

# 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 30, 2021

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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 (USEPA) 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 USEPA 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 by December 31, 2021, and will complete closure of the four unlined CCR surface impoundments by October 17, 2023. IPL is planning to transition Unit 1 at BGS to be fired with natural gas after the cessation of coal-fired operations by December 31, 2021. USEPA approval of the November 2020 application is pending as of the date of this report.

### 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**.

Groundwater flow at the site is generally to the south-southeast, 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 less than 1 to 15 feet below ground surface due to topographic variations across the facility and seasonal variations in water levels.

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. These wastestreams are wet handled or are wastewaters managed within the on-site CCR surface impoundments.

#### **CCR**

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

Note: Placement of CCR in the existing CCR surface impoundments will end by 12/31/2021 when the facility ceases coal combustion and begins exclusive use of natural gas as fuel.

#### **Non-CCR**

- 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

A portion of the CCR generated at BGS (fly ash) is dry-handled and managed off site through beneficial use, and IPL intends to continue beneficially using CCR when and where it is appropriate.

It was concluded in the November 2020 application that 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. All four CCR surface impoundments are subject to the closure requirements in 40 CFR §257.101(a). Additionally, there are no additional on-site impoundments that can be placed into service to provide alternative on-site disposal capacity. No current alternate on-site capacity in the form of tanks is available. Based on the flows described above and on Figure 6 of the November 2020 application, an average of 2.673 million MGD and up to 7.86 MGD (approximately 1,850 gallons per minute [gpm] or up to 5,400 gpm) of CCR and non-CCR wastestreams need to be treated. This would require as many as 100 temporary portable weir tanks with a capacity of 50 gpm for a 6-hour residence time (CCG, 2020) and an estimated 3 acres of space (minimum) to manage these wastestreams on site. There is not 3 acres of available space within the developed areas of the site, and space to the north, south, or west cannot be developed without extensive permitting and impacts to the environment, as described below. This number of tanks also creates a risk of

leaks in the interconnected piping, which would be considered an unauthorized bypass by the facility's NPDES permit. For these reasons, the installation of a temporary tank farm is not considered a feasible option at BGS.

IPL owns land to the south of the current plant (see Figure 7 of the November 2020 application), but those areas are forested wetlands (USFWS, 2020). The impacts to the environment, including endangered species, would also be significant based on preliminary reviews of species in the area of BGS (Impact7G, 2020). IPL does not own additional land to the west or north of the site that can be used for operations without significant environmental impact and permitting delays due to the presence of wetlands (USFWS, 2020) and the 100-year floodplain (Des Moines Co., 2020). The Mississippi River is directly east of the plant, and it is not possible to develop capacity within a major waterway due to the environmental impact and because it would encroach on floodways.

## **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 alternative off-site disposal capacity has been identified by IPL since the submittal of the application. Alternative treatment and disposal of some of these wastestreams using publicly owned treatment works (POTW) might be possible if BGS was located in an existing service area of a local POTW, and it was allowed under current regulations for the facility to accept the wastestream. However, the facility is not located in an existing POTW service area, and there is no existing connection to a POTW that provides conveyance of the wastestreams from BGS. Off-site disposal of these wastestreams at a POTW would require IPL to develop significant new infrastructure, including pumps, interconnected piping, tanks, and loadout equipment for hauling by trucks, or new conveyance infrastructure (a force main and lift station) to send wastewaters off site. Hauling these wastestreams off site for treatment and disposal is not feasible based on the number of trucks and truckloads required to transport the wastewater (estimated at over 560 truckloads per day, on average, assuming a 7,500 gallon tanker truck is used to take wastewater to a POTW approximately 5 miles away). This number of truckloads would require a truck to fill and depart BGS every 2 to 3 minutes for 24 hours each day, which is not feasible or safe. The number of trucks required to travel the rural highway and residential streets between BGS and the POTW also presents a safety hazard. Off-site capacity has been evaluated but is not available for the reasons stated above.

## **Future Capacity**

Since submitting the November 2020 application, 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.

Following the cessation of coal combustion in Unit 1, management of non-CCR wastestreams will require the construction of new infrastructure. The design for this new infrastructure is currently being finalized and requires significant permitting and changes to coal pile runoff management.

The assessment completed prior to the November 2020 application 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. IPL completed the following since submitting the November 2020 application to implement this approach:

- Planned/designed the Ash Seal Pond closure, including a suitable on-site CCR disposal location, a dewatering plan, and excavation design.
- Planned/designed a new lined pond to provide total suspended solids (TSS) treatment, sizing, and rerouting wastewater flows.
- Permitted the Ash Seal Pond closure.
- Initiated and partially completed new wastewater pond construction permitting.
- Obtained bids for closure of the Ash Seal Pond and new wastewater pond construction.

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 will route non-CCR wastestreams through a hydrodynamic separator to reduce TSS concentrations. This revised approach, in combination with removal of the residual coal pile after cessation of coal combustion in Unit 1, will provide the necessary future on-site treatment to discharge non-CCR wastestreams at BGS via currently-permitted NPDES Outfall 001. IPL will implement this new alternate approach in conjunction with CCR surface impoundment closure activities. The new approach for managing non-CCR wastestreams does not impact the facility's plans to complete closure of the CCR surface impoundments by October 17, 2023. An update on the progress IPL has made toward closing the CCR surface impoundments is provided in **Section 4.0**.

## 4.0 CCR SURFACE IMPOUNDMENT CLOSURE

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 November 2020 application was submitted to achieve closure of all four unlined CCR surface impoundments at BGS by the closure deadline in [§257.103\(f\)\(2\)\(iv\)\(A\)](#):

- Completed planning and preliminary design of the main ash pond, economizer pond, and upper ash pond closures.
- Issued a request for proposals (RFP) and obtained impoundment closure proposals based on preliminary design.
- Procured pre-construction services support from a pond closure contractor.
- Initiated pre-construction services, including additional site investigation consisting of:
  - Installing additional test pits in the impoundments
  - Evaluating CCR moisture conditioning
  - Permitting and installing groundwater dewatering pilot test wells
  - Conducting groundwater dewatering pump tests
  - Conducting constructability and value engineering reviews.
- Identified permits required to complete closures and initiated drafting of permit applications.
- Initiated final impoundment closure design activities.

Currently, the CCR surface impoundment closures are on track to be completed by October 17, 2023, as planned. IPL plans to close the impoundments as generally described in the Closure Plan

for Existing CCR Surface Impoundments, Amendment No. 1 submitted with the November 2020 application, with the exception of the previously estimated timing of the Ash Seal Pond closure and new wastewater pond construction. The Ash Seal Pond closure will be completed in 2022, and the new wastewater pond construction has been eliminated based on an updated needs assessment and replaced with alternate treatment for the non-CCR wastestreams that will exist after the cessation of coal-fired operations at BGS. Updates to the CCR Closure Plan will be completed upon approval of the pond closure designs by the Iowa Department of Natural Resources.

## 5.0 REFERENCES

Continental Carbon Group (CCG), 2020, Weir Tanks for Rent Website, Accessed October 19, 2020, <https://continental-carbon.com/services/weir-tanks-for-rent/>.

Des Moines County, Iowa, 2020, Des Moines County GIS Mapping Application, Accessed October 16, 2020, <https://www.dmcgis.com/map/>.

Impact7G, Inc., 2020, Threatened and Endangered Species Preliminary Review, Burlington Generating Station Pond Closure, February 20, 2020.

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.

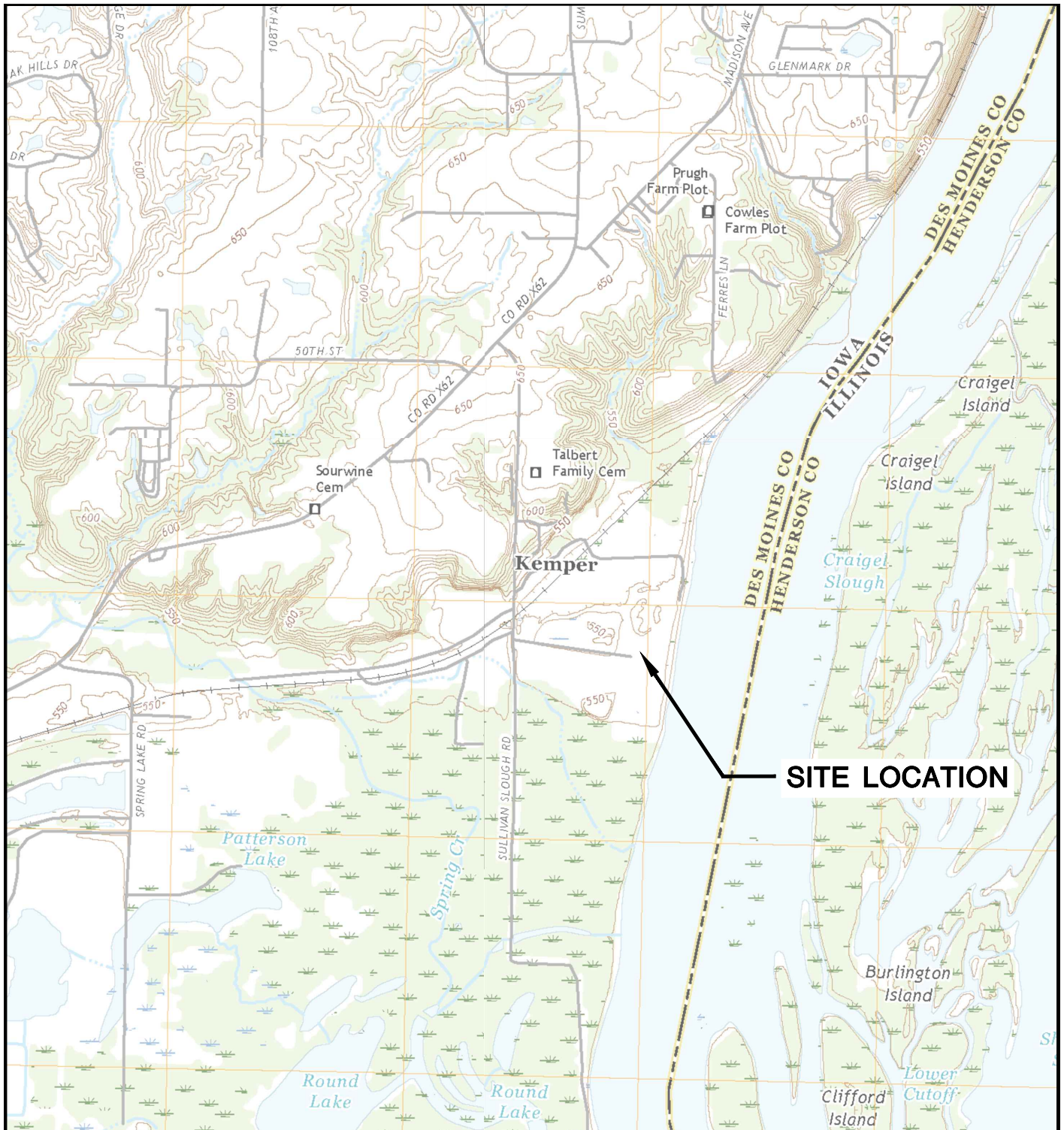
SCS Engineers, 2021, Semiannual Progress Report, Selection of Remedy – Burlington Generating Station, Burlington, IA: Madison, WI, September 10, 2021.

United States Fish and Wildlife Service (USFWS) National Wetlands Inventory online Wetlands Mapper, Accessed October 16, 2020, <https://www.fws.gov/wetlands/Data/Mapper.html>.

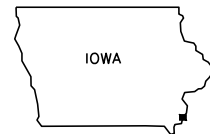


## Figures

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



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		ENGINEER	SITE LOCATION MAP	
	PROJECT NO.	25219066.00		DRAWN BY:	BSS		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
	DRAWN:	11/14/2019		CHECKED BY:	MDB			1
REVISED:	01/14/2020	APPROVED BY:	TK 01/30/2020					

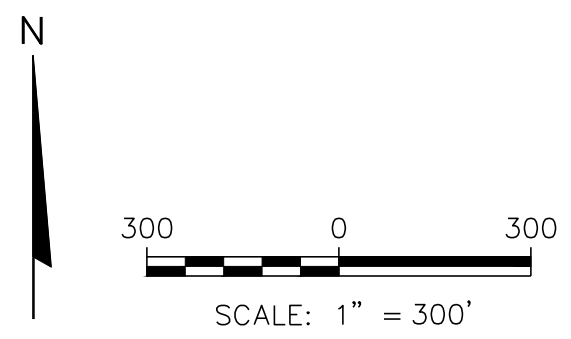
I:\25219066.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:35:22 PM



LEGEND

	EXISTING 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. 2018 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AEROGRIID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.



PROJECT NO. 25221066.00	DRAWN BY: BSS/KRG	<b>SCS ENGINEERS</b> 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT ALLIANT ENERGY 4902 N. BILTMORE LANE, #1000 MADISON, WI 53718	SITE ALLIANT ENERGY BURLINGTON GENERATING STATION BURLINGTON, IOWA	FIGURE 2
DRAWN: 09/14/2020	CHECKED BY: MDB				
REVISD: 08/05/2021	APPROVED BY: TK 8/17/2021				