

Semiannual Progress Report Selection of Remedy – OGS Ash Pond and Zero Liquid Discharge Pond

Ottumwa Generating Station
Ottumwa, Iowa

Prepared for:

Alliant Energy



SCS ENGINEERS

25220083.00 | September 13, 2024

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1.0 INTRODUCTION AND PURPOSE

The Semiannual Progress Report for remedy selection at the Interstate Power and Light Company (IPL) Ottumwa Generating Station (OGS) was prepared to comply with U.S. Environmental Protection Agency (U.S. EPA) regulations regarding the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities [40 CFR 257.50-107], or the “CCR Rule” (Rule). Specifically, the selection of remedy process was initiated to fulfill the requirements of 40 CFR 257.97.

1.1 BACKGROUND

The Assessment of Corrective Measures (ACM) for the Ash Pond was completed on September 12, 2019. The ACM was completed in response to the detection of cobalt at a statistically significant level (SSL) above the Groundwater Protection Standard (GPS) in groundwater samples from downgradient monitoring well MW-305.

Closure activities were initiated for the ZLD Pond in November 2020. Dewatering and removal of CCR material to the Ash Pond for the ZLD Pond began in May 2021 and was completed in December 2021. Closure of the ZLD Pond enabled construction of the new lined LVWWP (a non-CCR surface impoundment), redirection of non-CCR wastewaters from the Ash Pond, and initiation of closure of the Ash Pond. Final closure of the ZLD Pond is still pending due to the ongoing groundwater corrective action activities.

Closure construction for the Main Ash Pond was completed in June 2023, and the notification and certification by a qualified professional engineer required by 40 CFR 257.102(f)(3) and 257.102(h) were issued on July 19, 2023. The Main Ash Pond Closure Construction Documentation Report was submitted to the state agency in August 2023, and the closure permit was issued final in October 2023. No additional closure activities were completed during this reporting period for the Ash Pond.

Two addenda were completed for the ACM due to the need expand it to include the Zero Liquid Discharge (ZLD) Pond. Cobalt was detected at SSLs in monitoring wells located downgradient from both ponds, and expanding the ACM to address both will support a holistic approach to addressing the cobalt concentrations in groundwater. A virtual public meeting was held on August 19, 2024, to discuss the results of the ACMs and upcoming remedy selection. An updated Selection of Remedy report will be issued in September 2024, but no sooner than 30 days from August 19 per 40 CFR 257.96(e).

This Semiannual Progress Report covers the Ash Pond and the ZLD Pond. This report summarizes data collected and remedy evaluation progress made since the September 2019 ACM, the November 2020 ACM No.1, and the August 2022 ACM No. 2, and outlines planned future activities to complete the SOR process. This Semiannual Progress Report covers the 6-month period of March 2024 through August 2024.

1.2 SITE INFORMATION AND MAPS

OGS is located southwest of the Des Moines River, approximately 8 miles northwest of the City of Ottumwa in Wapello County, Iowa (**Figure 1**). The address of the plant is 20775 Power Plant Road, Ottumwa, Iowa. In addition to the coal-fired generating station, the property also contains the closed Ash Pond, the Low Volume Wastewater Pond (LVWWP) (constructed in the location of the former ZLD Pond, which was completely excavated in 2021), the coal stockpile, and the hydrated fly ash stockpile.

The two CCR units at the facility (Ash Pond and ZLD Pond) are each monitored with single-unit groundwater monitoring systems. Both the Ash Pond and the ZLD Pond are the subject of this Semiannual Progress Report.

A map showing the CCR units and all background (or upgradient) and downgradient monitoring wells with identification numbers for the CCR groundwater monitoring program is provided on **Figure 2**.

Groundwater flow at the site is generally to the east-northeast.

In September 2020, IPL discontinued the use of the existing wet bottom ash handling system at OGS and ceased the discharge of bottom ash transport water to the Ash Pond. A dry bottom ash handling system was installed and operating as of December 2020. The Ash Pond permanently ceased receipt of all CCR and non-CCR waste as of May 2, 2022, and closure was certified in July 2023.

2.0 SUMMARY OF WORK COMPLETED

Work completed to support remedy selection for the Ash Pond and ZLD Pond is summarized in **Table 1**. The focus of the groundwater sampling and groundwater corrective action activities during this past reporting period has been the evaluation of the delineation network to characterize the nature and extent of cobalt concentrations following pond closure activities and the assessment of corrective measures. Work completed on the Ash Pond closure is summarized in previous semiannual progress reports in **Table 1**. This report summarizes activities completed between March 2024 and August 2024 for the Ash Pond and ZLD Pond.

2.1 MONITORING NETWORK CHANGES

No changes in the monitoring network occurred during the period covered by this Semiannual Progress Report. The locations of the existing monitoring wells at OGS are shown on **Figure 2**.

2.2 GROUNDWATER MONITORING

Since the previous semiannual progress report, groundwater samples were collected during the following sampling events:

- The April 2024 assessment monitoring event for the routine semiannual assessment monitoring program for the Ash Pond and ZLD Pond.
- Wells sampled during the April 2024 event for the Ash Pond included the background well MW-301; compliance wells MW-302, MW-303, MW-304, MW-305, and MW-306; and delineation wells MW-305A, MW-310, MW-310A, MW-311, MW-311A, MW-312, MW-313, MW-316, MW-316A, and MW-317. Note that a sample was not collected from MW-302 because there was insufficient sampling volume. There are consistently low water levels following the end of discharges to the Ash Pond. Additional rounds of water level measurements are being taken at well MW-302 and the well will be sampled as soon as feasible.
- Wells sampled during the April 2024 event for the ZLD Pond included the background well MW-301 and downgradient wells MW-307, MW-308, MW-309, and MW-315.
- An additional assessment monitoring sample was collected for the ZLD Pond in July 2024 at MW-307 for cobalt analysis.

A summary of groundwater samples collected since the completion of the September 2019 ACM is provided in **Table 2** and **Table 3**.

2.3 STATISTICAL EVALUATION

Statistical evaluation of April 2024 semiannual sampling results during the period covered by this update were reported in Assessment Groundwater Monitoring Results letters for the Ash Pond (August 21, 2024) and the ZLD Pond (August 5, 2024). The results will also be included in the 2024 Annual Report.

For the April 2024 Ash Pond monitoring event, statistical evaluation indicates cobalt exceeded the GPS and was an SSL in compliance wells MW-305 and MW-306. Cobalt also exceeded the GPS and was determined to be an SSL in delineation well MW-312.

For the April 2024 ZLD Pond monitoring event, cobalt exceeded the GPS and was an SSL in MW-307 and MW-315 for the ZLD Pond.

2.4 SURFACE IMPOUNDMENT CLOSURE

Closure of the ZLD Pond was completed in December 2021 and closure of the Ash Pond was completed in June 2023.

A historical summary of the CCR unit closure activities completed is included in previous semiannual progress reports in **Table 1**.

2.5 EVALUATION OF CORRECTIVE MEASURE ALTERNATIVES

A qualitative assessment of potential Corrective Measure Alternatives using the selection criteria in 40 CFR 257.97(b) and (c) was provided in the September 2019 ACM, revised in the November 2020 Addendum No 1, and revised again in the August 2022 ACM Addendum No 2.

The results of the additional investigations completed in the previous reporting period indicated that precipitation of cobalt-containing mineral phases is occurring in the aquifer downgradient of wells MW-305 and MW-307. Also, laboratory desorption trials indicated that approximately 96 percent of the cobalt remained adsorbed to the aquifer media, supporting monitored natural attenuation (MNA) as a viable remedial alternative for cobalt. To further evaluate potential remedial options for cobalt, an aquifer pumping test was initiated to evaluate hydraulic containment effectiveness.

During this reporting period, installation of an extraction well (PW-1) and an observation well (OW-1) was completed in April 2024 to evaluate hydraulic containment feasibility with respect to cobalt. Aquifer pumping test activities and collection of a post-pumping test groundwater sample for cobalt at MW-307 were also completed in April 2024. The results of the pumping test will be provided in the updated SOR report that is anticipated to be finalized in September 2024, following the virtual public meeting held on August 19, 2024. The specific planned activities are described in **Section 3.0**.

3.0 PLANNED ACTIVITIES

Planned activities related to the remedy selection process include the following:

- Continue semiannual assessment monitoring.

- Continue groundwater monitoring to document the completion of closure by removal of the ZLD Pond per 40 CFR 257.102(c).
- Continued evaluation of groundwater flow and groundwater quality.
- Finalize the pumping test data analysis for inclusion in the SOR report.
- Update the conceptual site model based on findings of the ongoing groundwater sampling of the new compliance well and additional delineation wells.
- Finalize evaluation of remedial options and issue an updated SOR report per 40 CFR 257.97(a) no earlier than September 19, 2024.
- Establish and implement a corrective action monitoring program after completion of the SOR per 40 CFR 257.98(a)(1).

Tables

- 1 Timeline for Completed Groundwater Sampling and Corrective Action Work
- 2 CCR Rule Groundwater Samples Summary – Ash Pond – Events Since the ACM Submittal
- 3 CCR Rule Groundwater Samples Summary – ZLD Pond – Events Since the ACM Submittal

**Table 1. Timeline for Completed Groundwater Sampling and Corrective Action Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
Activities Completed During Previous Semiannual Progress Periods	
August 2019	Additional monitoring wells installed to investigate nature and extent (MW-310 and MW-311).
September 2019	Completed Assessment of Corrective Measures (ACM).
November 2019	Completed Well Construction Documentation for new monitoring wells.
January 2020	Completed Statistical Evaluation of October 2019 groundwater monitoring results.
January 2020	Completed 2019 Annual Groundwater Monitoring and Corrective Action Report.
December 2019 - February 2020	Planning, permitting, and access for three additional monitoring wells (piezometers) to investigate the vertical extent of impacts.
February 2020	Collected second round of groundwater samples from the new monitoring wells (MW-310 and MW-311) and background well.
February 2020 - March 2020	Completed the installations of three piezometers (MW-305A, MW-310A, and MW-311A).
March 2020	Completed groundwater sampling for specific metals and MNA parameters from selected monitoring wells as well as the newly installed piezometers.
June 2020	Conducted assessment monitoring resample for selected parameters and monitoring well.
June 2020	Held public ACM meeting.
September 2020	Completed Semiannual Progress Report for the Selection of Remedy.
September 2020	Completed Well Documentation Report for additional piezometers (MW-305A, MW-310A, and MW-311A).
October 2020	Conducted semiannual assessment monitoring event and additional MNA parameter samples for the selection of remedy process.
November 2020	Submitted application to EPA for a site-specific alternative deadline to initiate closure of the Main Ash Pond.
November 2020	Completed the ACM Addendum No. 1
January 2021	Completed Statistical Evaluation of October 2020 groundwater monitoring results.
January 2021	Completed 2020 Annual Groundwater Monitoring and Corrective Action Report.
February 2021	Held public ACM Addendum meeting on February 18, 2021.
February 2021	Conduct additional assessment monitoring for selected parameters and monitoring wells.
March 2021	Completed Semiannual Progress Report for the Selection of Remedy.
March 2021 - June 2021	Planning, design, draft permit preparation, and access evaluation for two additional monitoring wells to evaluate MNA processes.
July 2021	Submitted joint permit application to the United States Army Corps of Engineers (USACE) and Iowa Department of Natural Resources (IDNR).
July 2021	Submitted Notification of Groundwater Protection Standard Exceedance for lithium at MW-310A and MW-311A.
July 2021	Conducted assessment monitoring resample for selected parameters and monitoring wells.

**Table 1. Timeline for Completed Groundwater Sampling and Corrective Action Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
August 2021	Received approval letters from USACE for installation of monitoring wells MW-312 and MW-313.
September 2021	Completed Semiannual Progress Report for the Selection of Remedy.
October 2021	Completion of an ASD for lithium SSLs at MW-310A and MW-311A.
November 2021	Received approval letters from IDNR November 2021 for installation of monitoring wells MW-312 and MW-313.
December 2021	Submitted well permit application for monitoring wells MW-312 and MW-313 to Wapello County and received approval of permit.
December 2021	Performed utility clearances and Hydrovac clearance and installed additional monitoring wells MW-312 and MW-313 to characterize site conditions for the selection of remedy.
December 2021	Completed 3 boreholes adjacent to existing monitoring wells MW-305, MW-307, and MW-310 to collect saturated soil samples for laboratory analyses of iron and cobalt coprecipitation.
December 2021 - February 2022	Performed laboratory analysis of soil and groundwater samples as part of the cobalt treatability and attenuation study.
January 2022	Completed 2021 Annual Groundwater Monitoring and Corrective Action Report.
January 2022	Completed first round of groundwater monitoring sampling at MW-312 and MW-313. Samples analysis performed in support of cobalt treatability and attenuation study.
January 2022	Measured water levels at all site monitoring wells.
February 2022	Completed second round of groundwater monitoring sampling at MW-312 and MW-313 and obtained additional samples from monitoring wells MW-305, MW-306, and MW-307.
February 2022	Measured water levels at all site monitoring wells.
March 2022	Completed Semiannual Progress Report for the Selection of Remedy.
April 2022	Conducted semiannual assessment monitoring event.
April 2022 - July 2022	Completed Treatability Study for Natural Attenuation of Cobalt in Groundwater.
May 2022	Completed Statistical Evaluation of January 2022 groundwater monitoring results.
May 2022	Completed the installation of four additional water table wells (MW-302WT, MW-304WT, MW-306WT, and MW-314WT) and one additional piezometer (MW-314) around the Ash Pond. These water table wells are intended for groundwater elevation measurement only, and will not be sampled for water quality.
May 2022	Completion of an ASD for Cobalt SSL at MW-307.
June 2022	Completed Statistical Evaluation of February 2022 groundwater monitoring results.
July 2022	Completed Statistical Evaluation of April 2022 groundwater monitoring results.
August 2022	Conducted groundwater sampling at MW-307, MW-312, and MW-313.
August 2022	Completed the ACM Addendum No. 2 for the OGS Ash Pond and Zero Liquid Discharge (ZLD) Pond.

**Table 1. Timeline for Completed Groundwater Sampling and Corrective Action Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
September 2022	Completed Semiannual Progress Report for the Selection of Remedy.
September 2022	Submitted joint permit application to the USACE and IDNR for three proposed delineation monitoring wells along the banks of the Des Moines River.
October 2022	Conducted semiannual assessment monitoring event and additional MNA parameter samples for the selection of remedy process.
October 2022	Received confirmation that no county floodplain permit is required for the installation of ZLD Pond compliance well MW-315.
October 2022	Received a letter from the USACE that an archeological and geomorphological survey will be required prior to the installation of three delineation wells along the banks of the Des Moines River.
October 2022 - November 2022	Delays in accessing proposed delineation well locations to perform the archeological and geomorphological survey due to the need to wait for a corn crop harvest at the survey location.
November 2022	Completed permitting for the installation of compliance well MW-315.
December 2022	Received a letter from the IDNR approving the installation of three delineation monitoring wells along the banks of the Des Moines River.
December 2022	Installed compliance monitoring well MW-315 downgradient of the ZLD Pond.
December 2022	Completed fieldwork for the archeological and geomorphological survey.
December 2022	Completed the August 2022 Groundwater Results Report.
January 2023	Compliance well MW-315 was developed.
January 2023	Received the archeological and geomorphological survey report. Nothing was discovered that would prevent the installation of the delineation monitoring wells. The report was submitted to the USACE and IDNR.
January 2023	Received a letter from the USACE authorizing installation of the three delineation wells along the banks of the Des Moines River.
January 2023	Received a letter from the USACE rescinding the authorization granted earlier in January 2023 for installation of the three delineation wells along the banks of the Des Moines River. The USACE was required to coordinate the archaeological survey with the State Historic Preservation Office. Communication from the USACE indicated the SHPO review period would be 30 days.
January 2023	Completed 2022 Annual Groundwater Monitoring and Corrective Action Report for the Ash Pond.
February 2023	Installed a dedicated low-flow pump in the ZLD Pond compliance well MW-315 and performed the initial groundwater sample collection.
February 2023	Completed Statistical Evaluation of October 2022 groundwater monitoring results.
February 2023	Completed the October 2022 Groundwater Results Report.
February 2023	Completed a Financial Assurance Post-Closure Cost Estimate for the CCR Impoundment.
February 2023	Completed 2022 AP CCR Federal Annual Report.

**Table 1. Timeline for Completed Groundwater Sampling and Corrective Action Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
March 2023	Second supplemental sampling event completed for cobalt in new ZLD Pond compliance well MW-315.
March 2023	Completed Semiannual Progress Report for the Selection of Remedy.
March 2023	Requested a flood plain permit waiver from the county engineer, which was waived.
March 2023	Submitted Monitoring Well Construction Report for MW-312 and MW-313.
March 2023	Submitted Monitoring Well Construction Report for MW-315.
March 2023	Installed delineation wells MW-316, MW-316A, and MW-317. SCS conducted hydraulic conductivity testing on new wells.
March 2023	Installed staff gauges SG-2 and SG-3 in Middle Avery Creek.
April 2023	Conducted semiannual assessment monitoring event.
April 2023	Joint Permit Notice of Completion filed.
July 2023	Submitted MW-315 Groundwater Monitoring System Update Recertification for ZLD Pond MW-315 and submitted Update Certification Supporting Documentation.
July 2023	Completed an Assessment Groundwater Monitoring results report for February and March 2023 sampling for ZLD Pond.
August 2023	Completed April 2023 Assessment Groundwater Monitoring Results Letters for Ash Pond and ZLD Pond.
August 2023	Completed 2022 ZLD Pond CCR Federal Annual Report.
August 2023	Completed draft Monitoring Well Construction Report for MW-316, MW-316A, MW-317, SG-2, and SG-3.
September 2023	Completed a Semiannual SOR Progress Report.
October 2023	Conducted a semiannual groundwater monitoring event.
October 2023	Completed a proposal for remedy selection and design.
October 2023 - February 2024	Continued work on the Selection of Remedy report.
December 2023 - January 2024	Performed capture zone analysis for the design and installation of an extraction well to be used for a pumping test.
December 2023 - January 2024	Designed a pumping test and an extraction well for the test.
January - February 2024	Well, flood plain, and pump test water discharge permitting for the pumping test extraction well and pumping test observation well.
January 2024	Completed the Annual Report for OGS Ash Pond.
February 2024	Scheduled drilling for monitoring well and extraction well installations.
February 2024	Completed the October 2023 results letter for OGS ZLD Pond.

**Table 1. Timeline for Completed Groundwater Sampling and Corrective Action Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
Activities Completed During Current Semiannual Progress Period	
March 2024	Completed Semiannual Progress Report for the Selection of Remedy.
April 2024	Completed Water Well Pollution Prevention Plan for the extraction well and piezometer installation.
April 2024	Installed extraction well (PW-1) and observation well (OW-1) for the aquifer pumping test. Surveyed extraction and piezometer locations.
April 2024	Completed pumping test at PW-1 and collected a post-pumping test cobalt sample at MW-307.
April 2024	Conducted a semiannual groundwater sampling event for the Ash Pond and the ZLD Pond.
May 2024	Received laboratory results (Eurofins) for groundwater samples collected during aquifer pumping test.
June 2024	Collected additional assessment monitoring sample at MW-307 for cobalt analysis.
July 2024	Updated cross-sections with boring information from newly installed pumping test wells.
July 2024	Held a virtual public meeting on July 15, 2024. An additional public meeting for August was scheduled due to issues with the publication of the first meeting notice.
August 2024	Submitted the final ZLD Pond Annual Report for 2023.
August 2024	Drafted a pumping test Memo with a capture zone analysis, mass removal calculations and plume size estimates with recommendations for hydraulic control.
August 2024	Revised draft Selection of Remedy Report.
August 2024	Held a rescheduled virtually held public meeting on August 19, 2024. Finalization of the Selection of Remedy Report is planned for September 2024.

* = Resampling event completed in 2019 but analytical results will be used for evaluation for the October 2018 sampling event.

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**Table 2. CCR Rule Groundwater Samples Summary - Events Since the ACM Submittal
Ottumwa Generating Station - Ash Pond / SCS Engineers Project #25220083.00**

Sample Dates	Background Well	Compliance Wells					Delineation Well	Compliance Well	Delineation Wells								
	MW-301	MW-302	MW-303	MW-304	MW-305	MW-305A	MW-306	MW-310	MW-310A	MW-311	MW-311A	MW-312	MW-313	MW-316	MW-316A	MW-317	
10/23-24/2019	A	A	A	A	A	NI	A	A-NE	NI	A-NE	NI	NI	NI	NI	NI	NI	
2/5/2020	A	--	--	--	--	NI	--	A-NE	NI	A-NE	NI	NI	NI	NI	NI	NI	
3/12-13/2020	Add.	--	--	--	Add.	Add.	--	Add.	Add.	Add.	Add.	NI	NI	NI	NI	NI	
4/13-14/2020	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	NI	NI	NI	NI	NI	
6/30/2020	--	--	--	--	--	--	--	--	--	--	A - R	NI	NI	NI	NI	NI	
10/8-12/2020	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	NI	NI	NI	NI	NI	
2/23/2021	--	--	--	--	--	--	Add.	Add.	--	--	Add.	NI	NI	NI	NI	NI	
4/12-16/2021	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	NI	NI	NI	NI	NI	
7/6/2021	--	--	--	--	--	--	Add.	Add.	--	--	Add.	NI	NI	NI	NI	NI	
10/6-8/2021	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE ⁽¹⁾	A-NE	NI	NI	NI	NI	NI	
1/12/2022	--	--	--	--	--	--	--	--	--	--	--	Add.	Add.	NI	NI	NI	
2/14/2022	--	--	--	--	--	--	--	--	--	--	--	Add.	Add.	NI	NI	NI	
4/12/2022	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	NI	NI	NI	
8/25/2022	--	--	--	--	--	--	--	--	--	--	--	Add.	Add.	NI	NI	NI	
10/26-28/2022	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	NI	NI	NI	
4/4-6/2023	A	A	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	
10/10-13/2023	A	A ⁽²⁾	A ⁽²⁾	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	
4/4-5/2024	A	A ⁽³⁾	A	A	A	A-NE	A	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	A-NE	
Total Samples	12	10	10	10	11	10	12	14	10	12	13	8	8	3	3	3	

Abbreviations:

A = Assessment Monitoring Program
-- = Not sampled

NI = Not Installed
A-R = Assessment Resample

Add. = Additional sampling event for selected parameters
A-NE = Assessment monitoring for nature and extent, well sampled for select Appendix IV and selection-of-remedy parameters

Notes:

- (1): MW-311 had insufficient water for sample collection during the October 2021 sampling event.
- (2): MW-302 and MW-303 had insufficient water for sample collection during the October 2023 sampling event.
- (3): MW-302 had insufficient water for sample collection during the April 2024 sampling event.

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**Table 3. CCR Rule ZLDP Groundwater Samples Summary
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Sample Dates	Downgradient Wells				Background Well
	MW-307	MW-308	MW-309	MW-315	MW-301
4/26/2016	NI	NI	NI	NI	B
6/23/2016	NI	NI	NI	NI	B
8/9/2016	NI	NI	NI	NI	B
10/26/2016	NI	NI	NI	NI	B
1/18-19/2017	B	B	B	NI	B
4/19-20/2017	B	B	B	NI	B
6/20-21/2017	B	B	B	NI	B
8/21-23/2017	B	B	B	NI	B
11/8/2017	B	B	B	NI	D
4/16-18/2018	B	B	B	NI	A
5/30/2018	B-R	B-R	B-R	NI	--
6/28/2018	B	B	B	NI	--
7/18/2018	B-R	B-R	B-R	NI	--
10/16/2018	B	B	B	NI	A
4/8/2019	D	D	D	NI	D
10/23-24/2019	D	D	D	NI	D
12/11/2019	A	A	A	NI	A
2/5/2020	A	A	A	NI	A
4/13-14/2020	A	A	A	NI	A
10/7-8/2020	A	A	A	NI	A
2/23/2021	A-R	--	--	NI	--
4/14/2021	A	A	A	NI	A
7/6/2021	A-R	--	--	NI	--
10/7/2021	A	A	A	NI	A
2/14/2022	Add.	--	--	NI	--
4/11-14/2022	A	A	A	NI	A
8/25/2022	Add.	--	--	NI	--
10/25-26/2022	A	A	A	NI	A
2/2/2023	--	--	--	Add.	--
3/6/2023	--	--	--	Add.	--
4/4-6/2023	A	A	A	A	A
10/10-13/2023	A	A	A	A	A
4/4/2024	A	A	A	A	A
6/6/2024	Add.	--	--	--	--
Total Samples	28	23	23	5	24

Abbreviations:

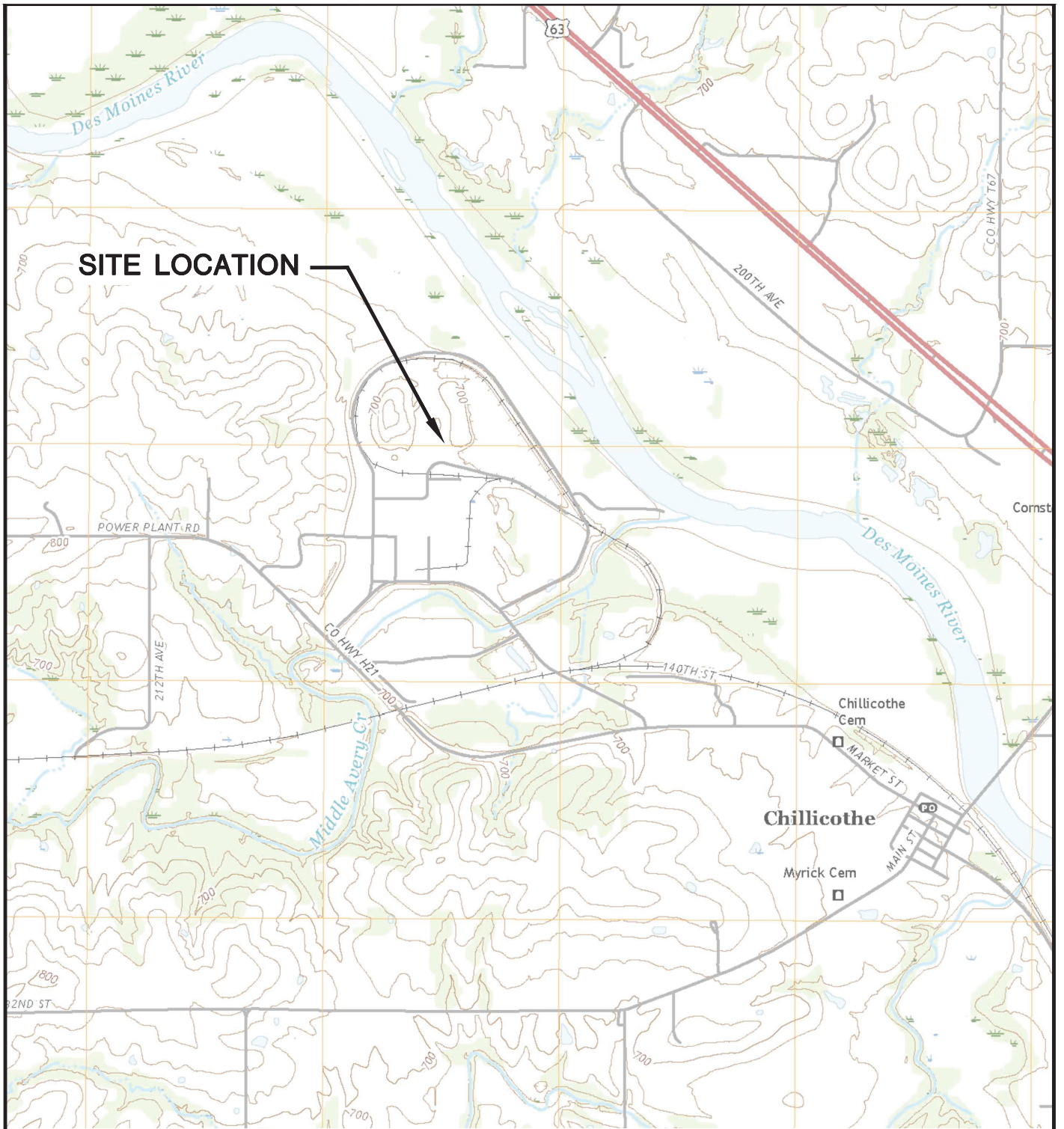
B = Background Sample Event
 B-R = Background Resampling event
 D = Detection Monitoring Sampling Event
 A = Assessment Monitoring Event
 A-R = Assessment Monitoring Resampling Event
 Add. = Additional Assessment monitoring sampling event

NI = Not Installed
 -- = Not Applicable

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Figures

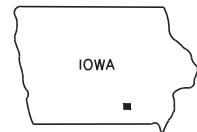
- 1 Site Location Map
- 2 Site Plan and Monitoring Well Locations



SITE LOCATION

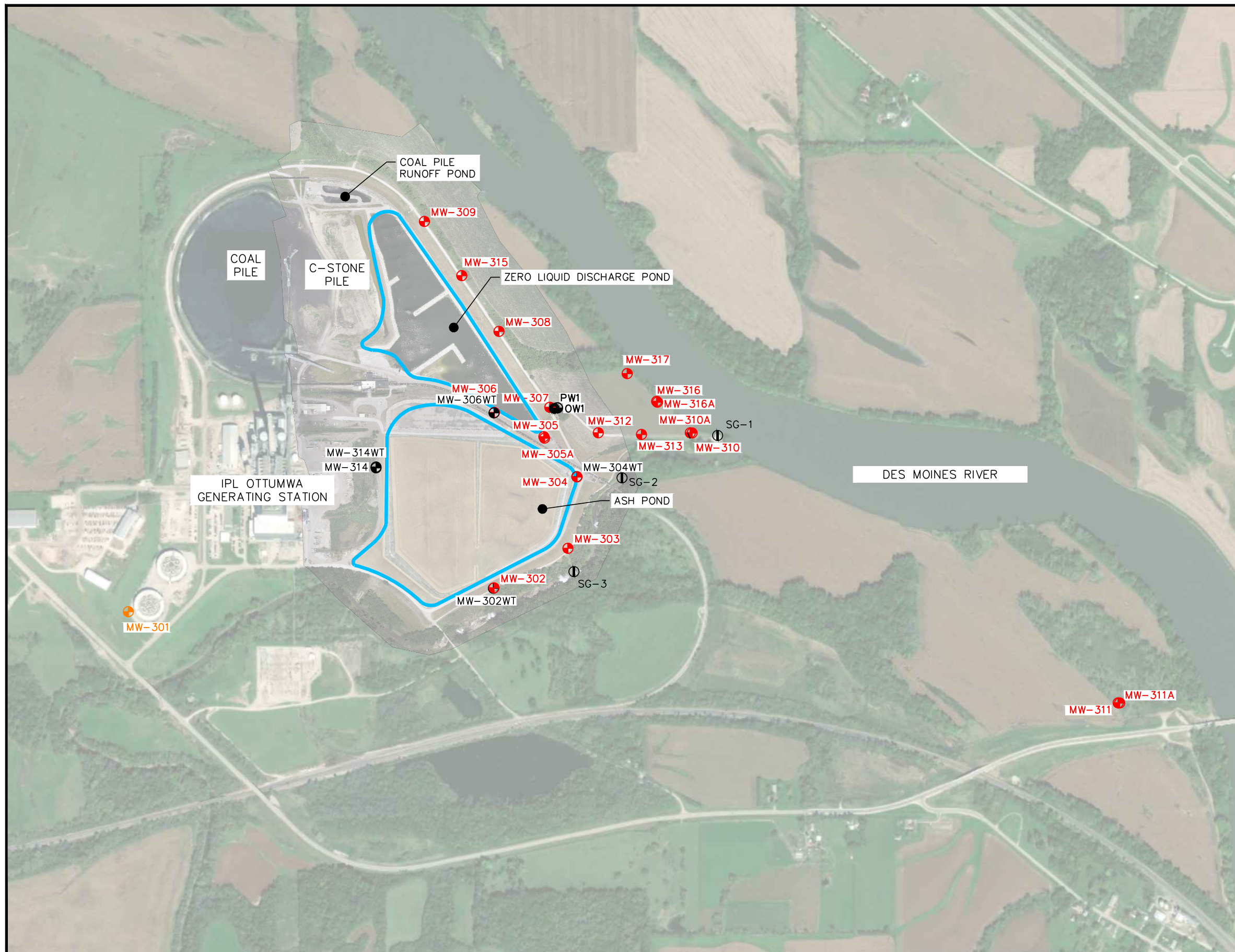


CHILLICOTHE QUADRANGLE
 IOWA—WAPELLO CO.
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'



CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501		SITE	ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA		ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830		FIGURE
	PROJECT NO.	25219072.00		DRAWN BY:	BSS		1		
	DRAWN:	11/15/2019		CHECKED BY:	MDB				
REVISD:	01/10/2020	APPROVED BY:	TK, 3/25/2022						

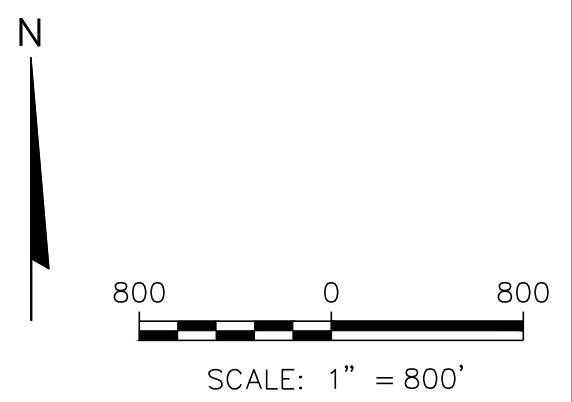
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LEGEND	
	CCR UNIT
	CCR ASH POND MONITORING WELL
	CCR BACKGROUND MONITORING WELL
	WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
	RIVER ELEVATION MEASUREMENT LOCATION
	OBSERVATION WELL
	EXTRACTION WELL

NOTE:

- AERIAL IMAGERY OBTAINED FROM ALLIANT ENERGY, DATED JUNE 19, 2023.



PROJECT NO. 25220083.00	DRAWN BY: KP/SB	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA	SITE PLAN AND MONITORING WELL LOCATIONS	FIGURE
DRAWN: 12/05/2023	CHECKED BY: NLB					2
REVISED: 08/28/2024	APPROVED BY: TK 9/12/2024					

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