:15
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 10:45

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-304

Date Collected: 04/01/24 12:15

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:17
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 12:15

Client Sample ID: MW-304A

Date Collected: 04/01/24 13:00

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:20
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 13:00

Client Sample ID: MW-305

Date Collected: 04/02/24 12:25

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:22
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 12:25

Client Sample ID: MW-306

Date Collected: 04/02/24 11:50

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:25
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 11:50

Client Sample ID: MW-306A

Date Collected: 04/02/24 12:40

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:27
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 12:40

Client Sample ID: MW-307

Date Collected: 04/01/24 14:15

Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	419308	QTZ5	EET CF	04/18/24 10:38

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: MW-307
Date Collected: 04/01/24 14:15
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:39
Total/NA	Prep	7470A			418931	A6US	EET CF	04/17/24 08:11
Total/NA	Analysis	7470A		1	419773	A6US	EET CF	04/24/24 13:37
Total/NA	Analysis	SM 2540C		1	417916	D7CP	EET CF	04/04/24 21:39
Total/NA	Analysis	SM 4500 H+ B		1	417865	W9YR	EET CF	04/04/24 12:30
Total/NA	Prep	PrecSep-21			656006	KAK	EET SL	04/09/24 10:01
Total/NA	Analysis	903.0		1	659818	SCB	EET SL	05/02/24 14:38
Total/NA	Prep	PrecSep_0			656009	KAK	EET SL	04/09/24 10:05
Total/NA	Analysis	904.0		1	659271	SCB	EET SL	04/30/24 12:58
Total/NA	Analysis	Ra226_Ra228 Pos		1	660051	FLC	EET SL	05/05/24 14:45
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 14:15

Client Sample ID: MW-307A
Date Collected: 04/01/24 15:10
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:43
Total/NA	Analysis	Field Sampling		1	418097	BJ0R	EET CF	04/01/24 15:10

Client Sample ID: MW-6
Date Collected: 04/01/24 13:07
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278159-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	419308	QTZ5	EET CF	04/18/24 10:50
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:46
Total/NA	Prep	7470A			418931	A6US	EET CF	04/17/24 08:11
Total/NA	Analysis	7470A		1	419773	A6US	EET CF	04/24/24 13:39
Total/NA	Analysis	SM 2540C		1	417916	D7CP	EET CF	04/04/24 21:39
Total/NA	Analysis	SM 4500 H+ B		1	417865	W9YR	EET CF	04/04/24 12:29
Total/NA	Prep	PrecSep-21			656006	KAK	EET SL	04/09/24 10:01
Total/NA	Analysis	903.0		1	659818	SCB	EET SL	05/02/24 14:38
Total/NA	Prep	PrecSep_0			656009	KAK	EET SL	04/09/24 10:05
Total/NA	Analysis	904.0		1	659271	SCB	EET SL	04/30/24 12:59
Total/NA	Analysis	Ra226_Ra228 Pos		1	660051	FLC	EET SL	05/05/24 14:45
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 13:07

Lab Chronicle

Client: SCS Engineers
 Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

Client Sample ID: Field Blank

Lab Sample ID: 310-278159-12

Date Collected: 04/02/24 10:40

Matrix: Water

Date Received: 04/04/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	419308	QTZ5	EET CF	04/18/24 11:02
Total/NA	Prep	3005A			418166	QTZ5	EET CF	04/09/24 09:00
Total/NA	Analysis	6020B		1	419086	NFT2	EET CF	04/17/24 21:48
Total/NA	Prep	7470A			418931	A6US	EET CF	04/17/24 08:11
Total/NA	Analysis	7470A		1	419773	A6US	EET CF	04/24/24 13:41
Total/NA	Analysis	SM 2540C		1	418008	D7CP	EET CF	04/05/24 13:40
Total/NA	Analysis	SM 4500 H+ B		1	417865	W9YR	EET CF	04/04/24 12:31
Total/NA	Prep	PrecSep-21			656006	KAK	EET SL	04/09/24 10:01
Total/NA	Analysis	903.0		1	659820	SCB	EET SL	05/02/24 14:30
Total/NA	Prep	PrecSep_0			656009	KAK	EET SL	04/09/24 10:05
Total/NA	Analysis	904.0		1	659271	SCB	EET SL	04/30/24 12:59
Total/NA	Analysis	Ra226_Ra228 Pos		1	660051	FLC	EET SL	05/05/24 14:45

Laboratory References:

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

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: Lansing Generating Station 25224070

Job ID: 310-278159-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

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	04-08-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-24
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-24
Connecticut	State	PH-0241	03-31-25
Florida	NELAP	E87689	06-30-24
HI - RadChem Recognition	State	n/a	06-30-24
Illinois	NELAP	200023	11-30-24
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-24
Kentucky (DW)	State	KY90125	12-31-24
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-24
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-24
Louisiana (DW)	State	LA011	12-31-24
Maryland	State	310	09-30-24
Massachusetts	State	M-MO054	06-30-24
MI - RadChem Recognition	State	9005	06-30-24
Missouri	State	780	06-30-25
Nevada	State	MO00054	07-31-24
New Jersey	NELAP	MO002	06-30-24
New Mexico	State	MO00054	06-30-24
New York	NELAP	11616	03-31-25
North Carolina (DW)	State	29700	07-31-24
North Dakota	State	R-207	06-30-24
Oklahoma	NELAP	9997	08-31-24
Oregon	NELAP	4157	09-01-24
Pennsylvania	NELAP	68-00540	02-28-25
South Carolina	State	85002001	06-30-24
Texas	NELAP	T104704193	07-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00028	05-18-26
Utah	NELAP	MO00054	07-31-24
Virginia	NELAP	10310	06-15-25
Washington	State	C592	08-30-24
West Virginia DEP	State	381	10-31-24

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

Method Summary

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278159-1

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
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
Pos			
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
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

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

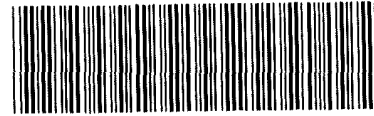
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

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

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

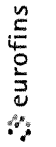


Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>SCS</u>			
City/State:	CITY <u>Louisiana</u>	STATE <u>LA</u>	Project: <u>Lensing</u>
Receipt Information			
Date/Time Received:	DATE <u>4/4/24</u>	TIME <u>9:45</u>	Received By: <u>MRH</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input 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>X</u>		Correction Factor (°C): <u>00</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>24</u>		Corrected Temp (°C): <u>24</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>Ethan Schaefer</u>		Lab PM: <u>Sandie Fredrick</u>		Carrier Tracking No(s):				
Client Contact: <u>Meghan Blodgett</u>		Phone: <u>608-893-0949</u>		E-Mail: <u>Sandra.Fredrick@et.eurofins.com</u>		State of Origin:				
Company: <u>SCS Engineers</u>		PWSID:		Analysis Requested		COC No:				
Address: <u>2830 Dairy Drive</u>		Due Date Requested:		Field Filtered Sample (Yes or No)		Total Number of Containers				
City: <u>Madison</u>		TAT Requested (days):		Perform MS/MSD (Yes or No)		Preservation Codes				
State: <u>WI</u> Zip: <u>53718</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		6020 Metals total (Sb, As, Ba, Be, B, Ca, Cd, Cr, Co, Fe, Pb, Li, Mo, Se, Tl)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHCO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other				
Phone: <u>608-224-2830</u>		PO #: <u>25223070</u>		6020 Metals (As, Fe, Mo only)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)				
Email: <u>mblodgett@scsengineers.com</u>		WO #: <u>25223070</u>		7470 Mercury total		Special Instructions/Note:				
Project Name: <u>Lansing Generating Station 25223070</u>		Project #: <u>25223070</u>		Chloride, Fluoride Sulfate						
Site: <u>Lansing, IA</u>		SSOW#:		TDS and pH						
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=soil tissue, AA=)	6020 Metals total (Sb, As, Ba, Be, B, Ca, Cd, Cr, Co, Fe, Pb, Li, Mo, Se, Tl) <th>6020 Metals (As, Fe, Mo only) <th>7470 Mercury total <th>TDS and pH <th>Chloride, Fluoride Sulfate <th>EPA 903/904 Radium 226 + 228 </th></th></th></th></th>	6020 Metals (As, Fe, Mo only) <th>7470 Mercury total <th>TDS and pH <th>Chloride, Fluoride Sulfate <th>EPA 903/904 Radium 226 + 228 </th></th></th></th>	7470 Mercury total <th>TDS and pH <th>Chloride, Fluoride Sulfate <th>EPA 903/904 Radium 226 + 228 </th></th></th>	TDS and pH <th>Chloride, Fluoride Sulfate <th>EPA 903/904 Radium 226 + 228 </th></th>	Chloride, Fluoride Sulfate <th>EPA 903/904 Radium 226 + 228 </th>	EPA 903/904 Radium 226 + 228
MW-301	4/1/24	1620	G	W	X	X	X	X	X	X
MW-302	4/2/24	935	G	W	X	X	X	X	X	X
MW-302A	4/2/24	1045	G	W	X	X	X	X	X	X
MW-303	4/1/24	1715	G	W	X	X	X	X	X	X
MW-304	4/1/24	1715	G	W	X	X	X	X	X	X
MW-304A	4/1/24	1300	G	W	X	X	X	X	X	X
MW-305	4/2/24	1225	G	W	X	X	X	X	X	X
MW-306	4/2/24	1150	G	W	X	X	X	X	X	X
MW-306A	4/2/24	1240	G	W	X	X	X	X	X	X
MW-307	4/1/24	1415	G	W	X	X	X	X	X	X
MW-307A	4/1/24	1510	G	W	X	X	X	X	X	X

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No Custody Seal No

Cooler Temperature(s) °C and Other Remarks:

Client Information

Client Contact: Meghan Blodgett

Company: SCS Engineers

Address: 2830 Dairy Drive

City: Madison

State Zip: WI, 53718

Phone: 608-224-2830

Email: mblodgett@scsengineers.com

Project Name: Lansing Generating Station 25223070

Site: Lansing IA

Sampler: Ethan Schaefer

Lab PM: Sandie Fredrick

Phone: 608-893-0949

E-Mail: Sandia.Fredrick@eurofins.com

Company: SCS Engineers

Address: 2830 Dairy Drive

City: Madison

State Zip: WI, 53718

Phone: 608-224-2830

Email: mblodgett@scsengineers.com

Project Name: Lansing Generating Station 25223070

Site: Lansing IA

Chain of Custody Record

Carrier Tracking No(s): COC No: Page: Page 2 of 2 Job #: State of Origin:

Analysis Requested

Table with columns for various analyses: Perform MS/MSD (Yes or No), Field Filtered Sample (Yes or No), 6020 Metals (As, Ba, Be, B, Ca, Cd, Cr, Co, Fe, Pb, Li, Mo, Se, Tl), 7470 Mercury total, TDS and pH, Chloride, Fluoride Sulfate, 903/904 Radium 226 + 228.

Table for Sample Identification with columns: Sample Date, Sample Time, Sample Type (C=comp, G=grab), Matrix (Water, Swab, Q=swab, A=air), Preservation Code.

Possible Hazard Identification: Non-Hazard, Flammable, Skin Irritant, Poison B, Unknown, Radiological.

Table for Relinquished by with columns: Date, Time, Company.

Due Date Requested, TAT Requested (days), Compliance Project: Yes No, PO #: 25223070, WO #:

Perform MS/MSD (Yes or No), Field Filtered Sample (Yes or No), 6020 Metals (As, Ba, Be, B, Ca, Cd, Cr, Co, Fe, Pb, Li, Mo, Se, Tl), 7470 Mercury total, TDS and pH, Chloride, Fluoride Sulfate, 903/904 Radium 226 + 228.

Special Instructions/Note: Total Number of containers

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:

Empty Kit Relinquished by: Date, Time, Company.

Relinquished by: Date/Time, Company.

Relinquished by: Date/Time, Company.

Custody Seals Intact: Yes No, 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



Environment Testing

Client Information (Sub Contract Lab) Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, City: Earth City State/Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: Lansing Generating Station 25224070 Site:		Lab PM: Fredrick, Sandie E-Mail: Sandra.Fredrick@et.eurofinsus.com State of Origin: Iowa Accreditations Required (See note): State Program - Iowa	
Sampler: Fredrick, Sandie Camer Tracking No(s): 310-70976.1 Page: 1 of 1 Job #: 310-278159-1		COC No: 310-70976.1 Preservation Codes: 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 - Tnzma Z - other (specify) Other: A - HCL B - NaOH C - Zn Acetale D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascobic Acid I - Ice J - DI Water K - EDTA L - EDA	
Due Date Requested: 5/6/2024 TAT Requested (days): PO #: WO #: Project #: 31011020 SSOV#:		Analysis Requested Total Number of containers	
Sample ID (Lab ID) MW-301 (310-278159-1) MW-302 (310-278159-2) MW-307 (310-278159-9) MW-6 (310-278159-11) Field Blank (310-278159-12)	Sample Date 4/1/24 4/2/24 4/1/24 4/1/24 4/2/24	Sample Time 16:20 Central 09:35 Central 14:15 Central 13:07 Central 10:40 Central	Sample Type (C=Comp, G=grab) Preservation Code: Water Water Water Water Water
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>	
903.0/PreSep_21 Radium-226 (GFC)		904.0/PreSep_0 Radium-226 (GFC)	
Radium-228		Radium-228/228GFC_P/ Combined Radium-226 and	
DO NOT SHIP ON ICE TO ST. LOUIS		DO NOT SHIP ON ICE TO ST. LOUIS	
DO NOT SHIP ON ICE TO ST. LOUIS		DO NOT SHIP ON ICE TO ST. LOUIS	
DO NOT SHIP ON ICE TO ST. LOUIS		DO NOT SHIP ON ICE TO ST. LOUIS	
DO NOT SHIP ON ICE TO ST. LOUIS		DO NOT SHIP ON ICE TO ST. LOUIS	
Special Instructions/Note:			
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & 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/test/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status 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 attesting to said compliance to Eurofins Environment Testing North Central, LLC.			
Possible Hazard Identification Unconfirmed 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 Archive For _____ Months		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact:		Custody Seal No.:	
Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-278159-1

Login Number: 278159

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.	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: 310-278159-1

Login Number: 278159

List Number: 2

Creator: Pinette, Meadow L

List Source: Eurofins St. Louis

List Creation: 04/05/24 01:09 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
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: Lansing Generating Station 25224070

Job ID: 310-278159-1

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)
310-278159-1	MW-301	89.8
310-278159-2	MW-302	80.7
310-278159-9	MW-307	90.9
310-278159-11	MW-6	87.8
310-278159-12	Field Blank	99.0
LCS 160-656006/2-A	Lab Control Sample	91.6
MB 160-656006/1-A	Method Blank	98.5

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)
310-278159-1	MW-301	89.8	84.1
310-278159-2	MW-302	80.7	81.5
310-278159-9	MW-307	90.9	81.1
310-278159-11	MW-6	87.8	83.4
310-278159-12	Field Blank	99.0	84.5
LCS 160-656009/2-A	Lab Control Sample	91.6	79.3
MB 160-656009/1-A	Method Blank	98.5	81.1

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier

Groundwater Monitoring Results - Field Parameters
Lansing Generating Station / SCS Engineers Project #25224070.00
April 2024

Sample	Sample Date	Groundwater Elevation (ft amsl)	Temperature (Deg C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity (NTU)
MW-6	4/1/2024	663.16	9.6	7.12	6.61	528.2	76.5	0.00
MW-11R	4/2/2024	644.34	10.5	6.94	0.40	1566	-188.3	4.73
MW-12	4/1/2024	649.51	10.0	7.10	2.22	926	-120.8	0.00
MW-12P	4/1/2024	649.22	10.3	6.94	4.60	791	19.7	0.00
MW-13	4/2/2024	DRY	-	-	-	-	-	-
MW-14	4/2/2024	641.85	9.4	7.48	6.07	510.7	64.3	0.00
MW-15	4/1/2024	DRY	-	-	-	-	-	-
TW-18	4/1/2024	648.33	6.8	6.74	0.18	814	-44.6	21.53

Abbreviations:

ft amsl = feet above mean sea level
µmhos/cm = micromhos per centimeter


mg/L = milligrams per liter
mV = millivolts

ORP = Oxidation Reduction (REDOX)
NTU = Nephelometric Turbidity Units

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

Date: 4/20/2021
Date: 4/3/2024
Date: 4/5/2024

C:\Users\hld0\AppData\Local\Microsoft\Windows\NetCache\Content.Outlook\USG3GGGC\April 2024_Lansing_State_Field.xlsx>Data



Appendix D

Historical Monitoring Results

Single Location
Name: IPL - Lansing

Location ID: MW-6
 Number of Sampling Dates: 25

Parameter Name	Units	10/26/2021	4/6/2022	10/18/2022	4/11/2023	10/30/2023	4/1/2024
Boron	ug/L	64	<58	<58	<76	<76	<76
Calcium	mg/L	72	71	70	79	73	68
Chloride	mg/L	6.8	5.3	5.1	6.5	5.5	5.6
Fluoride	mg/L	<0.28	<0.22	<0.22	<0.38	<0.38	<0.38
Field pH	Std. Units	7.7	7.32	7.4	7.15	7.38	7.12
Sulfate	mg/L	25	25	21	21	22	21
Total Dissolved Solids	mg/L	240	280	250	350	280	300
Antimony	ug/L	<1.1	<0.69	<0.69	<1	<1	<1
Arsenic	ug/L	<0.75	<0.75	<0.75	<0.53	<0.53	<0.53
Barium	ug/L	47	48	49	49	46	44
Beryllium	ug/L	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33
Cadmium	ug/L	<0.051	<0.055	<0.055	<0.1	<0.1	<0.1
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Cobalt	ug/L	<0.19	<0.19	<0.19	<0.17	<0.17	<0.17
Lead	ug/L	<0.21	<0.24	<0.24	<0.24	<0.24	<0.24
Lithium	ug/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Mercury	ug/L	<0.15	<0.11	--	<0.14	<0.14	<0.14
Molybdenum	ug/L	<1.3	<1.2	<1.2	<0.91	<0.91	<0.91
Selenium	ug/L	<0.96	<0.96	<0.96	<1.4	<1.4	<1.4
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Total Radium	pCi/L	0.779	0.0823	1.29	0.0554	<0.643	0.457
Radium-226	pCi/L	0.232	0.0404	0.109	0.0554	<0.286	0.0274
Radium-228	pCi/L	0.547	0.0419	1.18	-0.0629	<0.643	0.43
Collected By		--	--	--	--	--	--
pH at 25 Degrees C	Std. Units	7.5	7.6	7.6	7.6	7.5	7.5
Field Oxidation Potential	mV	136.2	197.7	47.3	141.4	-12.3	76.5
Field Specific Conductance	umhos/cm	601	599	552.6	595.6	565.2	528.2
Field Temperature	deg C	9.9	8.9	9.7	9.9	9.7	9.6
Groundwater Elevation	feet	668.14	667.14	665.34	664.79	663.59	663.16
Oxygen, Dissolved	mg/L	9.34	8.92	8.16	8.38	7.94	6.61
Turbidity	NTU	0	0	0.6	0.97	0	0
Collected Date		--	--	--	--	--	--
Collected Time		--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	380	330	300	--	--	--
Iron, dissolved	ug/L	<36	<36	<36	<36	--	--
Manganese, dissolved	ug/L	<4.4	14	<3.6	--	--	--
Calcium, total	ug/L	--	--	--	--	--	--
Iron, total	ug/L	<36	<36	<36	--	<36	<36
Magnesium, total	ug/L	35000	35000	32000	--	--	--
Manganese, total	ug/L	<4.4	<3.6	<3.6	--	--	--
Potassium, total	ug/L	1100	1100	930	--	--	--
Sodium, total	ug/L	4500	4500	4100	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	380	330	300	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	<0.75	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-301

Number of Sampling Dates: 25

Parameter Name	Units	10/26/2021	4/5/2022	10/17/2022	4/10/2023	10/31/2023	4/1/2024
Boron	ug/L	260	220	260	440	650	480
Calcium	mg/L	68	69	67	48	83	69
Chloride	mg/L	17	22	15	23	29	20
Fluoride	mg/L	<0.28	<0.22	<0.22	<0.38	<0.38	<0.38
Field pH	Std. Units	8.11	8.3	8.1	8.05	7.71	7.84
Sulfate	mg/L	49	86	63	38	58	56
Total Dissolved Solids	mg/L	210	260	280	180	340	360
Antimony	ug/L	<1.1	<0.69	<0.69	<1	<1	<1
Arsenic	ug/L	7.1	4.9	5	3.7	2.9	1.3
Barium	ug/L	160	130	160	73	160	120
Beryllium	ug/L	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33
Cadmium	ug/L	<0.051	<0.055	<0.055	<0.1	<0.1	<0.1
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Cobalt	ug/L	0.23	<0.19	<0.19	<0.17	<0.17	<0.17
Lead	ug/L	0.37	<0.24	<0.24	<0.24	<0.24	<0.24
Lithium	ug/L	6.7	7.3	8.7	5.8	8.1	6.9
Mercury	ug/L	<0.15	<0.11	--	<0.14	<0.14	<0.14
Molybdenum	ug/L	6.2	7.6	12	14	11	5.8
Selenium	ug/L	<0.96	<0.96	<0.96	1.9	<1.4	<1.4
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Total Radium	pCi/L	0.814	0.103	0.83	0.521	0.324	0.168
Radium-226	pCi/L	0.259	0.103	0.296	0.043	0.288	-0.0193
Radium-228	pCi/L	0.555	-0.168	0.534	0.478	0.0367	0.168
Collected By		--	--	--	--	--	--
pH at 25 Degrees C	Std. Units	8.1	8.2	8.2	8.2	7.8	7.8
Field Oxidation Potential	mV	-159.7	200	-185.1	-149.6	-96	11.7
Field Specific Conductance	umhos/cm	534	554	526	352.2	639.4	586.8
Field Temperature	deg C	16.1	8.7	12.5	10.3	12.4	9.2
Groundwater Elevation	feet	627	630.67	630.79	623.4	622.2	622.11
Oxygen, Dissolved	mg/L	0.1	0.15	0.08	0.19	0.62	0.54
Turbidity	NTU	0.81	0	1.31	0	0.49	0
Collected Date		--	--	--	--	--	--
Collected Time		--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	260	200	230	--	--	--
Iron, dissolved	ug/L	430	280	410	250	--	--
Manganese, dissolved	ug/L	530	570	590	--	--	--
Calcium, total	ug/L	--	--	--	--	--	--
Iron, total	ug/L	640	620	620	--	250	160
Magnesium, total	ug/L	18000	21000	18000	--	--	--
Manganese, total	ug/L	530	590	640	--	--	--
Potassium, total	ug/L	3700	3000	3200	--	--	--
Sodium, total	ug/L	13000	16000	14000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	260	200	230	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	6.8	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-302
 Number of Sampling Dates: 25

Parameter Name	Units	10/27/2021	4/5/2022	10/19/2022	4/11/2023	10/30/2023	4/2/2024
Boron	ug/L	630	540	780	480	590	430
Calcium	mg/L	120	120	110	130	130	130
Chloride	mg/L	14	12	11	15	16	10
Fluoride	mg/L	1.3	<0.22	<0.22	0.66	<0.38	<0.38
Field pH	Std. Units	6.89	6.92	6.87	7.19	7.21	7.06
Sulfate	mg/L	<2.5	<2	<2	<2.1	<2.1	<2.1
Total Dissolved Solids	mg/L	450	490	520	530	520	580
Antimony	ug/L	<1.1	<0.69	<0.69	<1	<1	<1
Arsenic	ug/L	51	40	51	42	64	45
Barium	ug/L	680	690	790	800	830	700
Beryllium	ug/L	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33
Cadmium	ug/L	0.076	<0.055	<0.055	<0.1	<0.1	<0.1
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	10	<1.1
Cobalt	ug/L	1.1	1.5	1.2	1.3	1.3	1.4
Lead	ug/L	1	<0.24	0.39	<0.24	<0.24	<0.24
Lithium	ug/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Mercury	ug/L	<0.15	<0.11	--	<0.14	<0.14	<0.14
Molybdenum	ug/L	1.4	<1.2	1.2	1.9	1.4	--
Selenium	ug/L	<0.96	<0.96	<0.96	2.9	<1.4	<1.4
Thallium	ug/L	0.31	<0.26	<0.26	<0.26	0.34	<0.26
Total Radium	pCi/L	1.59	1.35	4.33	1.07	2.68	2.04
Radium-226	pCi/L	0.907	0.604	0.888	0.964	0.714	0.901
Radium-228	pCi/L	0.68	0.744	3.44	0.11	1.96	1.13
Collected By		--	--	--	--	--	--
pH at 25 Degrees C	Std. Units	7	7	7	7	7	6.9
Field Oxidation Potential	mV	-128.1	202.8	-186.2	-181.4	-177.4	-175.9
Field Specific Conductance	umhos/cm	1075	1151	1045	871	1185	1175
Field Temperature	deg C	15.7	6.3	14.5	6.9	13.4	7.4
Groundwater Elevation	feet	628.86	623.29	629.51	628.61	627.05	625.6
Oxygen, Dissolved	mg/L	1.07	0.13	0.03	0.29	0.26	0.14
Turbidity	NTU	3.35	3.21	23.33	4.54	0.82	0
Collected Date		--	--	--	--	--	--
Collected Time		--	--	--	--	--	--
Total Alkalinity as CaCO3	mg/L	550	620	540	--	--	--
Iron, dissolved	ug/L	33000	44000	40000	47000	--	--
Manganese, dissolved	ug/L	2600	3000	2500	--	--	--
Calcium, total	ug/L	--	--	--	--	--	--
Iron, total	ug/L	35000	45000	43000	--	45000	45000
Magnesium, total	ug/L	39000	49000	42000	--	--	--
Manganese, total	ug/L	2700	3000	2300	--	--	--
Potassium, total	ug/L	4300	3900	3900	--	--	--
Sodium, total	ug/L	18000	21000	19000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	550	620	540	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	48	38	50	--	--	--
Molybdenum, dissolved	ug/L	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-302A
 Number of Sampling Dates: 11

Parameter Name	Units	5/20/2020	7/6/2020	8/19/2020	10/19/2020	4/9/2021	10/27/2021	4/5/2022	10/17/2022	4/11/2023	10/31/2023	4/2/2024
Boron	ug/L	190	250	--	160	170	140	170	190	--	--	--
Calcium	mg/L	79	78	--	72	75	75	73	74	--	--	--
Chloride	mg/L	7.8	6.9	7.1	6	6.7	6.9	5.6	5.2	--	--	--
Fluoride	mg/L	<0.23	<0.23	--	<0.23	<0.28	<0.28	<0.22	<0.22	--	--	--
Field pH	Std. Units	7.27	7.22	7.41	7.33	7.25	7.15	7.34	7.28	7.38	7.34	7.37
Sulfate	mg/L	53	47	49	47	45	50	52	44	--	--	--
Total Dissolved Solids	mg/L	520	350	--	350	330	280	300	310	--	--	--
Antimony	ug/L	<0.58	<0.51	--	--	<1.1	<1.1	<0.69	<0.69	--	--	--
Arsenic	ug/L	<0.88	<0.88	OGS	<0.88	<0.75	<0.75	<0.75	<0.75	<0.53	<0.53	<0.53
Barium	ug/L	51	47	--	46	51	48	49	50	--	--	--
Beryllium	ug/L	<0.27	<0.27	--	--	<0.27	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	<0.039	<0.049	--	<0.049	<0.051	<0.051	<0.055	<0.055	--	--	--
Chromium	ug/L	<1.1	<1.1	--	1.2	<1.1	<1.1	<1.1	<1.1	--	--	--
Cobalt	ug/L	0.41	0.098	--	<0.091	<0.091	<0.19	0.45	<0.19	--	--	--
Lead	ug/L	0.48	0.14	--	<0.11	<0.21	0.22	<0.24	<0.24	--	--	--
Lithium	ug/L	<2.3	<2.5	--	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	--
Mercury	ug/L	<0.1	<0.1	--	--	<0.15	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	<1.1	<1.1	<1.1	<1.1	<1.3	<1.3	<1.2	<1.2	<0.91	--	<0.91
Selenium	ug/L	1.3	1.1	--	<1	1.2	1	1.3	<0.96	--	--	--
Thallium	ug/L	<0.26	<0.26	--	--	<0.26	<0.26	<0.26	<0.26	--	--	--
Total Radium	pCi/L	--	0.0963	--	0.732	0.714	1.01	0.402	0.371	--	--	--
Radium-226	pCi/L	--	0.0963	--	0.229	0.076	0.233	0.196	0.0611	--	--	--
Radium-228	pCi/L	--	-0.00723	--	0.503	0.638	0.778	0.206	0.31	--	--	--
pH at 25 Degrees C	Std. Units	7.4	7.6	--	7.4	7.4	7.6	7.4	7.5	--	--	--
Field Oxidation Potential	mV	126.9	47	74.1	125.4	104.7	159.1	199.7	105.7	98.5	36.1	22.9
Field Specific Conductance	umhos/cm	644	641	638	650.1	597	627	630	619.9	458.5	616.4	607.2
Field Temperature	deg C	11.7	11.7	11.8	11.4	11.1	12	10.2	11.6	11.2	11.4	10.6
Groundwater Elevation	feet	623.19	624.2	623.52	623.03	623.12	623.1	623.71	622.97	621.32	622.91	622.53
Oxygen, Dissolved	mg/L	6.55	6.6	6.23	6.46	7.88	7.27	6.49	6.27	3.72	5.16	5.67
Turbidity	NTU	11.9	4.68	0.19	0.58	0.86	0	0	1.39	0	0	0
Total Alkalinity as CaCO3	mg/L	--	--	290	300	300	300	330	290	--	--	--
Iron, dissolved	ug/L	--	--	330	56	440	38	<36	55	37	--	--
Manganese, dissolved	ug/L	--	--	38	10	59	<4.4	8.3	5.4	--	--	--
Calcium, total	ug/L	--	--	--	81000	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	<50	47	41	<36	<36	--	<36	<36
Magnesium, total	ug/L	--	--	--	38000	37000	35000	37000	32000	--	--	--
Manganese, total	ug/L	--	--	--	<4	4.5	<4.4	<3.6	<3.6	--	--	--
Potassium, total	ug/L	--	--	--	1000	1000	1000	1100	900	--	--	--
Sodium, total	ug/L	--	--	--	6700	7000	6300	7400	6800	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	290	300	300	300	330	290	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	<3.8	<3.8	<4.2	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	--	--	<0.88	--	--	<0.75	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	<1.1	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-303
 Number of Sampling Dates: 22

Parameter Name	Units	12/10/2015	4/29/2016	7/20/2016	10/26/2016	1/17/2017	4/19/2017	6/20/2017	8/15/2017	10/16/2017	4/16/2018	6/4/2018	8/7/2018	10/8/2018	4/15/2019	10/2/2019	5/19/2020	8/18/2020	10/19/2020
Boron	ug/L	178	178	405	235	133	177	390	386	592	144	--	675	474	150	520	150	--	370
Calcium	mg/L	38.2	48.6	64.5	67.1	72.5	60.1	62.2	42	84.7	54.6	--	46	35.3	49	46	54	--	34
Chloride	mg/L	18.7	16.8	18.1	17.7	21.9	16.1	17.3	18.4	17.2	24.1	--	14.6	16.3	18	16	15	16	15
Fluoride	mg/L	0.43	0.32	0.37	0.31	0.22	0.24	0.36	0.48	0.25	0.32	--	0.47	0.72	1	0.42	0.38	--	<0.23
Field pH	Std. Units	8.03	8.07	7.12	7.93	8.16	8.19	7.93	7.78	7.2	8	7.59	7.66	7.91	7.95	7.83	7.67	7.65	7.77
Sulfate	mg/L	30.8	35.8	56	62.2	67.9	43.7	71.9	43.4	69.9	43.5	--	52.5	29.1	35	39	42	33	20
Total Dissolved Solids	mg/L	240	200	317	340	350	317	346	219	379	--	256	262	181	280	210	450	--	180
Antimony	ug/L	0.22	0.27	0.55	0.25	0.19	0.26	0.34	0.26	--	0.16	--	0.34	0.19	<0.53	--	<0.58	--	--
Arsenic	ug/L	<4.5	1.4	1.4	1.8	1.8	2.4	2.5	2.5	--	1.2	--	2.3	2.3	1.4	2.5	1.4	--	3.2
Barium	ug/L	102	122	178	169	174	159	214	147	--	173	--	194	121	160	220	210	--	190
Beryllium	ug/L	<0.17	<0.08	<0.08	<0.08	<0.08	<0.012	<0.012	<0.012	--	0.046	--	<0.12	<0.089	<0.27	--	<0.27	--	--
Cadmium	ug/L	<0.56	<0.029	<0.029	<0.029	0.042	0.018	<0.018	<0.018	--	<0.018	--	--	<0.033	<0.077	--	<0.039	--	<0.049
Chromium	ug/L	<0.96	0.52	<0.34	<0.34	0.81	0.71	0.36	0.36	--	0.51	--	0.44	0.089	<0.98	<0.98	<1.1	--	<1.1
Cobalt	ug/L	0.14	<0.5	<0.5	<0.5	<0.5	0.09	0.22	0.14	--	0.14	--	0.36	0.21	<0.091	0.12	<0.091	--	0.098
Lead	ug/L	<1.9	<0.19	0.2	<0.19	0.24	0.078	0.085	<0.033	--	<0.033	--	0.24	<0.13	<0.27	<0.27	<0.27	--	<0.11
Lithium	ug/L	5.1	6.2	13.9	10.4	5.9	4.7	10.4	16.1	--	<4.6	--	--	8.1	3.3	9.1	4.2	--	9.5
Mercury	ug/L	<0.012	<0.039	<0.039	<0.039	<0.039	<0.046	<0.046	<0.046	--	<0.09	--	<0.09	<0.09	<0.1	--	<0.1	--	--
Molybdenum	ug/L	<1.5	5	16.8	16.1	10.7	7.6	15.9	11.8	--	7.3	--	21.6	12	6.2	9.8	3.1	23	10
Selenium	ug/L	<5.8	1.2	0.9	0.6	1.9	0.63	0.67	0.59	--	3.3	--	0.38	0.39	<1	--	1.4	--	<1
Thallium	ug/L	0.14	<0.5	<0.5	<0.5	<0.5	<0.036	<0.036	0.17	--	<0.036	--	--	<0.099	<0.27	--	<0.26	--	--
Total Radium	pCi/L	0.926	0.73	0.768	1.24	0.416	0.339	0.639	0.477	--	0.787	--	0.929	1.87	--	0.463	--	--	0.27
Radium-226	pCi/L	-0.132	0.18	0.372	0.653	-0.077	0.339	0.217	0.155	--	0.359	--	0.929	0.664	--	0.444	--	--	0.217
Radium-228	pCi/L	0.926	0.555	0.396	0.582	0.416	-0.167	0.422	0.322	--	0.428	--	-0.073	1.21	--	0.0185	--	--	0.0528
Collected By		--	--	0	--	0	0	0	0	0	0	0	--	--	--	--	--	--	--
pH at 25 Degrees C	Std. Units	8	8	7.6	7.8	7.7	8.1	7.7	7.9	7.4	8	--	8	7.9	8	8	7.9	--	7.9
Field Oxidation Potential	mV	84.2	133.2	-27.2	10	221	81	9	-75	49	53	68	-71	139	-76	156	28.9	25.8	38.4
Field Specific Conductance	umhos/cm	375.2	409	535	776	614	520	567	423	687	552	431	425	328	448	409	464	468	340.3
Field Temperature	deg C	8.5	6.7	30.4	22.1	6.3	10.5	24.8	31.7	25.2	4.1	17	31.5	28.5	4.2	25.2	6.3	30.4	23.5
Groundwater Elevation	feet	638.79	638.07	639.33	638.65	638.1	639.2	638.77	637.86	638.79	638.62	638.81	637.85	637.32	638.22	638.03	637.98	638.22	636.96
Oxygen, Dissolved	mg/L	2.38	2.63	0.15	8.1	3	1.4	0	0	1.9	3.5	0.36	0.4	0.4	1.4	0.27	1.29	0.15	0.58
Turbidity	NTU	--	2.13	0.39	3.02	2.53	0	0	0	0	0.4	1.08	4.51	2.62	6.6	0.58	0	1.62	0
Total Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	190	120
Iron, dissolved	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50
Manganese, dissolved	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120	160
Calcium, total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35000
Iron, total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<50
Magnesium, total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13000
Manganese, total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	180
Potassium, total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2200
Sodium, total	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12000
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	190	120
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<3.8	<3.8
Arsenic, dissolved	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.1	--
Molybdenum, dissolved	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23	--

Single Location
Name: IPL - Lansing

Location ID: MW-303
 Number of Sampling Dates: 22

Parameter Name	Units	4/8/2021	10/26/2021	4/5/2022	10/17/2022
Boron	ug/L	120	170	110	590
Calcium	mg/L	47	49	48	42
Chloride	mg/L	21	25	23	17
Fluoride	mg/L	0.52	<0.28	0.33	<0.22
Field pH	Std. Units	8	7.45	8.07	7.66
Sulfate	mg/L	25	28	54	58
Total Dissolved Solids	mg/L	210	150	180	200
Antimony	ug/L	<1.1	<1.1	<0.69	<0.69
Arsenic	ug/L	1.5	2.2	1.3	1.9
Barium	ug/L	170	240	200	230
Beryllium	ug/L	<0.27	<0.27	<0.27	<0.27
Cadmium	ug/L	<0.051	<0.051	<0.055	<0.055
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1
Cobalt	ug/L	<0.091	<0.19	<0.19	<0.19
Lead	ug/L	<0.21	<0.21	<0.24	<0.24
Lithium	ug/L	3.5	11	5.4	10
Mercury	ug/L	<0.15	<0.15	<0.11	--
Molybdenum	ug/L	4.8	7.1	9.2	22
Selenium	ug/L	1.1	<0.96	<0.96	<0.96
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26
Total Radium	pCi/L	0.243	0.359	0.533	0.512
Radium-226	pCi/L	0.125	0.278	0.296	0.2
Radium-228	pCi/L	0.118	0.0804	0.236	0.312
Collected By		--	--	--	--
pH at 25 Degrees C	Std. Units	8	7.7	8.1	7.4
Field Oxidation Potential	mV	78.4	125.8	202.1	25.5
Field Specific Conductance	umhos/cm	425	452	452.4	397.1
Field Temperature	deg C	3.7	24.8	4.6	23.1
Groundwater Elevation	feet	638.07	638.68	641.69	639.39
Oxygen, Dissolved	mg/L	2.03	0.17	1.17	0.11
Turbidity	NTU	0	0.65	0	2.07
Total Alkalinity as CaCO3	mg/L	170	220	210	120
Iron, dissolved	ug/L	320	69	<36	46
Manganese, dissolved	ug/L	66	38	60	110
Calcium, total	ug/L	--	--	--	--
Iron, total	ug/L	<36	38	<36	<36
Magnesium, total	ug/L	18000	16000	20000	13000
Manganese, total	ug/L	30	39	89	220
Potassium, total	ug/L	1500	2800	1900	3100
Sodium, total	ug/L	13000	15000	16000	15000
Bicarbonate Alkalinity as CaCO3	mg/L	170	220	210	120
Carbonate Alkalinity as CaCO3	mg/L	<3.8	<4.6	<4.6	<4.6
Arsenic, dissolved	ug/L	--	2.2	--	--
Molybdenum, dissolved	ug/L	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-304
 Number of Sampling Dates: 12

Parameter Name	Units	6/20/2019	10/2/2019	5/20/2020	8/19/2020	10/19/2020	4/9/2021	10/26/2021	4/5/2022	10/17/2022	4/10/2023	10/30/2023	4/1/2024
Boron	ug/L	<110	<110	<73	--	<80	64	<58	71	78	--	--	--
Calcium	mg/L	82	72	70	--	66	69	71	70	79	--	--	--
Chloride	mg/L	5.9	7	6.2	7.7	6.2	6.5	6.9	5.3	8.6	--	--	--
Fluoride	mg/L	<0.23	<0.23	<0.23	--	<0.23	<0.28	<0.28	<0.22	<0.22	--	--	--
Field pH	Std. Units	7.01	7.16	7.32	7.55	7.16	7.27	7.29	7.25	7.17	7.27	7.17	7.28
Sulfate	mg/L	20	17	17	15	16	15	18	20	14	--	--	--
Total Dissolved Solids	mg/L	350	300	470	--	270	290	200	240	290	--	--	--
Antimony	ug/L	<0.53	--	<0.58	--	--	<1.1	<1.1	<0.69	<0.69	--	--	--
Arsenic	ug/L	<0.75	<0.75	<0.88	--	<0.88	<0.75	<0.75	<0.75	<0.75	<0.53	<0.53	<0.53
Barium	ug/L	54	47	42	--	42	43	44	42	49	--	--	--
Beryllium	ug/L	<0.27	--	<0.27	--	--	<0.27	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	<0.077	--	<0.039	--	<0.049	<0.051	<0.051	<0.055	<0.055	--	--	--
Chromium	ug/L	1.6	1	8.2	--	<1.1	<1.1	<1.1	<1.1	<1.1	--	--	--
Cobalt	ug/L	1.1	0.19	0.22	--	<0.091	<0.091	0.22	<0.19	<0.19	--	--	--
Lead	ug/L	1.2	0.35	<0.27	--	<0.11	<0.21	0.23	<0.24	<0.24	--	--	--
Lithium	ug/L	<2.7	<2.7	<2.3	--	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	--
Mercury	ug/L	<0.1	--	<0.1	--	--	<0.15	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	<1.1	<1.1	<1.1	1.2	<1.1	<1.3	<1.3	2.7	2.1	2.5	--	--
Selenium	ug/L	<1	--	<1	--	<1	<0.96	<0.96	<0.96	<0.96	--	--	--
Thallium	ug/L	<0.27	--	<0.26	--	--	<0.26	<0.26	<0.26	<0.26	--	--	--
Total Radium	pCi/L	0.356	0.9	--	--	0.139	0.497	0.87	0.143	0.0692	--	--	--
Radium-226	pCi/L	0.217	0.246	--	--	-0.0496	0.0825	0.331	0.143	0.0692	--	--	--
Radium-228	pCi/L	0.139	0.653	--	--	0.139	0.415	0.539	-0.0479	-0.288	--	--	--
pH at 25 Degrees C	Std. Units	7.4	7	7.3	--	7.3	7.4	7.4	7.5	7.4	--	--	--
Field Oxidation Potential	mV	41	107.3	104.9	109.6	155.6	160.3	171.3	201.4	169.2	195.5	-29.7	161.2
Field Specific Conductance	umhos/cm	593	578.4	574	583	601.9	520	562.3	571.8	643.3	481.6	575.6	543.9
Field Temperature	deg C	10.6	12.4	9	11.8	11.8	8.8	12.1	8.2	11.9	8.9	12	9.4
Groundwater Elevation	feet	0	623.79	621.57	621.75	621.4	621.46	621.29	621.72	621.21	622.31	621.21	621.05
Oxygen, Dissolved	mg/L	6.2	7.51	7.78	6.76	6.84	8.69	8.32	7.2	6.97	7.75	7.54	7.97
Turbidity	NTU	104	3.51	3.72	1.06	0.42	0	0	0	0.01	0	0	0
Total Alkalinity as CaCO3	mg/L	280	--	--	300	310	300	370	320	330	--	--	--
Iron, dissolved	ug/L	--	--	--	<50	<50	<36	67	<36	<36	50	--	--
Manganese, dissolved	ug/L	--	--	--	6.9	4.1	10	<4.4	<3.6	<3.6	--	--	--
Calcium, total	ug/L	--	--	--	--	75000	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	51	<50	37	<36	<36	<36	--	290	<36
Magnesium, total	ug/L	--	--	--	--	35000	33000	32000	33000	34000	--	--	--
Manganese, total	ug/L	--	--	--	--	6	5.9	<4.4	<3.6	<3.6	--	--	--
Potassium, total	ug/L	--	--	--	--	1300	1200	1300	1300	1400	--	--	--
Sodium, total	ug/L	--	--	--	--	6100	4900	4000	5900	6300	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	300	310	300	370	320	330	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	<3.8	<3.8	<4.2	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	--	--	--	<0.88	--	--	<0.75	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	--	1.6	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-304A
 Number of Sampling Dates: 13

Parameter Name	Units	5/20/2020	7/6/2020	8/19/2020	10/19/2020	2/23/2021	4/9/2021	7/12/2021	10/26/2021	4/5/2022	10/17/2022	4/10/2023	10/30/2023	4/1/2024
Boron	ug/L	1800	1700	--	1700	--	1400	--	1300	1500	1600	--	--	--
Calcium	mg/L	54	41	--	35	--	43	--	35	38	37	--	--	--
Chloride	mg/L	15	13	13	12	--	13	--	15	16	16	--	--	--
Fluoride	mg/L	0.57	0.42	--	<0.23	--	0.53	--	<0.28	0.32	<0.22	--	--	--
Field pH	Std. Units	8.04	7.9	8.48	7.89	8.01	7.78	8.09	7.94	7.97	7.81	7.74	7.93	8.02
Sulfate	mg/L	83	77	76	76	--	77	--	91	87	69	--	--	--
Total Dissolved Solids	mg/L	680	330	--	310	--	300	--	240	270	270	--	--	--
Antimony	ug/L	<0.58	<0.51	--	--	--	<1.1	--	<1.1	<0.69	<0.69	--	--	--
Arsenic	ug/L	1.3	<0.88	--	<0.88	--	0.78	--	<0.75	<0.75	<0.75	0.63	0.76	0.69
Barium	ug/L	67	34	--	28	--	36	--	26	30	29	--	--	--
Beryllium	ug/L	<0.27	<0.27	--	--	--	<0.27	--	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	0.19	0.098	--	0.073	--	0.096	--	<0.051	0.074	0.076	--	--	--
Chromium	ug/L	2.2	1.1	--	<1.1	--	1.6	--	<1.1	<1.1	<1.1	--	--	--
Cobalt	ug/L	3.2	0.83	--	0.43	--	0.88	--	<0.19	0.48	0.88	--	--	--
Lead	ug/L	4.3	1.2	--	0.48	--	1.1	--	0.37	0.81	1.1	--	--	--
Lithium	ug/L	2.7	<2.5	--	<2.5	--	<2.5	--	<2.5	<2.5	<2.5	--	--	--
Mercury	ug/L	<0.1	<0.1	--	--	--	<0.15	--	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	110	140	140	130	120	110	100	120	120	130	150	--	--
Selenium	ug/L	<1	<1	--	<1	--	<0.96	--	<0.96	<0.96	<0.96	--	--	--
Thallium	ug/L	<0.26	<0.26	--	--	--	<0.26	--	<0.26	<0.26	<0.26	--	--	--
Total Radium	pCi/L	--	0.573	--	0.157	--	0.468	--	0.698	0.51	0.296	--	--	--
Radium-226	pCi/L	--	0.221	--	0.117	--	0.0845	--	0.245	-0.00262	0.207	--	--	--
Radium-228	pCi/L	--	0.352	--	0.0402	--	0.384	--	0.454	0.51	0.0889	--	--	--
pH at 25 Degrees C	Std. Units	8	8	--	8	--	8	--	8.1	8	8	--	--	--
Field Oxidation Potential	mV	61.8	-15.8	50.5	162.7	44.9	151.6	80.3	157.1	198.1	-24.7	115.7	-120.7	122.9
Field Specific Conductance	umhos/cm	529	541	533	547.4	534	533	543.1	526.8	520.9	480.6	422.5	472.9	499.7
Field Temperature	deg C	12.6	19.1	14	10.1	9.1	10.1	13.8	13.4	9.4	10.6	10.6	10.9	10.2
Groundwater Elevation	feet	624.88	625.76	0	624.41	625.04	624.31	623.87	623.87	619	623.56	623.95	623.57	623.25
Oxygen, Dissolved	mg/L	0.48	0.3	0.27	0.78	0.39	0.41	0.48	2.53	0.19	0.13	0.21	0.18	0.47
Turbidity	NTU	585.9	181.9	236.2	90.29	116.6	165.2	36.09	2.78	42.65	77.88	28.82	23.95	59.83
Total Alkalinity as CaCO3	mg/L	--	--	190	190	--	180	--	210	210	180	--	--	--
Iron, dissolved	ug/L	--	--	<50	55	--	<36	--	<36	<36	<36	390	--	--
Manganese, dissolved	ug/L	--	--	16	7.3	--	6.2	--	<4.4	6.8	<3.6	--	--	--
Calcium, total	ug/L	--	--	--	35000	--	--	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	270	--	580	--	<36	240	380	--	160	380
Magnesium, total	ug/L	--	--	--	16000	--	18000	--	15000	16000	14000	--	--	--
Manganese, total	ug/L	--	--	--	26	--	54	--	<4.4	25	31	--	--	--
Potassium, total	ug/L	--	--	--	680	--	710	--	650	740	540	--	--	--
Sodium, total	ug/L	--	--	--	63000	--	58000	--	55000	58000	49000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	190	190	--	180	--	210	210	180	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	<7.6	<3.8	--	<4.6	--	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	--	--	<0.88	--	--	--	--	<0.75	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	160	140	140	120	--	120	130	140	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-305
 Number of Sampling Dates: 12

Parameter Name	Units	6/20/2019	10/2/2019	5/19/2020	8/18/2020	10/20/2020	4/9/2021	10/27/2021	4/4/2022	10/18/2022	4/11/2023	10/31/2023	4/2/2024
Boron	ug/L	180	190	210	--	220	140	200	110	240	--	--	--
Calcium	mg/L	92	97	82	--	76	79	79	78	80	--	--	--
Chloride	mg/L	6.8	3.2	7.5	6.9	6	4.8	6.6	3.5	5.5	--	--	--
Fluoride	mg/L	<0.23	<0.23	0.23	--	<0.23	<0.28	<0.28	<0.22	<0.22	--	--	--
Field pH	Std. Units	7.19	7.03	6.9	7.23	7.24	7.17	7.29	6.94	7.32	7.44	7.17	7.23
Sulfate	mg/L	24	26	<3.6	<3.6	<3.6	29	14	42	3.6	--	--	--
Total Dissolved Solids	mg/L	440	380	540	--	320	300	260	270	300	--	--	--
Antimony	ug/L	<0.53	--	<0.58	--	--	<1.1	<1.1	<0.69	<0.69	--	--	--
Arsenic	ug/L	2.2	3.4	3.6	--	5.6	1.7	3.9	0.89	4.7	0.93	1.8	0.66
Barium	ug/L	170	190	220	--	200	150	200	97	230	--	--	--
Beryllium	ug/L	<0.27	--	<0.27	--	--	<0.27	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	<0.077	--	<0.039	--	<0.049	<0.051	<0.051	<0.055	<0.055	--	--	--
Chromium	ug/L	<0.98	<0.98	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	--	--	--
Cobalt	ug/L	0.52	0.27	0.32	--	0.12	0.29	<0.19	<0.19	<0.19	--	--	--
Lead	ug/L	<0.27	<0.27	<0.27	--	<0.11	<0.21	0.29	<0.24	<0.24	--	--	--
Lithium	ug/L	3.4	4.6	<2.3	--	<2.5	<2.5	<2.5	2.6	<2.5	--	--	--
Mercury	ug/L	<0.1	--	<0.1	--	--	<0.15	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	1.7	1.6	<1.1	1.8	<1.1	<1.3	<1.3	<1.2	<1.2	1.1	--	--
Selenium	ug/L	<1	--	<1	--	<1	1.4	<0.96	1.7	<0.96	--	--	--
Thallium	ug/L	<0.27	--	<0.26	--	--	<0.26	<0.26	<0.26	<0.26	--	--	--
Total Radium	pCi/L	0.553	0.557	--	--	0.377	0.474	1.43	0.249	1.2	--	--	--
Radium-226	pCi/L	0.181	0.38	--	--	0.296	0.301	0.55	0.145	0.331	--	--	--
Radium-228	pCi/L	0.372	0.178	--	--	0.0809	0.173	0.879	0.104	0.871	--	--	--
pH at 25 Degrees C	Std. Units	7.2	7.2	7.2	--	7.2	7.3	7.3	7.4	7.4	--	--	--
Field Oxidation Potential	mV	27	-105.6	-138	-162.9	-145.4	-25.8	-128.5	198.9	-186.6	-92.1	-153.3	-126
Field Specific Conductance	umhos/cm	638	635	684	654	634	574	643	545	607.2	396.9	745	656.8
Field Temperature	deg C	15.5	19	9.8	19	15.6	7.1	16.3	4.4	15.7	6.2	15.1	6.8
Groundwater Elevation	feet	0	629.77	627.24	626.98	626.54	627.02	626.41	627.17	626.36	624.54	626.89	626.49
Oxygen, Dissolved	mg/L	0.2	0.21	0.48	0.07	0.22	2.1	0.08	4.06	0.06	3.18	0.71	1.18
Turbidity	NTU	9.6	8.87	20.44	27.27	3.65	14.88	0.27	4.57	8.17	1.71	4.18	0
Total Alkalinity as CaCO3	mg/L	290	--	--	340	340	280	330	290	360	--	--	--
Iron, dissolved	ug/L	--	--	--	11000	10000	3700	6900	830	7400	3300	--	--
Manganese, dissolved	ug/L	--	--	--	2000	1800	1100	1400	520	1400	--	--	--
Calcium, total	ug/L	--	--	--	--	87000	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	12000	5900	7300	1500	8500	--	6700	5500
Magnesium, total	ug/L	--	--	--	--	32000	25000	30000	23000	30000	--	--	--
Manganese, total	ug/L	--	--	--	--	1800	1200	1500	560	1300	--	--	--
Potassium, total	ug/L	--	--	--	--	1800	1300	1600	1500	1500	--	--	--
Sodium, total	ug/L	--	--	--	--	7700	5900	6700	5500	7000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	340	340	280	330	290	360	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	<7.6	<3.8	<4.6	<2.3	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	--	--	--	6.4	--	--	3.7	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	--	2.8	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-305
 Number of Sampling Dates: 12

Parameter Name	Units	6/20/2019	10/2/2019	5/19/2020	8/18/2020	10/20/2020	4/9/2021	10/27/2021	4/4/2022	10/18/2022	4/11/2023	10/31/2023	4/2/2024
Boron	ug/L	180	190	210	--	220	140	200	110	240	--	--	--
Calcium	mg/L	92	97	82	--	76	79	79	78	80	--	--	--
Chloride	mg/L	6.8	3.2	7.5	6.9	6	4.8	6.6	3.5	5.5	--	--	--
Fluoride	mg/L	<0.23	<0.23	0.23	--	<0.23	<0.28	<0.28	<0.22	<0.22	--	--	--
Field pH	Std. Units	7.19	7.03	6.9	7.23	7.24	7.17	7.29	6.94	7.32	7.44	7.17	7.23
Sulfate	mg/L	24	26	<3.6	<3.6	<3.6	29	14	42	3.6	--	--	--
Total Dissolved Solids	mg/L	440	380	540	--	320	300	260	270	300	--	--	--
Antimony	ug/L	<0.53	--	<0.58	--	--	<1.1	<1.1	<0.69	<0.69	--	--	--
Arsenic	ug/L	2.2	3.4	3.6	--	5.6	1.7	3.9	0.89	4.7	0.93	1.8	0.66
Barium	ug/L	170	190	220	--	200	150	200	97	230	--	--	--
Beryllium	ug/L	<0.27	--	<0.27	--	--	<0.27	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	<0.077	--	<0.039	--	<0.049	<0.051	<0.051	<0.055	<0.055	--	--	--
Chromium	ug/L	<0.98	<0.98	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	--	--	--
Cobalt	ug/L	0.52	0.27	0.32	--	0.12	0.29	<0.19	<0.19	<0.19	--	--	--
Lead	ug/L	<0.27	<0.27	<0.27	--	<0.11	<0.21	0.29	<0.24	<0.24	--	--	--
Lithium	ug/L	3.4	4.6	<2.3	--	<2.5	<2.5	<2.5	2.6	<2.5	--	--	--
Mercury	ug/L	<0.1	--	<0.1	--	--	<0.15	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	1.7	1.6	<1.1	1.8	<1.1	<1.3	<1.3	<1.2	<1.2	1.1	--	--
Selenium	ug/L	<1	--	<1	--	<1	1.4	<0.96	1.7	<0.96	--	--	--
Thallium	ug/L	<0.27	--	<0.26	--	--	<0.26	<0.26	<0.26	<0.26	--	--	--
Total Radium	pCi/L	0.553	0.557	--	--	0.377	0.474	1.43	0.249	1.2	--	--	--
Radium-226	pCi/L	0.181	0.38	--	--	0.296	0.301	0.55	0.145	0.331	--	--	--
Radium-228	pCi/L	0.372	0.178	--	--	0.0809	0.173	0.879	0.104	0.871	--	--	--
pH at 25 Degrees C	Std. Units	7.2	7.2	7.2	--	7.2	7.3	7.3	7.4	7.4	--	--	--
Field Oxidation Potential	mV	27	-105.6	-138	-162.9	-145.4	-25.8	-128.5	198.9	-186.6	-92.1	-153.3	-126
Field Specific Conductance	umhos/cm	638	635	684	654	634	574	643	545	607.2	396.9	745	656.8
Field Temperature	deg C	15.5	19	9.8	19	15.6	7.1	16.3	4.4	15.7	6.2	15.1	6.8
Groundwater Elevation	feet	0	629.77	627.24	626.98	626.54	627.02	626.41	627.17	626.36	624.54	626.89	626.49
Oxygen, Dissolved	mg/L	0.2	0.21	0.48	0.07	0.22	2.1	0.08	4.06	0.06	3.18	0.71	1.18
Turbidity	NTU	9.6	8.87	20.44	27.27	3.65	14.88	0.27	4.57	8.17	1.71	4.18	0
Total Alkalinity as CaCO3	mg/L	290	--	--	340	340	280	330	290	360	--	--	--
Iron, dissolved	ug/L	--	--	--	11000	10000	3700	6900	830	7400	3300	--	--
Manganese, dissolved	ug/L	--	--	--	2000	1800	1100	1400	520	1400	--	--	--
Calcium, total	ug/L	--	--	--	--	87000	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	--	12000	5900	7300	1500	8500	--	6700	5500
Magnesium, total	ug/L	--	--	--	--	32000	25000	30000	23000	30000	--	--	--
Manganese, total	ug/L	--	--	--	--	1800	1200	1500	560	1300	--	--	--
Potassium, total	ug/L	--	--	--	--	1800	1300	1600	1500	1500	--	--	--
Sodium, total	ug/L	--	--	--	--	7700	5900	6700	5500	7000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	--	340	340	280	330	290	360	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	--	<7.6	<3.8	<4.6	<2.3	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	--	--	--	6.4	--	--	3.7	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	--	2.8	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-306A
 Number of Sampling Dates: 11

Parameter Name	Units	5/19/2020	7/6/2020	8/18/2020	10/20/2020	4/9/2021	10/27/2021	4/4/2022	10/19/2022	4/11/2023	10/30/2023	4/2/2024
Boron	ug/L	290	340	--	280	280	240	260	290	--	--	--
Calcium	mg/L	83	82	--	76	78	80	78	77	--	--	--
Chloride	mg/L	7.8	7.1	7.4	7.2	7.2	7.7	6.3	5.8	--	--	--
Fluoride	mg/L	<0.23	<0.23	--	<0.23	<0.28	<0.28	<0.22	<0.22	--	--	--
Field pH	Std. Units	6.99	7.04	7.38	7.18	7.21	7.34	7.19	7.25	7.43	7.43	7.36
Sulfate	mg/L	44	40	41	41	39	42	43	34	--	--	--
Total Dissolved Solids	mg/L	610	360	--	350	350	280	330	350	--	--	--
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	<0.53	<0.53	<0.53
Barium	ug/L	61	58	--	58	62	59	61	62	--	--	--
Beryllium	ug/L	<0.27	<0.27	--	--	<0.27	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	<0.039	<0.049	--	<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	0.33	0.18	--	0.22	0.17	0.21	0.19	<0.19	--	--	--
Lead	ug/L	<0.27	<0.11	--	<0.11	<0.21	0.32	<0.24	<0.24	--	--	--
Lithium	ug/L	<2.3	<2.5	--	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	--
Mercury	ug/L	<0.1	<0.1	--	--	<0.15	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	<1.1	<1.1	<1.1	<1.1	<1.3	<1.3	<1.2	<1.2	<0.91	--	--
Selenium	ug/L	<1	<1	--	<1	<0.96	0.99	<0.96	<0.96	--	--	--
Thallium	ug/L	<0.26	<0.26	--	--	<0.26	<0.26	<0.26	<0.26	--	--	--
Total Radium	pCi/L	--	0.525	--	0.124	0.408	0.682	0.198	1.18	--	--	--
Radium-226	pCi/L	--	0.0377	--	-0.201	0.12	0.279	0.00526	0.193	--	--	--
Radium-228	pCi/L	--	0.487	--	0.124	0.288	0.403	0.192	0.99	--	--	--
pH at 25 Degrees C	Std. Units	7.4	7.5	--	7.4	7.4	7.4	7.4	7.5	--	--	--
Field Oxidation Potential	mV	-21.7	-55.8	21.2	-38.5	-8.5	78.8	192.7	-91.1	-93.3	-84.3	-91.7
Field Specific Conductance	umhos/cm	697	683	654	681	669	663	669	624.3	486.3	650	619.1
Field Temperature	deg C	14.6	15.3	15.5	14.4	14.2	14.6	13	14	13.7	14.2	12.3
Groundwater Elevation	feet	620.4	621.66	620.63	620.17	620.14	620.17	620.61	620.05	622.68	621.02	620.56
Oxygen, Dissolved	mg/L	1.18	1.24	1.16	1.3	1.68	1.23	1.13	1.3	0.67	1.25	1.31
Turbidity	NTU	4.15	1.4	2.71	1.56	0.01	0.59	0	3.21	0.83	0	0
Total Alkalinity as CaCO3	mg/L	--	--	330	320	320	330	350	350	--	--	--
Iron, dissolved	ug/L	--	--	1900	1600	1600	1500	1500	1400	1400	--	--
Manganese, dissolved	ug/L	--	--	1200	1100	1100	1000	1000	1000	--	--	--
Calcium, total	ug/L	--	--	--	85000	--	--	--	--	--	--	--
Iron, total	ug/L	--	--	--	1900	1800	1800	1700	1500	--	1700	1700
Magnesium, total	ug/L	--	--	--	37000	35000	33000	36000	32000	--	--	--
Manganese, total	ug/L	--	--	--	1100	1100	1000	1000	940	--	--	--
Potassium, total	ug/L	--	--	--	1200	1200	1200	1300	1000	--	--	--
Sodium, total	ug/L	--	--	--	11000	10000	9800	10000	9100	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	--	--	330	320	320	330	350	350	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	--	--	<7.6	<1.9	<4.6	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	--	--	<0.88	--	--	<0.75	--	--	--	--	--
Molybdenum, dissolved	ug/L	--	--	<1.1	--	--	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-307

Number of Sampling Dates: 8


Parameter Name	Units	7/12/2021	8/13/2021	10/27/2021	4/5/2022	10/18/2022	4/10/2023	10/30/2023	4/1/2024
Boron	ug/L	220	250	280	400	1100	1200	920	770
Calcium	mg/L	55	47	38	50	39	38	56	44
Chloride	mg/L	15	16	17	22	18	23	20	16
Fluoride	mg/L	<0.28	<0.28	<0.28	<0.22	<0.22	<0.38	<0.38	<0.38
Field pH	Std. Units	8.25	7.86	8.11	8.34	8.44	8.36	8.32	8.62
Sulfate	mg/L	44	42	70	76	120	45	36	61
Total Dissolved Solids	mg/L	210	230	130	210	900	160	250	230
Antimony	ug/L	<1.1	<1.1	<1.1	<0.69	<0.69	<1	<1	<1
Arsenic	ug/L	2.1	2.4	2.5	1.8	2.7	2.5	2.3	1.9
Barium	ug/L	310	300	240	290	280	230	340	240
Beryllium	ug/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33
Cadmium	ug/L	<0.051	<0.051	<0.051	<0.055	<0.055	<0.1	<0.1	<0.1
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Cobalt	ug/L	0.15	0.15	<0.19	<0.19	0.19	<0.17	<0.17	<0.17
Lead	ug/L	<0.21	<0.21	<0.21	<0.24	<0.24	<0.24	<0.24	<0.24
Lithium	ug/L	13	13	12	10	13	11	16	12
Mercury	ug/L	<0.15	<0.15	<0.15	<0.11	--	<0.14	<0.14	<0.14
Molybdenum	ug/L	5.5	7.2	12	16	25	7.8	5.5	7.7
Selenium	ug/L	<0.96	<0.96	<0.96	<0.96	<0.96	<1.4	<1.4	1.8
Thallium	ug/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Total Radium	pCi/L	0.499	1.91	0.743	0.183	1.51	0.165	1.95	0.465
Radium-226	pCi/L	0.171	0.289	0.421	0.0893	0.166	0.165	0.203	0.032
Radium-228	pCi/L	0.328	1.62	0.322	0.0932	1.34	-0.128	1.74	0.433
pH at 25 Degrees C	Std. Units	8.2	8.1	8.2	8.2	8.1	8.6	8.2	8.4
Field Oxidation Potential	mV	-40.6	-17.5	-123.4	198.2	-175.6	-150.4	-102.1	-173.6
Field Specific Conductance	umhos/cm	449.6	437	361.2	460	399.6	312.4	489.7	421.4
Field Temperature	deg C	15.2	17.4	16.4	6.9	15.7	8	13.5	8.8
Groundwater Elevation	feet	630.95	630.01	634.9	639.74	639.23	629.13	628.65	628.61
Oxygen, Dissolved	mg/L	0.47	0.17	0.93	0.08	0.16	0.28	0.19	0.48
Turbidity	NTU	0	0	0	0	4.34	0	0	0
Total Alkalinity as CaCO3	mg/L	170	--	86	130	100	--	--	--
Iron, dissolved	ug/L	110	--	110	87	90	68	--	--
Manganese, dissolved	ug/L	300	--	240	560	450	--	--	--
Iron, total	ug/L	140	--	95	78	110	--	56	48
Magnesium, total	ug/L	17000	--	12000	17000	11000	--	--	--
Manganese, total	ug/L	310	--	230	590	430	--	--	--
Potassium, total	ug/L	3600	--	2600	2400	2900	--	--	--
Sodium, total	ug/L	13000	--	11000	16000	24000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	170	--	86	130	100	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	<4.1	--	<2.3	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	2	--	2.6	--	--	--	--	--
Molybdenum, dissolved	ug/L	5.2	--	--	--	--	--	--	--

Single Location
Name: IPL - Lansing

Location ID: MW-307A

Number of Sampling Dates: 8

Parameter Name	Units	7/12/2021	8/13/2021	10/27/2021	4/5/2022	10/18/2022	4/10/2023	10/30/2023	4/1/2024
Boron	ug/L	370	380	300	430	680	--	--	--
Calcium	mg/L	67	62	70	58	52	--	--	--
Chloride	mg/L	6.8	7.2	8.1	13	11	--	--	--
Fluoride	mg/L	<0.28	<0.28	<0.28	<0.22	<0.22	--	--	--
Field pH	Std. Units	7.83	7.35	7.29	7.48	7.59	7.33	7.71	7.56
Sulfate	mg/L	30	32	33	28	27	--	--	--
Total Dissolved Solids	mg/L	280	290	230	250	270	--	--	--
Antimony	ug/L	<1.1	<1.1	<1.1	<0.69	<0.69	--	--	--
Arsenic	ug/L	<0.75	0.76	1.3	2.1	1.9	0.65	1	1.1
Barium	ug/L	120	120	130	110	100	--	--	--
Beryllium	ug/L	<0.27	<0.27	<0.27	<0.27	<0.27	--	--	--
Cadmium	ug/L	<0.051	<0.051	<0.051	<0.055	<0.055	--	--	--
Chromium	ug/L	<1.1	<1.1	<1.1	<1.1	<1.1	--	--	--
Cobalt	ug/L	0.54	0.57	0.77	0.68	0.65	--	--	--
Lead	ug/L	<0.21	<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	<0.15	<0.11	--	--	--	--
Molybdenum	ug/L	6.8	6.6	6.3	5.7	6.6	7.6	--	--
Selenium	ug/L	<0.96	<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	0.509	0.258	0.957	0.0954	0.683	--	--	--
Radium-226	pCi/L	0.265	0.163	0.412	0.0954	0.0963	--	--	--
Radium-228	pCi/L	0.245	0.0954	0.545	-0.076	0.587	--	--	--
pH at 25 Degrees C	Std. Units	7.5	7.6	7.6	8.1	7.7	--	--	--
Field Oxidation Potential	mV	73.1	54.3	47.7	199.8	-99.4	-13.8	-52.4	-74
Field Specific Conductance	umhos/cm	615.6	612.3	625.4	563	518.7	521.2	609.6	587.9
Field Temperature	deg C	13.2	12.5	12.9	10.8	11.4	11.6	11.9	10.6
Groundwater Elevation	feet	625.27	625.48	626.25	626.72	625.77	617.75	625.01	624.61
Oxygen, Dissolved	mg/L	0.27	0.17	1.39	0.09	0.1	0.15	0.49	0.19
Turbidity	NTU	0	0	0	0	2.57	0	0	0
Total Alkalinity as CaCO3	mg/L	310	--	310	330	270	--	--	--
Iron, dissolved	ug/L	<36	--	170	280	300	36	--	--
Manganese, dissolved	ug/L	600	--	720	700	640	--	--	--
Iron, total	ug/L	<36	--	160	370	330	--	200	180
Magnesium, total	ug/L	33000	--	33000	27000	24000	--	--	--
Manganese, total	ug/L	620	--	720	710	610	--	--	--
Potassium, total	ug/L	3000	--	2500	2100	2000	--	--	--
Sodium, total	ug/L	16000	--	14000	22000	28000	--	--	--
Bicarbonate Alkalinity as CaCO3	mg/L	310	--	310	330	270	--	--	--
Carbonate Alkalinity as CaCO3	mg/L	<4.2	--	<4.6	<4.6	<4.6	--	--	--
Arsenic, dissolved	ug/L	<0.75	--	1.4	--	--	--	--	--
Molybdenum, dissolved	ug/L	7.3	--	--	--	--	--	--	--



Appendix E

Statistical Evaluation

E1 – LCL Evaluation – October 2023

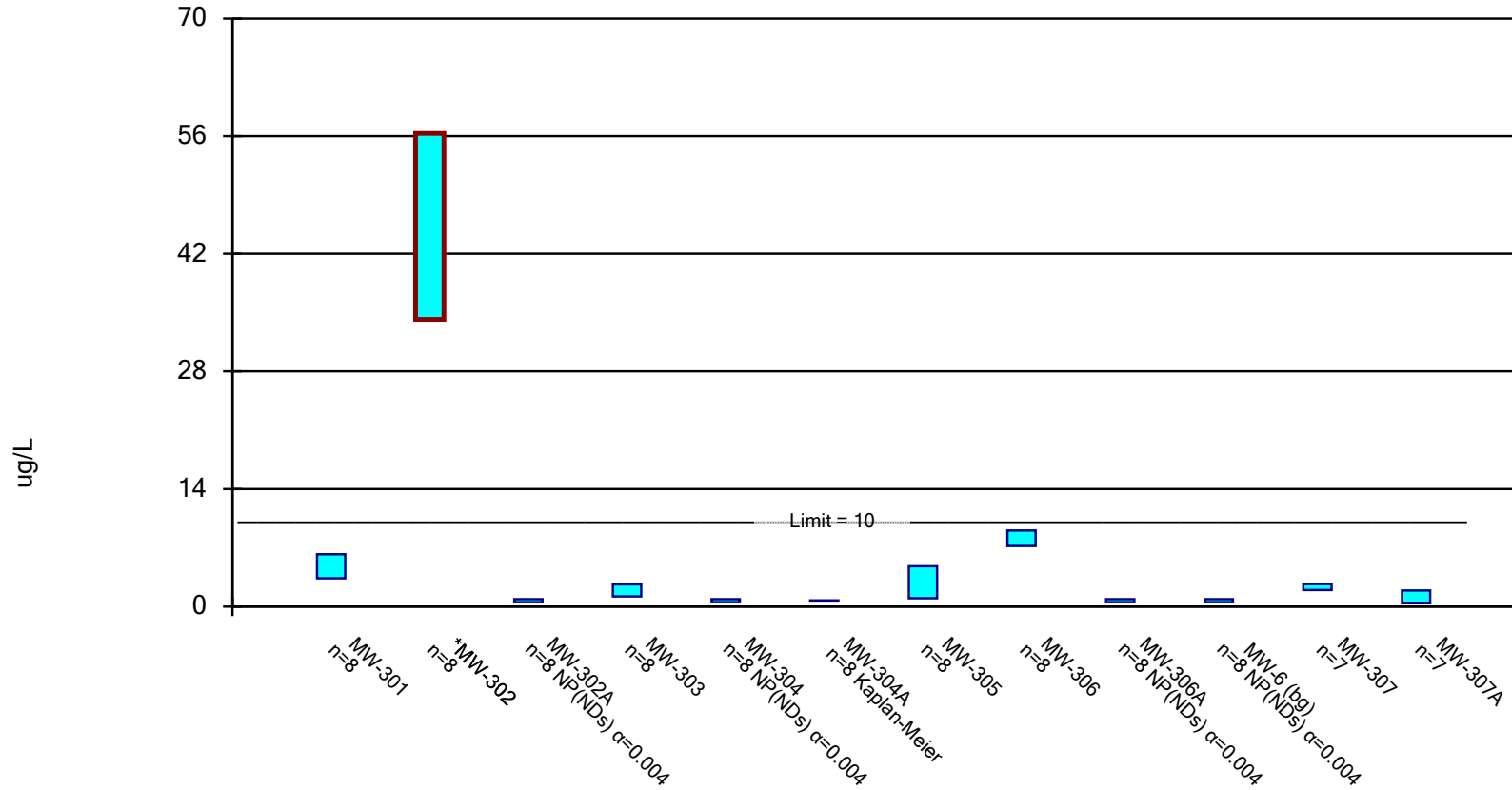
Confidence Interval

Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev Printed 2/20/2024, 3:14 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>
Arsenic (ug/L)	MW-301	6.224	3.376	10	No	8	0	None	No	0.01	Param.
Arsenic (ug/L)	MW-302	56.32	34.18	10	Yes	8	0	None	No	0.01	Param.
Arsenic (ug/L)	MW-302A	0.88	0.53	10	No	8	100	None	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-303	2.637	1.213	10	No	8	0	None	No	0.01	Param.
Arsenic (ug/L)	MW-304	0.88	0.53	10	No	8	100	None	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-304A	0.7469	0.6064	10	No	8	62.5	Kapla...	No	0.01	Param.
Arsenic (ug/L)	MW-305	4.794	0.9859	10	No	8	0	None	No	0.01	Param.
Arsenic (ug/L)	MW-306	9.068	7.207	10	No	8	0	None	No	0.01	Param.
Arsenic (ug/L)	MW-306A	0.88	0.53	10	No	8	100	None	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-6 (bg)	0.88	0.53	10	No	8	100	None	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-307	2.683	1.974	10	No	7	0	None	No	0.01	Param.
Arsenic (ug/L)	MW-307A	1.924	0.3863	10	No	7	14.29	None	No	0.01	Param.

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: Arsenic Analysis Run 2/20/2024 3:11 PM

Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev

Confidence Interval

Constituent: Arsenic (ug/L) Analysis Run 2/20/2024 3:14 PM

Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev

	MW-301	MW-302	MW-302A	MW-303	MW-304	MW-304A	MW-305	MW-306	MW-306A
4/15/2019				1.4 (J)					
10/2/2019				2.5					
5/19/2020	3.8			1.4 (J)			3.6		
5/20/2020		33			<0.88 (U)				
7/6/2020			<0.88 (U)			<0.88 (U)			<0.88 (U)
10/19/2020	6	48	<0.88 (U)	3.2	<0.88 (U)	<0.88 (U)			
10/20/2020							5.6		<0.88 (U)
2/23/2021								9	
4/7/2021									
4/8/2021	5			1.5 (J)					
4/9/2021		33	<0.75 (U)		<0.75 (U)	0.78 (J)	1.7 (J)	8	<0.75 (U)
7/12/2021								8.2	
8/13/2021									
10/26/2021	7.1			2.2	<0.75 (U)	<0.75 (U)			
10/27/2021		51	<0.75 (U)				3.9	8.6	<0.75 (U)
4/4/2022							0.89 (J)	7.7	<0.75 (U)
4/5/2022	4.9	40	<0.75 (U)	1.3 (J)	<0.75 (U)	<0.75 (U)			
4/6/2022									
10/17/2022	5		<0.75 (U)	1.9 (J)	<0.75 (U)	<0.75 (U)			
10/18/2022							4.7		
10/19/2022		51						7.1	<0.75 (U)
4/10/2023	3.7				<0.53 (U)	0.63 (J)			
4/11/2023		42	<0.53 (U)				0.93 (J)	7	<0.53 (U)
10/30/2023		64			<0.53 (U)	0.76 (J)		9.5	<0.53 (U)
10/31/2023	2.9		<0.53 (U)				1.8 (J)		
Mean	4.8	45.25	0.7275	1.925	0.7275	0.7725	2.89	8.138	0.7275
Std. Dev.	1.344	10.44	0.1345	0.6714	0.1345	0.08031	1.796	0.8782	0.1345
Upper Lim.	6.224	56.32	0.88	2.637	0.88	0.7469	4.794	9.068	0.88
Lower Lim.	3.376	34.18	0.53	1.213	0.53	0.6064	0.9859	7.207	0.53

Confidence Interval

Constituent: Arsenic (ug/L) Analysis Run 2/20/2024 3:14 PM
 Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev

	MW-6 (bg)	MW-307	MW-307A
4/15/2019			
10/2/2019			
5/19/2020			
5/20/2020	<0.88 (U)		
7/6/2020			
10/19/2020			
10/20/2020	<0.88 (U)		
2/23/2021			
4/7/2021	<0.75 (U)		
4/8/2021			
4/9/2021			
7/12/2021		2.1	<0.75 (U)
8/13/2021		2.4	0.76 (J)
10/26/2021	<0.75 (U)		
10/27/2021		2.5	1.3 (J)
4/4/2022			
4/5/2022		1.8 (J)	2.1
4/6/2022	<0.75 (U)		
10/17/2022			
10/18/2022	<0.75 (U)	2.7	1.9 (J)
10/19/2022			
4/10/2023		2.5	0.65 (J)
4/11/2023	<0.53 (U)		
10/30/2023	<0.53 (U)	2.3	1 (J)
10/31/2023			
Mean	0.7275	2.329	1.155
Std. Dev.	0.1345	0.2984	0.6471
Upper Lim.	0.88	2.683	1.924
Lower Lim.	0.53	1.974	0.3863

E2 – LCL Evaluation - April 2024

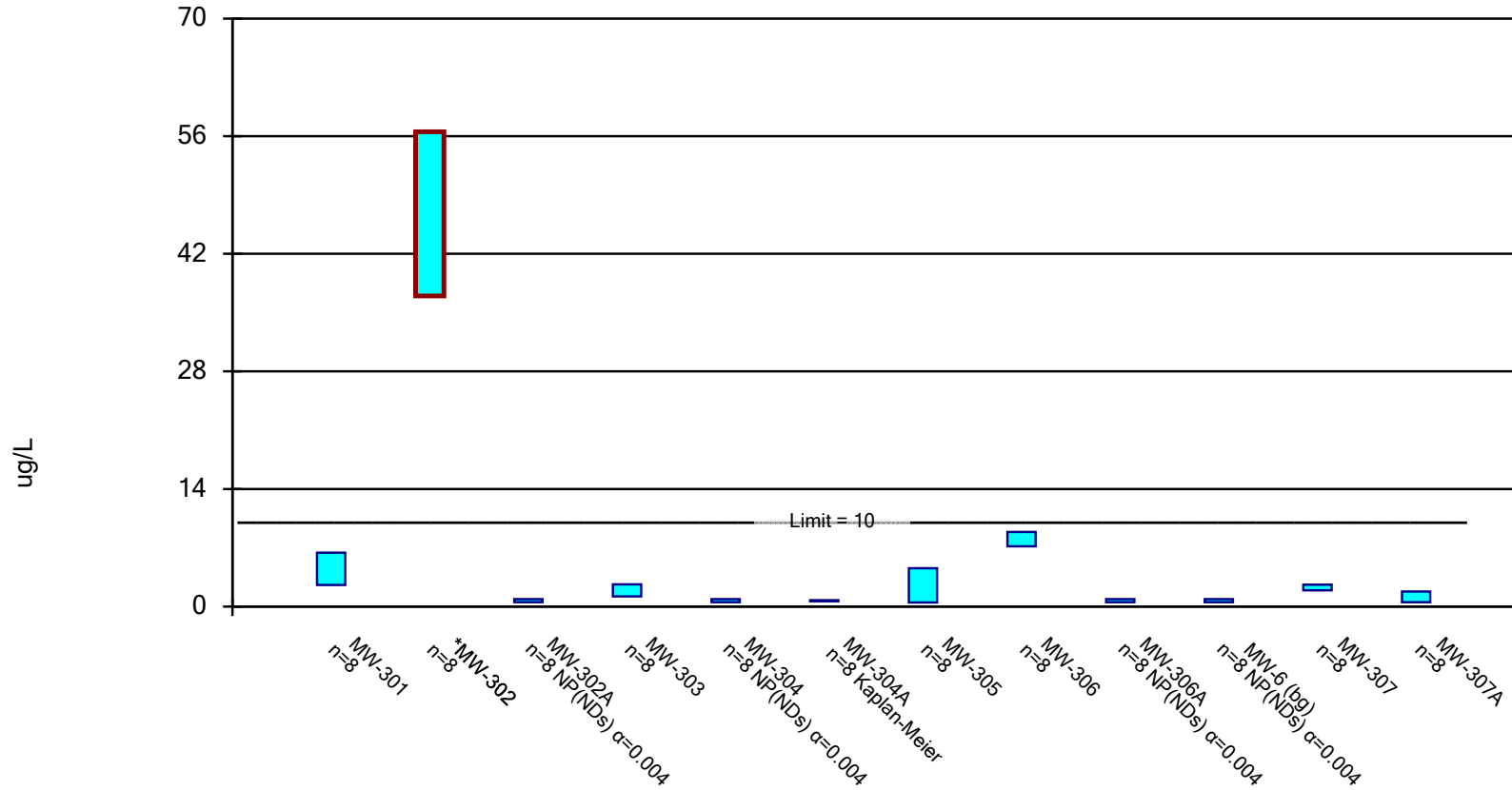
Confidence Interval

Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev Printed 6/3/2024, 2:36 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (ug/L)	MW-301	6.413	2.562	10	No	8	0	No	0.01	Param.
Arsenic (ug/L)	MW-302	56.53	36.97	10	Yes	8	0	No	0.01	Param.
Arsenic (ug/L)	MW-302A	0.88	0.53	10	No	8	100	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-303	2.637	1.213	10	No	8	0	No	0.01	Param.
Arsenic (ug/L)	MW-304	0.88	0.53	10	No	8	100	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-304A	0.7508	0.632	10	No	8	50	No	0.01	Param.
Arsenic (ug/L)	MW-305	4.564	0.4806	10	No	8	0	No	0.01	Param.
Arsenic (ug/L)	MW-306	8.88	7.17	10	No	8	0	No	0.01	Param.
Arsenic (ug/L)	MW-306A	0.88	0.53	10	No	8	100	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-6 (bg)	0.88	0.53	10	No	8	100	No	0.004	NP (NDs)
Arsenic (ug/L)	MW-307	2.609	1.941	10	No	8	0	No	0.01	Param.
Arsenic (ug/L)	MW-307A	1.783	0.5128	10	No	8	12.5	No	0.01	Param.

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: Arsenic Analysis Run 6/3/2024 2:34 PM

Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev

Confidence Interval

Constituent: Arsenic (ug/L) Analysis Run 6/3/2024 2:36 PM

Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev

	MW-301	MW-302	MW-302A	MW-303	MW-304	MW-304A	MW-305	MW-306	MW-306A
4/15/2019				1.4 (J)					
10/2/2019				2.5					
5/19/2020				1.4 (J)					
10/19/2020	6	48	<0.88 (U)	3.2	<0.88 (U)	<0.88 (U)			
10/20/2020							5.6		<0.88 (U)
4/7/2021									
4/8/2021	5			1.5 (J)					
4/9/2021		33	<0.75 (U)		<0.75 (U)	0.78 (J)	1.7 (J)	8	<0.75 (U)
7/12/2021								8.2	
8/13/2021									
10/26/2021	7.1			2.2	<0.75 (U)	<0.75 (U)			
10/27/2021		51	<0.75 (U)				3.9	8.6	<0.75 (U)
4/4/2022							0.89 (J)	7.7	<0.75 (U)
4/5/2022	4.9	40	<0.75 (U)	1.3 (J)	<0.75 (U)	<0.75 (U)			
4/6/2022									
10/17/2022	5		<0.75 (U)	1.9 (J)	<0.75 (U)	<0.75 (U)			
10/18/2022							4.7		
10/19/2022		51						7.1	<0.75 (U)
4/10/2023	3.7				<0.53 (U)	0.63 (J)			
4/11/2023		42	<0.53 (U)				0.93 (J)	7	<0.53 (U)
10/30/2023		64			<0.53 (U)	0.76 (J)		9.5	<0.53 (U)
10/31/2023	2.9		<0.53 (U)				1.8 (J)		
4/1/2024	1.3 (J)				<0.53 (U)	0.69 (J)			
4/2/2024		45	<0.53 (U)				0.66 (J)	8.1	<0.53 (U)
Mean	4.488	46.75	0.6837	1.925	0.6837	0.7487	2.523	8.025	0.6837
Std. Dev.	1.817	9.223	0.1347	0.6714	0.1347	0.0716	1.926	0.8067	0.1347
Upper Lim.	6.413	56.53	0.88	2.637	0.88	0.7508	4.564	8.88	0.88
Lower Lim.	2.562	36.97	0.53	1.213	0.53	0.632	0.4806	7.17	0.53

Confidence Interval

Constituent: Arsenic (ug/L) Analysis Run 6/3/2024 2:36 PM
Lansing Generating Station Client: SCS Engineers Data: LAN_Export_201121_Rev

	MW-6 (bg)	MW-307	MW-307A
4/15/2019			
10/2/2019			
5/19/2020			
10/19/2020			
10/20/2020	<0.88 (U)		
4/7/2021	<0.75 (U)		
4/8/2021			
4/9/2021			
7/12/2021		2.1	<0.75 (U)
8/13/2021		2.4	0.76 (J)
10/26/2021	<0.75 (U)		
10/27/2021		2.5	1.3 (J)
4/4/2022			
4/5/2022		1.8 (J)	2.1
4/6/2022	<0.75 (U)		
10/17/2022			
10/18/2022	<0.75 (U)	2.7	1.9 (J)
10/19/2022			
4/10/2023		2.5	0.65 (J)
4/11/2023	<0.53 (U)		
10/30/2023	<0.53 (U)	2.3	1 (J)
10/31/2023			
4/1/2024	<0.53 (U)	1.9 (J)	1.1 (J)
4/2/2024			
Mean	0.6837	2.275	1.148
Std. Dev.	0.1347	0.3151	0.5994
Upper Lim.	0.88	2.609	1.783
Lower Lim.	0.53	1.941	0.5128