

# Semiannual Progress Report Selection of Remedy – Lansing Generating Station

Lansing Generating Station  
Lansing, Iowa

Prepared for:

Alliant Energy



**SCS ENGINEERS**

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## 1.0 INTRODUCTION AND PURPOSE

The Semiannual Progress Report for remedy selection at the Interstate Power and Light Company (IPL) Lansing Generating Station (LAN) was prepared to comply with U.S. Environmental Protection Agency (USEPA) 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 LAN Landfill and Upper Ash Pond was completed on September 12, 2019. The ACM was completed in response to the detection of arsenic at a statistically significant level (SSL) above the Groundwater Protection Standard (GPS) in groundwater samples from downgradient monitoring well MW-302. An ACM Addendum was completed on November 25, 2020.

This Semiannual Progress Report summarizes data collected and remedy evaluation progress made since the September 2019 ACM and November 2020 ACM Addendum, and outlines planned future activities to complete the selection of remedy process. This semiannual progress report covers the 6-month period of September 2021 through February 2022.

### 1.2 SITE INFORMATION AND MAPS

LAN is located along the west bank of the Mississippi River, south of the City of Lansing, in Allamakee County, Iowa. The address of the generating station is 2320 Power Plant Drive in Lansing, Iowa (**Figure 1**). The facility includes a coal-fired generating plant, a CCR landfill, the LAN Upper Ash Pond, and a coal stockpile. LAN will cease operations by the end of 2022.

The two CCR units at the facility (LAN Landfill and Upper Ash Pond) are monitored with a multi-unit groundwater monitoring system and 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 as **Figure 2**.

Groundwater flow at the site is generally to the north-northwest, 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 75 feet below ground surface due to topographic variations across the facility and seasonal variations in water levels.

## 2.0 SUMMARY OF WORK COMPLETED

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

### 2.1 MONITORING NETWORK CHANGES

There were no additional changes to the LAN monitoring well network between September 2021 and February 2022. The monitoring well locations are shown on **Figure 2**.

## 2.2 GROUNDWATER MONITORING

Since the September 2021 semiannual update, groundwater samples were collected during two events in August and October 2021. The two events included the following:

- Groundwater samples and water levels were collected in August 2021 for a full analysis of assessment monitoring parameters for wells MW-307 and MW-307A, which were newly installed in July 2021.
- The October monitoring event was part of the routine semiannual assessment monitoring program. The wells sampled and water levels measured included the wells in the original monitoring program (MW-6, MW-301, MW-302, and MW-303) and eight additional wells (MW-302A, MW-304, MW-304A, MW-305, MW-306, MW-306A, MW-307, and MW-307A).

A surface water sample was collected in February 2022. The sample was obtained from the combined outfall and stream water located immediately north of monitoring well MW-302. A full round of monitoring well and staff gauge measurements was also performed in February 2022. Both CCR Rule monitoring wells and state monitoring program wells were included.

A summary of groundwater samples collected since submittal of the ACM is provided in **Table 2**.

## 2.3 STATISTICAL EVALUATION

Statistical evaluation of sampling results during the period covered by this update was discussed in the 2021 Annual Groundwater Monitoring and Corrective Action Report, dated January 31, 2022. Based on the October 2021 statistical evaluation, the SSLs above the GPS include arsenic at compliance well MW-302 and molybdenum at delineation well MW-304A. Both SSLs are consistent with previous results at LAN.

## 2.4 LANDFILL AND ASH POND CLOSURE

IPL completed permitting required for preconstruction testing and conducted the following activities in support of the landfill and ash pond closure. The information obtained from each of these activities will be used to further evaluate corrective measure alternatives 3 through 8 since the activities described below are relevant to alternatives that include excavation, consolidation, or capping.

- In August 2021, IPL performed test pits in and around the Upper Ash Pond to evaluate site conditions and CCR behavior during excavation, moisture conditioning, and placement.
- In August and September 2021, IPL performed test fills on the CCR in the Upper Ash Pond. Geotechnical monitoring instruments including settlement plates and vibrating wire piezometers were installed in the test fills and underlying CCR. Settlement plate monitoring was conducted through mid-December 2021. Monitoring of the vibrating wire piezometers is ongoing.
- In October 2021, IPL installed four groundwater dewatering pilot-test wells along the west side of the Upper Ash Pond and completed a pump test to evaluate the design of a groundwater dewatering system for the closure of the Upper Ash Pond.

- In October 2021, IPL also pilot-tested in-situ stabilization of CCR using portland cement grout within the Upper Ash Pond. The closure of the Upper Ash Pond will utilize in-situ stabilization to improve the shear strength of a select portion of the existing CCR within the pond. The shear strength improvements will facilitate the consolidation and capping of CCR within the Upper Ash Pond.
- In October and November 2021, IPL completed a small-scale test of CCR dredging and dewatering methods at the Upper Ash Pond. Approximately 1,000 cubic yards of CCR was dredged from the northern open water portion of the ash pond into geotextile tubes staged at the south end of the pond to evaluate the method for CCR removal and the CCR moisture conditions in the geotextile tubes over the month following the test dredging.
- In November 2021, IPL began incorporating the results of preconstruction testing into the closure design for the landfill and ash pond. Design activities included updating material volumes that will be managed during closure, grading design, geotechnical evaluations, dredging/excavation planning, and water management planning. The design effort is ongoing.
- In January 2022, IPL began developing permit applications for ash pond closure activities. The permitting effort is ongoing.
- In February 2022, IPL completed an evaluation of a nearby off-site fill source that will be used during the closure of the Upper Ash Pond. A significant volume of imported soil is required to backfill portions of the ash pond where CCR is removed for closure. The evaluation supports the procurement of a local source of material to support the pond closure.
- 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.

Landfill and ash pond closure activities are included in the summary provided 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 and revised in the November 2020 ACM Addendum #1. **Table 3** summarizes the assessment completed for the ACM Addendum.

The ACM Report and ACM Addendum were originally prepared based on the potential relationship of the arsenic impacts to the disposal of CCR. Based on continued assessment of the nature and extent of arsenic, current data indicate that the source of the arsenic is unrelated to the dry ash landfill and ash pond.

The ACM Report originally presented closure and capping in-place with monitored natural attenuation as Alternative 2. Based on the absence of relationship between the presence of arsenic in groundwater and the dry ash landfill and ponds, IPL revisited the proposed alternatives within the ACM and monitored natural attenuation is no longer a component of the remedy. This will be presented in further detail as IPL finalizes the Selection of Remedy report.

## **2.6 PUBLIC MEETING**

In accordance with 40 CFR 257.96(e), IPL held a public meeting to discuss the ACM on October 12, 2020. The meeting was open to interested and affected parties, and, due to the COVID-19 pandemic, was held virtually using an interactive online meeting platform.

IPL conducted a second public meeting to discuss the content of the ACM Addendum on January 11, 2022. Again, the meeting was open to interested and affected parties, and was conducted on the same interactive online meeting platform used for the October 2020 meeting.

## **3.0 PLANNED ACTIVITIES**

Planned activities within the next reporting period include the following:

- Continue semiannual assessment monitoring for the existing monitoring well network and new monitoring wells.
- Perform quarterly monitoring for arsenic at monitoring well MW-306.
- Continued evaluation of groundwater flow and groundwater quality.
- Update conceptual site model based on findings of the ongoing groundwater sampling.
- Complete the Selection of Remedy report.
- Complete ash pond closure design and permitting.
- Initiate Upper Ash Pond closure construction.
- Advance landfill closure design and permitting.

## Tables

- 1 Timeline for Completed Work – Selection of Remedy
- 2 CCR Rule Groundwater Samples Summary
- 3 Preliminary Evaluation of Corrective Measure Alternatives



## Figures

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- 2 Site Plan and Monitoring Well Locations