

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 | March 13, 2023

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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.

IPL initially completed a Selection of Remedy (SOR) Report in September 2020, but a subsequent revision to the ACM, completed in November 2020, resulted in a retraction of the SOR Report. The initial SOR Report is now considered to be the September 2020 semiannual progress report because it discusses activities completed during the March 2020 through September 2020 reporting period.

Additional information was received following the issuance of Addendum No. 1 to the ACM resulting in a second addendum to the ACM (Addendum No. 2). Addendum No. 2 was prepared to expand the ACM to include the Zero Liquid Discharge (ZLD) Pond. Cobalt has been 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. IPL will hold an additional public meeting with interested and affected parties to discuss Addendum No. 2 and will issue a new SOR Report.

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 and November 2020 revised ACM, and outlines planned future activities to complete the SOR process. This semiannual progress report covers the 6-month period of September 2022 through February 2023.

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 Ash Pond, the Low Volume Wastewater Pond (LWTP) (constructed in 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, and the groundwater flow direction and water levels fluctuate seasonally due to the proximity to the river. Depth to groundwater as measured in the site monitoring wells varies from 1 to 25 feet below ground surface due to topographic variations across the facility and seasonal variations in water levels.

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.

2.0 SUMMARY OF WORK COMPLETED

Work completed to support remedy selection for the Ash Pond and ZLD Pond is summarized in **Table 1A**. Work completed on the Ash Pond closure is summarized in **Table 1B**. Activities completed within the 6-month period covered by this Semiannual Progress Report are discussed in more detail below.

2.1 MONITORING NETWORK CHANGES

An additional compliance well (MW-315) was installed in November 2022 between ZLD Pond wells MW-308 and MW-309 to provide additional groundwater quality and groundwater flow information.

Permits are currently being obtained for additional monitoring well installations. Three delineation wells will be installed adjacent the Des Moines River and north of existing delineation well nest MW-310/MW-310A to provide additional information on groundwater flow and groundwater quality downgradient of the cobalt-impacted wells MW-305 and MW-307. The locations of the future monitoring wells at OGS are shown on **Figure 2**.

2.2 GROUNDWATER MONITORING

Since September 2022, groundwater samples were collected during sampling events in October 2022 and January 2023:

- The October 2022 monitoring event was part of the routine semiannual assessment monitoring program for the Ash and ZLD Ponds.
- The January 2023 monitoring event was the initial sample round for the new ZLD Pond compliance well MW-315.

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 October 2022 and January 2023 Ash Pond sampling results during the period covered by this update will be discussed in the 2023 Annual Groundwater Monitoring and Corrective Action Reports due on January 31, 2024, for the Ash Pond and on August 1, 2023, and August 1, 2024, for the ZLD Pond. Based on the October 2022 monitoring results, the only parameter at an SSL above the GPS at the compliance wells is cobalt at Ash Pond well MW-305 and ZLD Pond well MW-307.

2.4 SURFACE IMPOUNDMENT CLOSURE

Construction for the closure of the ZLD Pond and Ash Pond began in May 2021. Closure of the ZLD Pond enabled construction of the new lined LVWTP (a non-CCR surface impoundment), redirection of non-CCR wastewaters from the OGS Ash Pond, and initiation of closure of the Ash Pond.

Key activities completed during the reporting period included:

- The concrete forming and concrete placement in the Air Heater Wash Basin that began in August was completed in September 2022. Riprap was also placed in the Air Heater Wash Basin in September 2022. The Air Heater Wash Basin is a new concrete-lined feature constructed within the excavated footprint of the Ash Pond.
- From September to November 2022, CCR was removed down to native soil in the Ash Pond to remove CCR below the groundwater elevation measured in adjacent water-table monitoring wells. Clay was placed to replace the removed CCR.
- Grading of the Ash Pond CCR material and moisture conditioning was completed for the 2022 construction season in December 2022 and will continue in spring 2023. Additional grading was completed in January 2023 to cover exposed stabilization geosynthetics.

A summary of the CCR unit closure activities completed during the current reporting period is provided in **Table 1B**.

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.

In addition, IPL has initiated closure construction as discussed in **Section 2.4**.

Updates to the assessment discussed in the ACM and development of a new SOR Report will be completed in the future based on updates to the conceptual site model, delineation of the nature and extent of impacts, Ash Pond closure design and construction activities, and collection of additional data relevant to remedy selection. 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:

- Update the groundwater monitoring network certification for the ZLD Pond to include new compliance well MW-315.
- Install three delineation monitoring wells adjacent the Des Moines River and north of existing delineation well nest MW-310/MW-310A.
- Continue semiannual assessment monitoring for the existing monitoring well network and new monitoring wells.
- Continued evaluation of groundwater flow and groundwater quality.
- Update the conceptual site model based on findings of the treatability study and ongoing groundwater sampling and data evaluation.
- Evaluate groundwater pumping and treating as an option for OGS based on new delineation monitoring well data and the updated conceptual site model.
- Hold an additional public meeting.
- Finalize evaluation of remedial options and issue a final SOR Report per 40 CFR 257.97(a).

The following planned activities related to the ongoing closure of the Ash Pond include:

- Continued moisture conditioning, stabilization, and grading of CCR to final cover subgrades.
- Placement of compacted soil cover (18 inches).
- Placement of topsoil (6 inches).
- Installation of 40-mil geomembrane and HydroTurf CS in drainage swales.
- Final restoration activities.

Tables

- 1A Timeline for Completed Groundwater Sampling and Corrective Action Work
- 1B Timeline for Closure Activities 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 1A. 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 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 to 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 to March 2020	Complete 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	Conduct 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	Complete 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

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

Date	Activity
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 State Army Corps of Engineers and Iowa Department of Natural Resources
July 2021	Submitted Notification of Groundwater Protection Standard Exceedance for lithium at MW-310A and MW-311A
July 2021	Conduct assessment monitoring resample for selected parameters and monitoring wells
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 Hydovac 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.

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

Date	Activity
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 Pond
Activities Completed During Current Semiannual Progress Period	
September 2022	Completed Semiannual Progress Report for the Selection of Remedy
September 2022	Submitted joint permit application to the United State Army Corps of Engineers and Iowa Department of Natural Resources 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 U.S. Army Corps of Engineers 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.

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

Date	Activity
November 2022	Completed permitting for the installation of compliance well MW-315.
December 2022	Received a letter from the Iowa Department of Natural Resources 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 U.S. Army Corps of Engineers authorizing installation of the three delineation wells along the banks of the Des Moines River.
January 2023	Received a letter from the U.S. Army Corps of Engineers rescinding the authorization granted earlier in January 2023 for installation of the three delineation wells along the banks of the Des Moines River. The Army Corps was required to coordinate the archaeological survey with the State Historic Preservation Office. Communication from the Army Corps 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.

A-R = Resampling event under Assessment Monitoring Program

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

Created by: SCC Date: 2/17/2020
 Last revision by: TK Date: 2/19/2023
 Checked by: MDB Date: 2/22/2023

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**Table 1B. Timeline for Closure Activities Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
Activities Completed During Previous Semiannual Progress Periods	
August 2019 - February 2020	OGS Ash Pond closure design (ongoing)
September 2020	Discontinued wet bottom ash sluicing at OGS
October 2021	Submitted Closure Permit Application for Main Ash Pond to IDNR Land Quality Bureau
October 2021	Received approval of Antidegradation Analysis from IDNR
November 2021	Received Closure Permit for Main Ash Pond from IDNR Land Quality Bureau
November 2021	Received Facility Plan Approval letter for new wastewater outfall to Des Moines River
November-December 2021	Prepared NPDES Wastewater Permit Amendment Request
May 2022	The Ash Pond permanently ceased receipt of all CCR and non-CCR waste as of May 2, 2022.
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. The water level information will assist with the Ash Pond closure.
May - August 2022	Collection of Groundwater elevations to monitoring groundwater conditions of the Ash Pond during the closure process.
June 2022	Closure notification for the OGS Ash Pond issued. The Ash Pond will be closed in accordance with CFR 257.102(d).

**Table 1B. Timeline for Closure Activities Work
Selection of Remedy
Ottumwa Generating Station / SCS Engineers Project #25220083.00**

Date	Activity
Activities Completed During Current Semiannual Progress Period	
September 2022	Completed documentation report for the installation of water level only wells surrounding the Ash Pond.
September 2022	Completed concrete forming and concrete placement in Air Heater Wash Basin that began in August.
September 2022	Placed riprap in Air Heater Wash Basin.
September 2022 - November 2022	Removed CCR down to native soils in order to get CCR out of estimated groundwater elevation and placement of clay material to replace CCR. Activities happened concurrently.
December 2022	Completed grading of Main Ash Pond CCR material and moisture conditioning that began in July for the 2022 construction season. Lime stabilizer and Portland cement were added to CCR for moisture conditioning. Stabilization geosynthetics were added as needed during CCR grading/placement.
January 2023	CCR grading to cover exposed geogrid material

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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	Compliance Wells				Delineation Well	Compliance Well	Delineation Wells						Background Well
	MW-302	MW-303	MW-304	MW-305	MW-305A	MW-306	MW-310	MW-310A	MW-311 ⁽¹⁾	MW-311A	MW-312	MW-313	MW-301
10/23-24/2019	A	A	A	A	NI	A	A	NI	A	NI	NI	NI	A
2/5/2020	--	--	--	--	NI	--	A	NI	A	NI	NI	NI	A
3/12-13/2020	--	--	--	Add.	Add.	--	Add.	Add.	Add.	Add.	NI	NI	Add.
4/13-14/2020	A	A	A	A	A	A	A	A	A	A	NI	NI	A
6/30/2020	--	--	--	--	--	--	--	--	--	A - R	NI	NI	--
10/8-12/2020	A	A	A	A	A	A	A	A	A	A	NI	NI	A
2/23/2021	--	--	--	--	--	Add.	Add.	--	--	Add.	NI	NI	--
4/12-16/2021	A	A	A	A	A	A	A	A	A	A	NI	NI	A
7/6/2021	--	--	--	--	--	Add.	Add.	--	--	Add.	NI	NI	--
10/6-8/2021	A	A	A	A	A	A	A	A	A	A	NI	NI	A
1/12/2022	--	--	--	--	--	--	--	--	--	--	Add.	Add.	--
2/14/2022	--	--	--	--	--	--	--	--	--	--	Add.	Add.	--
4/12/2022	A	A	A	A	A	A	A	A	A	A	A	A	A
8/25/2022	--	--	--	--	--	--	--	--	--	--	Add.	Add.	--
10/26-28/2022	A	A	A	A	A	A	A	A	A	A	A	A	A
Total Samples	7	7	7	8	7	9	11	8	9	10	4	4	9

Abbreviations:

A = Assessment Monitoring Program

NI = Not Installed

Add. = Additional sampling event for selected parameters

-- = Not sampled

A - R = Assessment Resample

Notes:

(1) Sufficient water for sample collection was not present in MW-311 during the October 2021 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-301
4/26/2016	NI	NI	NI	B
6/23/2016	NI	NI	NI	B
8/9/2016	NI	NI	NI	B
10/26/2016	NI	NI	NI	B
1/18-19/2017	B	B	B	B
4/19-20/2017	B	B	B	B
6/20-21/2017	B	B	B	B
8/21-23/2017	B	B	B	B
11/8/2017	B	B	B	D
4/16-18/2018	B	B	B	A
5/30/2018	B-R	B-R	B-R	--
6/28/2018	B	B	B	--
7/18/2018	B-R	B-R	B-R	--
10/16/2018	B	B	B	A
4/8/2019	D	D	D	D
10/23-24/2019	D	D	D	D
12/11/2019	A	A	A	A
2/5/2020	A	A	A	A
4/13-14/2020	A	A	A	A
10/7-8/2020	A	A	A	A
2/23/2021	A-R	--	--	--
4/14/2021	A	A	A	A
7/6/2021	A-R	--	--	--
10/7/2021	A	A	A	A
2/14/2022	Add.	--	--	--
4/11-14/2022	A	A	A	A
8/25/2022	Add.	--	--	--
10/25-26/2022	A	A	A	A
Total Samples	24	20	20	21

Abbreviations:

D = Detection Monitoring Sampling Event
A= Assessment Monitoring Event
-- = Not Applicable

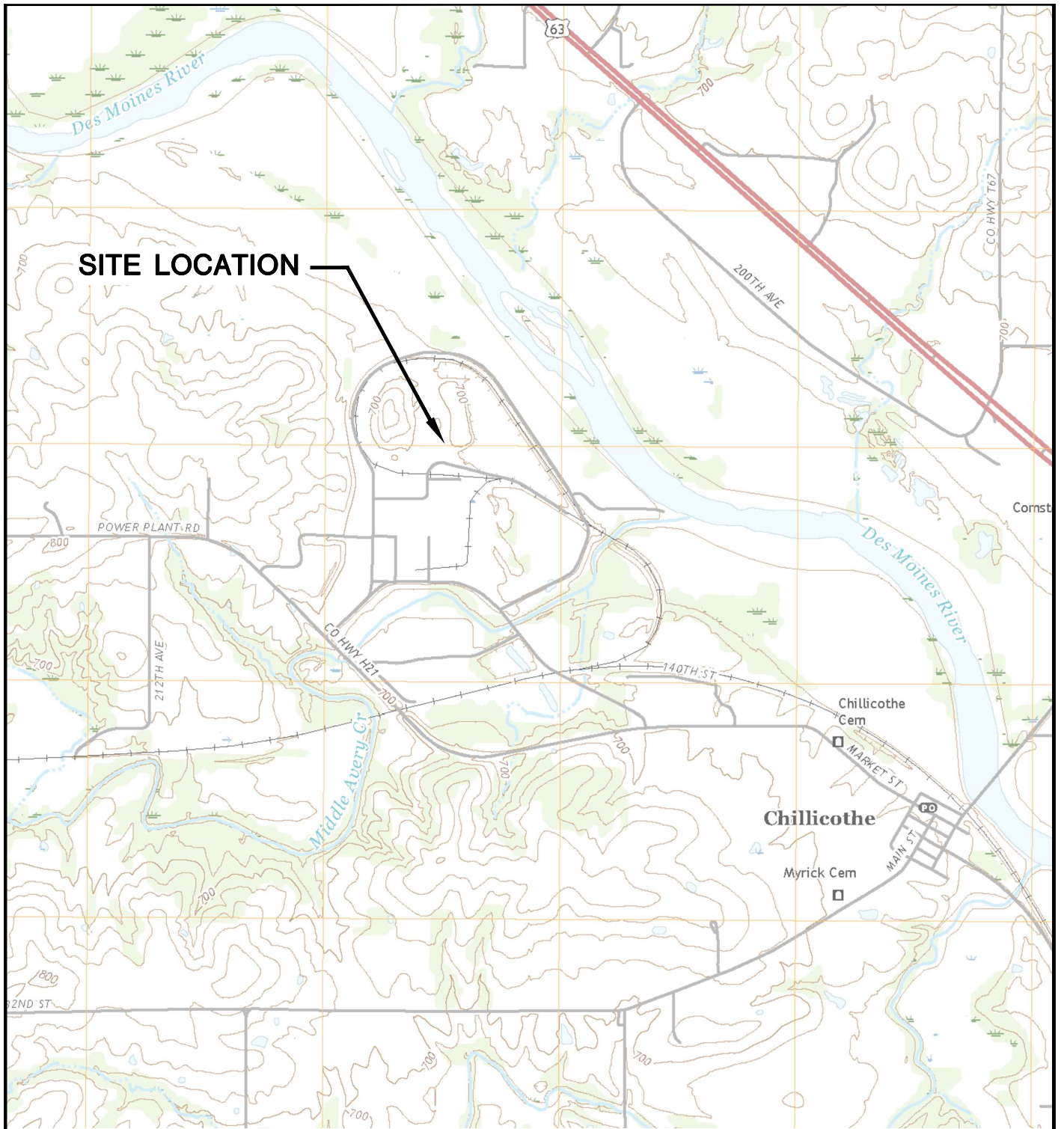
B = Background Sampling Event
B-R = Background Resampling event
NI - Not Installed

Add. = Additional Assessment monitoring sampling event
A-R = Assessment Monitoring Resampling Event

Created by: JAO Date: 7/8/2022
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Figures

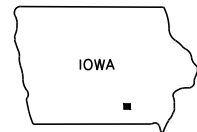
- 1 Site Location Map
- 2 Site Plan and Monitoring Well Locations



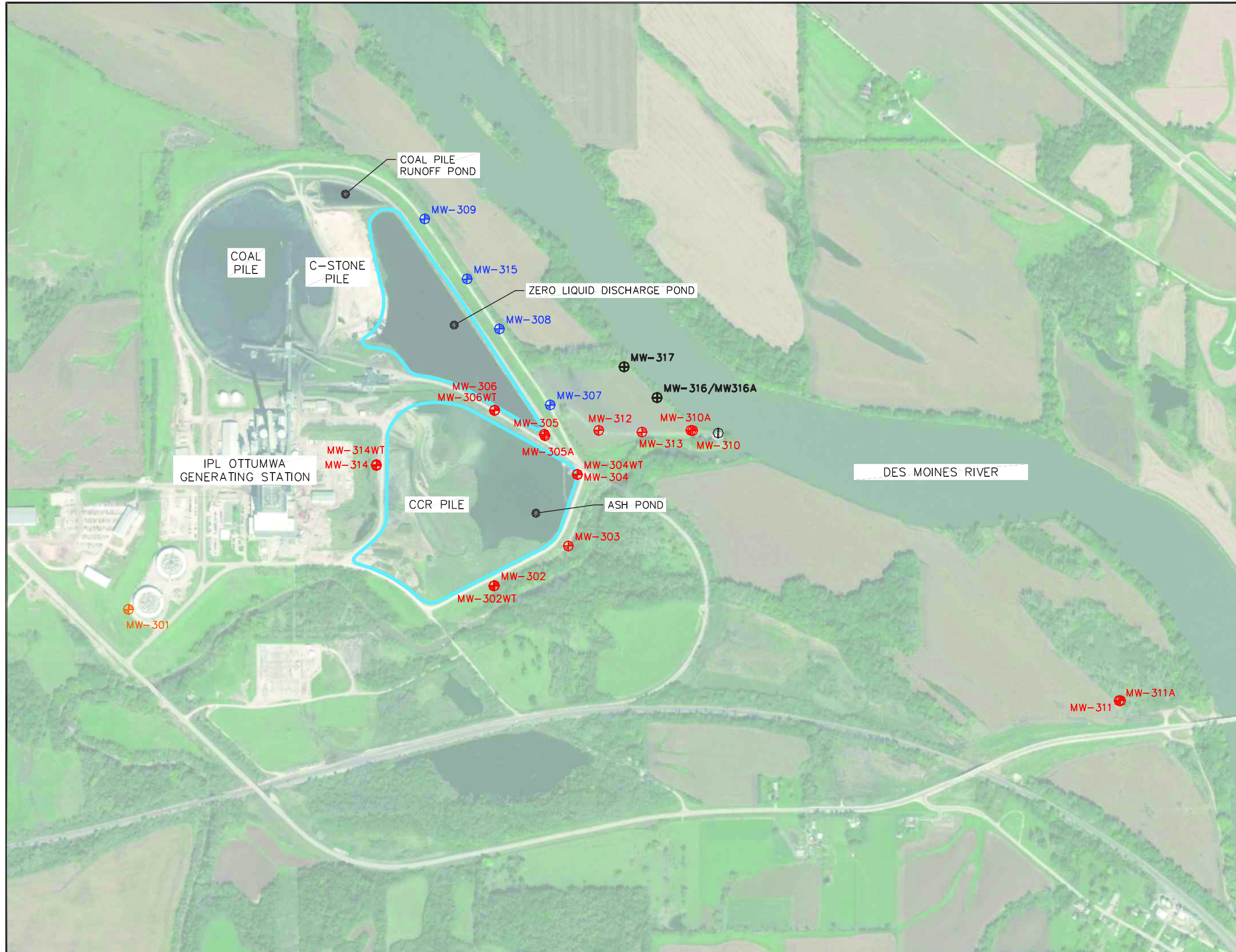
SITE LOCATION



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

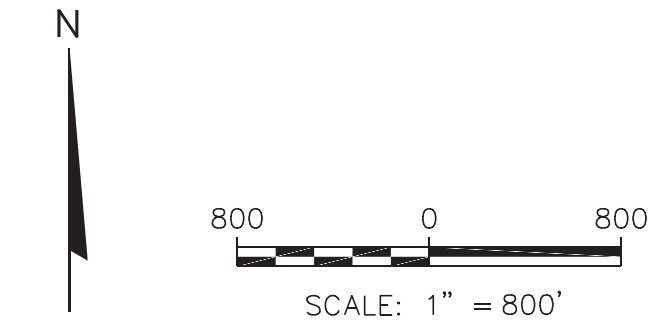


CLIENT	INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501		SITE	ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA		ENGINEER	SITE LOCATION MAP	
	PROJECT NO.	25219072.00		DRAWN BY:	BSS		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
DRAWN:	11/15/2019	CHECKED BY:	MDB	1				
REVISED:	01/10/2020	APPROVED BY:	TK 01/30/2020					



LEGEND	
	CCR UNIT
	CCR ZLDP MONITORING WELL
	CCR ASH POND MONITORING WELL
	CCR BACKGROUND MONITORING WELL
	RIVER ELEVATION MEASUREMENT LOCATION
	PROPOSED MONITORING WELL

- NOTES:
- 2014 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, 1-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AERGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
 - MONITORING WELLS MW-301, MW-302, AND MW-304, WERE INSTALLED BY CASCADE DRILLING, LLP. UNDER THE SUPERVISION OF SCS ENGINEERS FROM NOVEMBER 11-12, 2015.
 - MONITORING WELLS MW-303 AND MW-305 WERE INSTALLED BY CASCADE DRILLING LLP. UNDER THE SUPERVISION OF SCS ENGINEERS ON DECEMBER 7-8, 2015.
 - MONITORING WELLS MW-307, MW-308, AND MW-309 WERE INSTALLED BY CASCADE DRILLING, LLP. UNDER THE SUPERVISION OF SCS ENGINEERS FROM OCTOBER 25-27, 2016.
 - MONITORING WELLS MW-310 AND MW-311 WERE INSTALLED BY ROBERTS ENVIRONMENTAL DRILLING ON AUGUST 27, 2019.
 - MONITORING WELLS MW-305A, MW-310A, AND MW-311A WERE INSTALLED BY ROBERTS ENVIRONMENTAL DRILLING BETWEEN FEBRUARY 27, 2020 AND MARCH 3, 2020.
 - MONITORING WELLS MW-302WT, MW-304WT, MW-306WT, MW-314, AND MW-214WT WERE INSTALLED BY DIRECT PUSH ANALYTICAL ON APRIL 27-28, 2022.
 - MONITORING WELL MW-315 WAS INSTALLED BY DIRECT PUSH ANALYTICAL ON NOVEMBER 29, 2022.



PROJECT NO. 25220083.00	DRAWN BY: KP	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT INTERSTATE POWER AND LIGHT CO. 20775 POWER PLANT ROAD OTTUMWA, IA 52501	SITE ALLIANT ENERGY OTTUMWA GENERATING STATION OTTUMWA, IOWA	FIGURE 2
DRAWN: 07/07/2022	CHECKED BY: TK				
REVISD: 02/23/2023	APPROVED BY: TK 2/24/2023				

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