Annual Progress Report – Site-Specific Alternative Deadline to Initiate Closure of CCR Surface Impoundments

Burlington Generating Station
Burlington, Iowa 52601

Prepared for:

Interstate Power and Light Company
4282 Sullivan Slough Road
Burlington, Iowa 52601

SCS ENGINEERS

25219168.00 | November 29, 2022

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Table of Contents

Section Page

Figures

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1.0 INTRODUCTION AND PURPOSE

This Annual Progress Report was prepared to document the continued lack of alternative capacity and the progress towards closure of the coal combustion residual (CCR) surface impoundments at the Interstate Power and Light Company (IPL) Burlington Generating Station (BGS). Specifically, this report was prepared to comply with the requirements of 40 CFR 257.103(f)(2)(x) in the U.S. Environmental Protection Agency (U.S. EPA) regulations regarding the Disposal of CCR from Electric Utilities [40 CFR 257.50-107], or the "CCR Rule" (Rule).

2.0 BACKGROUND

2.1 ALTERNATIVE DEADLINE APPLICATION

The four existing unlined CCR surface impoundments at BGS are subject to the requirements of §257.101(a)(1). In November 2020, IPL submitted an application to demonstrate the absence of alternative capacity for managing CCR and non-CCR wastestreams (Application) and requested U.S. EPA approval to continue disposal of these wastestreams beyond April 11, 2021, as allowed by §257.103(f)(2). The application described IPL's plans to cease placing CCR and non-CCR wastestreams in the CCR surface impoundments and complete closure of the four unlined CCR surface impoundments by October 17, 2023. IPL transitioned Unit 1 at BGS to fire natural gas after coal-fired operations ended in 2021.

The U.S. EPA has determined that the Application is complete and that the April 11, 2021 deadline to cease receipt of waste in the CCR units is tolled. U.S. EPA has not taken additional action on the November 2020 demonstration as of the date this annual progress report was issued. IPL has pursued the actions identified in the November 2020 demonstration with some changes. IPL is also preparing an amendment to the November 2020 Closure Plan for Existing CCR Surface Impoundments to describe the changes, pending final approval of the closure design by the Iowa Department of Natural Resources (IDNR).

2.2 SITE INFORMATION AND MAPS

BGS is located along the west bank of the Mississippi River, about 5 miles south of the City of Burlington, in Des Moines County, Iowa (**Figure 1**). The address of the generating station is 4282 Sullivan Slough Road, Burlington, Iowa. In addition to the coal-fired generating station, the property also contains a coal stockpile, diesel and natural gas fueled combustion turbines, and four existing unlined CCR surface impoundments (Main Ash Pond, Upper Ash Pond, Economizer Ash Pond, and Ash Seal Pond).

2.3 GROUNDWATER

The four CCR units at the facility are monitored with a multi-unit groundwater monitoring system and are the subject of this Annual 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**.

In the November 2020 application, IPL provided certification of compliance with all other requirements of the CCR Rule as of the date of application submittal, including the requirement to conduct any necessary corrective action, as required in §257.103(f)(2)(iii). Lithium and molybdenum have been detected at statistically significant levels (SSL) above the groundwater protection

standard (GPS) in samples from more than one downgradient monitoring well at BGS. IPL has completed an Assessment of Corrective Measures and completed an addendum to the assessment. IPL is working to address these existing groundwater impacts through the CCR Rule Corrective Action process and is actively designing a remedy that complies with the requirements of §257.96-98.

3.0 ALTERNATIVE DISPOSAL CAPACITY ASSESSMENT

The November 2020 application described the following CCR and non-CCR wastestreams produced during plant operations. At the time of the application, these wastestreams were managed within the on-site CCR surface impoundments. Updates on the status of these wastestreams and information regarding the continued lack of alternative capacity are provided below.

CCR

The following CCR wastestreams are discussed in the November 2020 application:

- Bottom ash and sluice water
- Economizer ash and sluice water

The generation and placement of new CCR in the existing CCR surface impoundments ended in 2021 when the facility ceased coal combustion and began exclusively using natural gas as fuel. The only placement of CCR that occurred in the onsite CCR surface impoundments after December 31, 2021, is from the movement of existing CCR (CCR placed before December 31, 2021) within or between the CCR surface impoundments in preparation for closure activities.

Non-CCR

The following non-CCR wastestreams are discussed in the November 2020 application:

- Ash seal water
- Boiler makeup and blowdown
- Water treatment area floor drains and reverse osmosis (RO) system reject
- Plant floor drains
- Coal pile runoff
- Storm water

These wastestreams are no longer managed within any of the CCR units at BGS, with the exception of storm water that is generated within the CCR units themselves. There is no current on-site or off-site alternative capacity after a review of the on-site and off-site alternative capacity for disposal of the wet-handled CCR and sluice water or non-CCR wastestreams described above.

On-site Capacity

The assessment completed for the November 2020 application concluded that no current alternate on-site capacity exists for disposal of the wet-handled CCR and sluice water or non-CCR wastestreams produced at BGS. There has been no change in the availability of alternate on-site capacity at BGS since the previous annual progress report was issued.

The assessment completed prior to the November 2020 application also concluded that developing new on-site disposal capacity required IPL to close at least one of the CCR surface impoundments

first. Based on the original assessment, IPL developed plans to close the Ash Seal Pond in 2021 by removing the accumulated CCR and sediment from the impoundment. Once closed by removal, the Ash Seal Pond area would be prepared for the construction of new wastewater treatment facilities to manage non-CCR wastestreams following the plant refueling to natural gas.

Before IPL executed a contract for Ash Seal Pond closure and new wastewater pond construction, the evaluation of future disposal capacity for non-CCR wastestreams was revisited. The updated evaluation concluded that a new lined wastewater pond was not needed to manage non-CCR wastestreams. Instead, IPL developed a preliminary design for an alternative approach that routed non-CCR wastestreams through a hydrodynamic separator to reduce total suspended solids (TSS) concentrations. This revised approach, in combination with removal of the residual coal pile after cessation of coal combustion in Unit 1, provided the necessary future on-site treatment to discharge non-CCR wastestreams at BGS via currently-permitted National Pollutant Discharge Elimination System (NPDES) Outfall 001.

Once coal-fired operations ended and the Unit 1 boiler was operating exclusively using natural gas, IPL determined that the hydrodynamic separator was also unnecessary. IPL has since focused efforts on diverting non-CCR waste streams from the CCR surface impoundments and closing them. An update on the progress IPL has made toward closing the CCR surface impoundments is provided in Section 4.0.

Off-site Capacity

The assessment completed for the November 2020 application concluded that no current alternate off-site capacity exists for disposal of the wet-handled CCR and sluice water or non-CCR wastestreams produced at BGS. No additional alternative off-site disposal capacity has been identified by IPL since the previous annual progress report was issued.

4.0 CCR SURFACE IMPOUNDMENT CLOSURE

Since submitting the November 2020 application and issuing the annual progress report in November 2021, IPL has focused efforts on compliance with the requirements of §257.101(a)(1) and §257.103(f)(2), which includes ending the placement of CCR and non-CCR waste waters in the CCR units and completing closure of the CCR units no later than October 17, 2023.

IPL ended coal-fired operations at BGS on December 31, 2021, and continues to operate the Unit 1 boiler with natural gas. Since coal-fired operations ended, discharges of new CCR waste to the CCR units from coal-fired operations including bottom ash, economizer ash, and sluice water have ceased. Discharges of the non-CCR waste streams listed earlier in this section have also ceased with the exception of storm water from precipitation that falls within the impoundments.

IPL has made significant progress toward the closure of the CCR surface impoundments at BGS. The design and permitting work completed to date will help achieve closure by October 17, 2023. In addition to the completed design and permitting activities described above, IPL has completed the following activities since the previous annual report to achieve closure of all four unlined CCR surface impoundments at BGS by the closure deadline in §257.103(f)(2)(iv)(A):

- In October 2021, IPL excavated test pits in and around the ash ponds to evaluate site conditions and CCR behavior during excavation, moisture conditioning, and placement.

- From October to December 2021, IPL installed two groundwater dewatering pilot test wells near the Upper Ash Pond and the Ash Seal Pond, and completed a pump test to evaluate the design of a groundwater dewatering system for the ash pond closures.

- In November 2021, IPL began incorporating the results of preconstruction testing into the closure design for the ash pond. Design activities included updating material volumes that will be managed during closure, grading design, geotechnical evaluations, excavation planning, and water management planning. The design effort is now complete.

- In January 2022, IPL began incorporating pond closure contractor pre-construction testing feedback into permitting for ash pond closure activities. The permitting effort is complete with the exception of the state-level Closure Permit that is anticipated in during the upcoming winter. The following permits were applied for and obtained during the current reporting period:

  - Submitted Joint Permit Application amendment on April 4, 2022, resulting in no permit required by the IDNR and US Army Corps of Engineers (USACE) re-authorization of temporary wetland impacts and storm water outfall construction under Nationwide Permits No. 7 and No. 14 on June 1, 2022.

  - Submitted application for Des Moines County floodplain permit for CCR surface impoundment closure on Aprils 15, 2022, and received permit approval on June 1, 2022.

  - Submitted application for Des Moines County temporary access driveway permit for the alternative site entrance from Sullivan Slough Road on April 18, 2022, and received permit approval on May 17, 2022.

  - Amended coverage under IDNR NPDES General Permit No. 2 for Storm Water Associated with Land Disturbing Construction Activity by updating the Storm Water Pollution Prevent Plan (SWPPP) to include the full impoundment closure project scope.

  - Submitted updated application materials to IDNR for low-volume wastewater system changes on March 9, 2022, and received wastewater Construction Permit No. 2022-0337-S on April 12, 2022.

  - Submitted application for Des Moines County well construction permit for the installation of full-scale groundwater dewatering system wells on April 21, 2022, and received permit approval on April 25, 2022.

  - Finalized updates to the Water Well Pollution Prevention Plan on June 15, 2022, for IDNR NPDES General Permit No. 6 (GP6) coverage needed to install and develop the full-scale groundwater dewatering system wells.

  - Prepared updates to the Dewatering Pollution Prevention Plan (DwPPP) and submitted an electronic Notice of Intent (eNOI) including a Temporary and Limited (T&L) Antidegradation request to IDNR on August 17, 2022, seeking NPDES General Permit No. 9 (GP9) coverage for operation of the full-scale groundwater

dewatering system. GP9 coverage and T&L Antidegradation approval were received on August 17, 2022, for discharges until November 30, 2022.

  - Submitted an eNOI including a full Antidegradation request to IDNR on November 3, 2022, seeking NPDES General Permit No. 9 (GP9) coverage for continued operation of the full-scale groundwater dewatering system after November 30, 2022. Updated GP9 coverage and Antidegradation approval were received on November 3, 2022, for discharges until June 30, 2023.

  - Submitted a T&L Antidegradation request to IDNR on September 23, 2022, seeking approval for the chemical additives Ames Construction proposed to use in the CCR contact water treatment system to be used during CCR excavation activities in 2023.

- In February 2022, following receipt of pilot-test data from their preconstruction services contractor, IPL began evaluating discharge requirements for a full-scale groundwater dewatering system to support the ash pond closure.

- In March 2022, IPL executed a contract for non-CCR wastewater reroute and CCR surface impoundment closure construction with Ames Construction.

- In May and June 2022, Ames Construction mobilized to BGS to begin the ash pond closures. They installed erosion control best management practices (BMPs) and began developing infrastructure needed to support pond closure construction.

- In May and early June 2022, Ames Construction removed free surface water from the Main Ash Pond and Economizer Pond.

- In June through August 2022, Ames Construction installed temporary groundwater dewatering wells around the Ash Seal Pond and Upper Ash Pond where CCR will be removed during closure. They also prepared areas of the Main Ash Pond and Economizer Pond where CCR will be consolidated for closure. The west, south, and north slopes of the Economizer Pond were regraded to provide sufficient stability for a final cover system. Dewatering infrastructure development was completed in October 2022, and the temporary groundwater dewatering system is currently operating to remove free liquids.

- In July 2022, Ames Construction began installing new infrastructure to divert non-CCR wastewater and storm water away from the ash ponds. These efforts were completed in October 2022.

- In July 2022, vibrating wire piezometers were installed in the Main Ash Pond and Economizer Ash Pond in preparation of CCR consolidation.

- In July through early September 2022, Ames Construction established access to/from the Ash Seal Pond, developed dewatering infrastructure within the Ash Seal Pond, started dewatering activities, and began CCR removal. These efforts will continue into the next reporting period.

- In October and November 2022, Ames Construction completed CCR removal and geotechnical berm buttress construction between the Economizer Ash Pond and the Upper Ash Pond.

Currently, the CCR surface impoundment closures are on track to be completed by October 17, 2023, as planned. Updates to the CCR Closure Plan will be completed in 2022, pending final approval of the pond closure designs by the IDNR.

5.0 REFERENCES

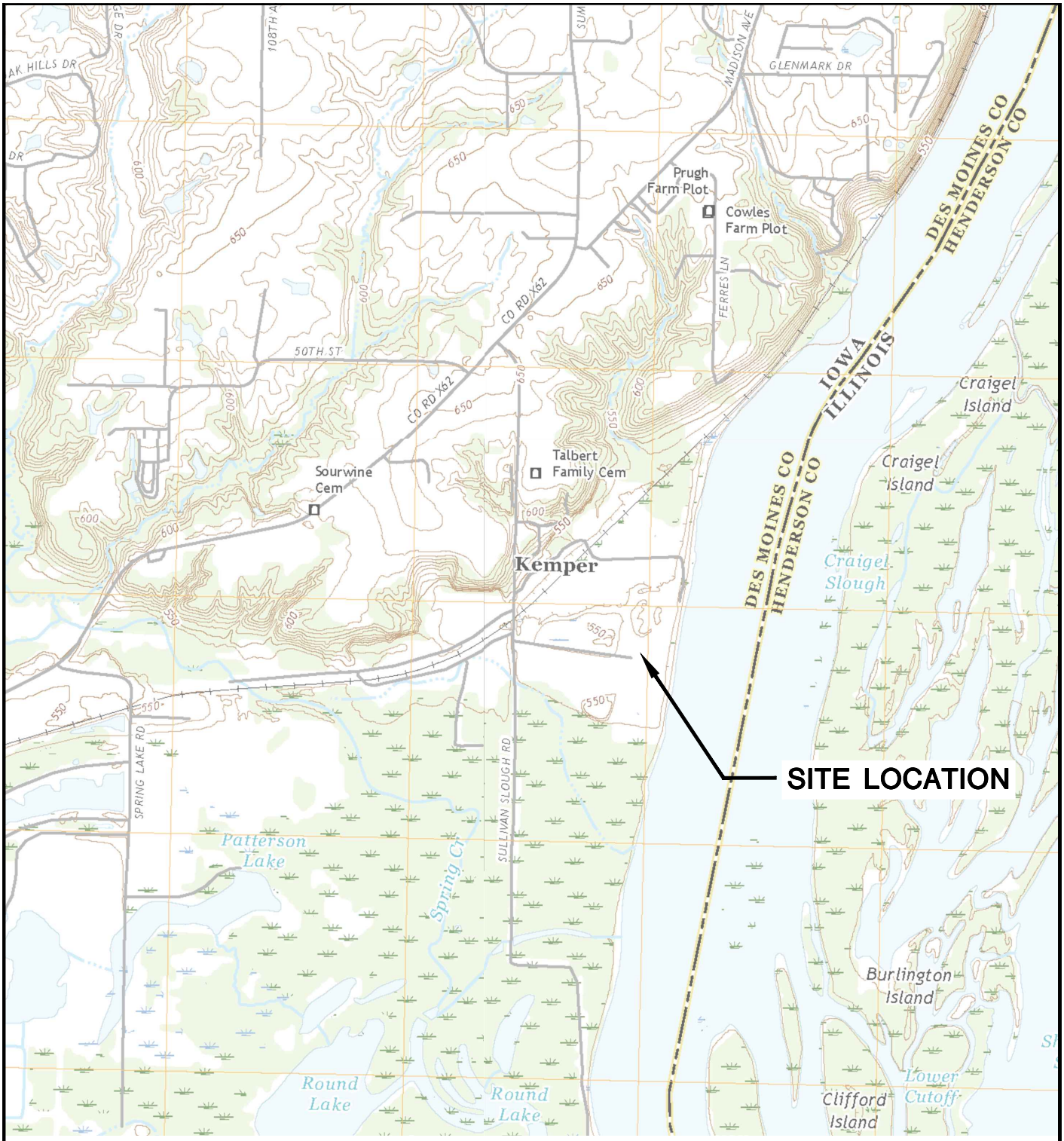
SCS Engineers, 2020, Application for Site-Specific Alternative Deadline to Initiate Closure of CCR Surface Impoundments – Burlington Generating Station, Burlington, IA: Madison, WI, November 24, 2020.

SCS Engineers, 2021, Annual Progress Report – Site-Specific Alternative Deadline to Initiate Closure of CCR Surface Impoundments – Burlington Generating Station, Burlington, IA: Madison, WI, November 30, 2021.

SCS Engineers, 2022, Semiannual Progress Report, Selection of Remedy – Burlington Generating Station, Burlington, IA: Madison, WI, March 11, 2022.

SCS Engineers, 2022, Semiannual Progress Report, Selection of Remedy – Burlington Generating Station, Burlington, IA: Madison, WI, September 12, 2022.

Figures



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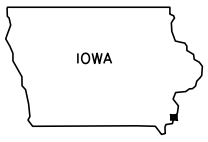
LOMAX QUADRANGLE
ILLINOIS / IOWA–DES MOINES CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'



CLIENT	ALLIANT ENERGY 4902 N. BILTMORE LANE, #1000 MADISON, WI 53718	SITE	ALLIANT ENERGY BURLINGTON GENERATING STATION BURLINGTON, IOWA

SITE LOCATION MAP

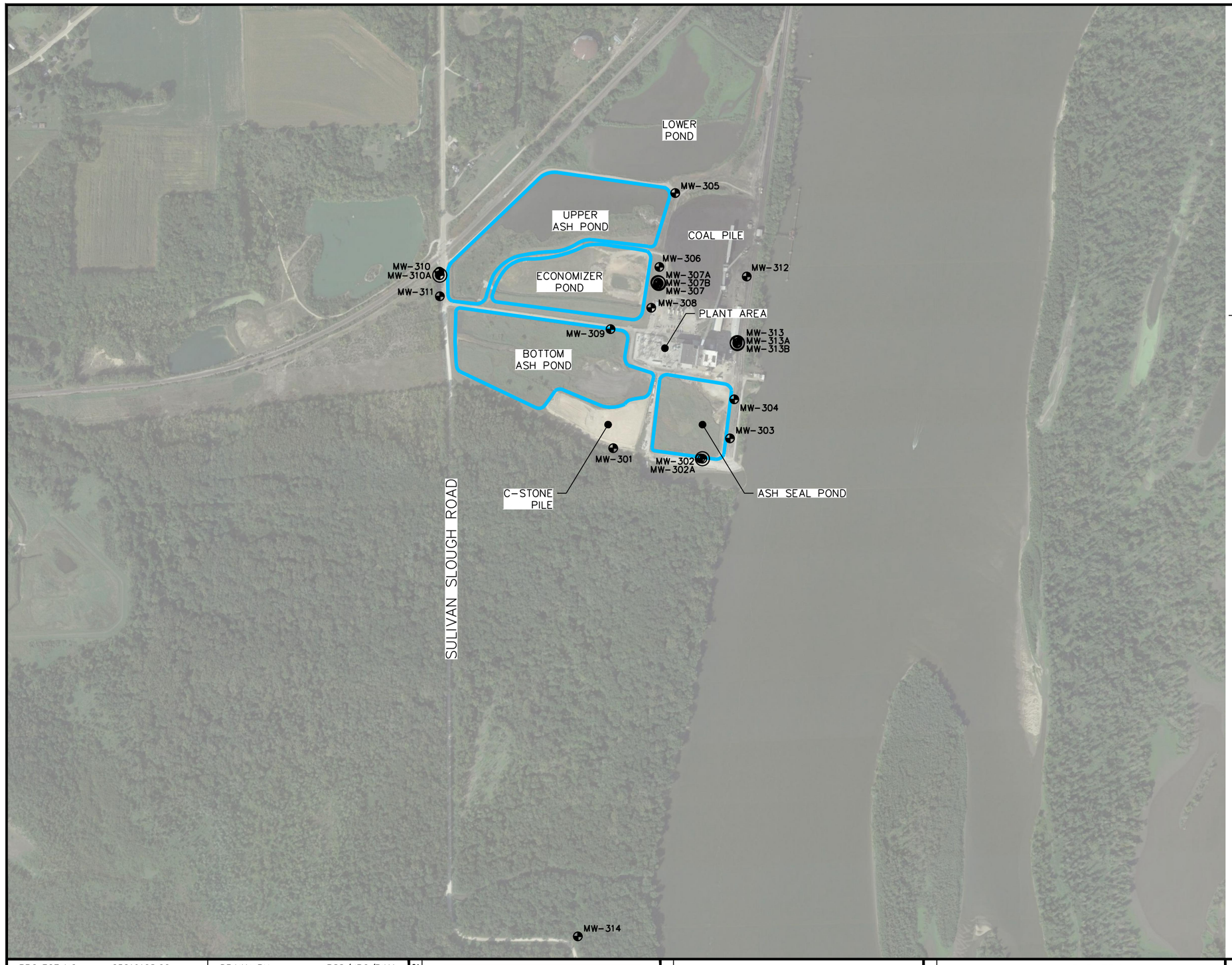
PROJECT NO.	25219066.00	DRAWN BY:	BSS
DRAWN:	11/14/2019	CHECKED BY:	MDB
REVISED:	01/14/2020	APPROVED BY:	TK 01/30/2020

ENGINEER

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

FIGURE
1

I:\25219066.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:35:22 PM



LEGEND

- CCR RULE MONITORING WELL
- CCR RULE PIEZOMETER
- CCR UNITS

NOTES:

1. MONITORING WELLS MW-303 THROUGH MW-308 WERE INSTALLED BY CASCADE DRILLING, LLP. UNDER THE SUPERVISION OF SCS ENGINEERS ON DECEMBER 15-17, 2015.
2. MONITORING WELLS MW-301, MW-302, AND MW-309 THROUGH MW-311 WERE INSTALLED BY DIRECT PUSH ANALYTICAL SERVICES CORP. UNDER THE SUPERVISION OF SCS ENGINEERS FROM FEBRUARY 29, 2016 TO MARCH 1, 2016.
3. MONITORING WELLS MW-312 AND MW-313 WERE INSTALLED BY ROBERTS ENVIRONMENTAL DRILLING IN MAY 2019.
4. PIEZOMETERS MW-302A, MW-307A, MW-310A, AND MW-311A WERE INSTALLED BY ROBERTS ENVIRONMENTAL DRILLING IN JUNE-JULY 2020.
5. PIEZOMETERS MW-307B AND MW-313B INSTALLED BY CASCADE DRILLING, LLP. UNDER THE SUPERVISION OF SCS ENGINEERS FROM AMY 10-12, 2021.
6. MONITORING WELL MW-314 INSTALLED BY TERRACON CONSULTANTS, INC. UNDER THE SUPERVISION OF SCS ENGINEERS ON FEBRUARY 25, 2022.
7. 2017 AERIAL PHOTOGRAPH SOURCES: GOOGLE EARTH DATED SEPTEMBER 14, 2017.

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700 0 700

SCALE: 1" = 700'

PROJECT NO.	25219168.00	DRAWN BY:	BSS/KRG/BWM
DRAWN:	09/14/2020	CHECKED BY:	RM
REVISED:	11/22/2022	APPROVED BY:	EJN, 11/28/2022

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SITE

ALLIANT ENERGY
BURLINGTON GENERATING STATION
BURLINGTON, IOWA

SITE PLAN AND MONITORING WELL LOCATIONS

FIGURE 2

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