

# 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 (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 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 No. 1, and outlines planned future activities. This semiannual progress report covers the 6-month period of September 2022 through February 2023.

IPL has continued to evaluate the source of the arsenic GPS exceedance since the November 2020 ACM was submitted and it appears that it is not associated with the CCR units. A second ACM addendum is being prepared to update the current No-Action alternative since further investigation has concluded there are no GPS exceedances associated with the CCR Units. Following the completion of ACM Addendum No. 2, a selection of remedy report will be prepared as a continuation of the ACM process.

### 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 coal-fired generating plant at LAN ceased coal-fired electric generating activities at the end of 2022 and is currently being decommissioned. The facility also includes a CCR landfill (LAN Landfill) and a CCR settling pond (LAN Upper Ash Pond), which will be closed.

The two CCR units at the facility (LAN Landfill and LAN 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 LAN Upper Ash Pond is summarized in **Table 1A**. Work completed on the landfill and impoundment closures 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

There were no changes to the LAN monitoring well network between September 2022 and February 2023. The monitoring well locations are shown on **Figure 2**.

### 2.2 GROUNDWATER MONITORING

Since confirmation of the arsenic exceedance in MW-302, multiple groundwater samples have been collected from the site to understand the nature and extent of any arsenic release. Prior to this reporting period, IPL continued with assessment monitoring and also collected samples from eight delineation wells on site for groundwater quality parameters (dissolved arsenic, total and dissolved iron, magnesium, total and dissolved manganese, dissolved molybdenum, potassium, sodium, total, carbonate, and bicarbonate alkalinity). This and supporting data indicate that a source other than the CCR units is likely causing the exceedance, such as a change in the geochemistry immediately at or around monitoring well MW-302 due to the presence of organic carbon in the soil. Samples have also been collected from an additional monitoring well installed at the downgradient waste boundary, an underground intercept drain along the waste boundary, and nearby surface waters; all additional samples indicate the CCR units are not the source of the arsenic concentrations above the GPS in groundwater samples from MW-302. Additional information is presented in **Section 2.5**.

Since the September 2022 semiannual update, groundwater samples were collected during one event in October 2022. The one event included the following:

- 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 full round of monitoring well and staff gauge measurements was also performed in October 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 will be discussed in the 2023 Annual Groundwater Monitoring and Corrective Action Report, due on January 31, 2024. Based on the statistical evaluation completed for the October 2022 monitoring event, the only SSL above the GPS at a compliance well was for arsenic at well MW-302. This SSL is consistent with previous results at LAN.

## 2.4 LANDFILL AND ASH POND CLOSURE

IPL will close the LAN Landfill in 2023 by placing a final cover over the remaining active area. IPL will close the Upper Ash Pond in 2023 by a combination of CCR removal, consolidation within the CCR surface impoundment limits, and in-place closure with a cap. Closure by removal will be performed in the North Pond Closure Area (northern portion of the Upper Ash Pond) and consolidated to the South Pond Closure Area (southern portion of the Upper Ash Pond). In-place CCR and consolidated CCR, coal, and coal-impacted soil relocated to the South Pond Closure Area during the planned decommissioning/closure activities at LAN will be capped with a low-permeability soil cover. Key activities completed during the reporting period included:

- Hydraulic dredging in the LAN Upper Ash Pond and dewatering of CCR using geotubes was completed in late 2022. Some CCR excavation and decommissioning material consolidation was conducted.
- Permitting and construction of temporary groundwater dewatering wells was completed.
- IPL completed and submitted an application for the state sanitary disposal project closure permit for the LAN Landfill. Iowa Department of Natural Resources (IDNR) issued an updated sanitary disposal project permit incorporating the closure plan on December 5, 2022.
- All sluicing of CCR to the pond permanently ended in December 2022. The only remaining discharges to the LAN Upper Ash Pond are limited to pumping for freeze protection, landfill contact water, and precipitation.
- IPL completed and submitted an application for the state sanitary disposal project closure permit for the LAN Upper Ash Pond. IDNR issued the permit on February 9, 2023.

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 and revised in the November 2020 ACM Addendum No. 1.

The ACM Report and ACM Addendum No. 1 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, it appears that the source of the arsenic is unrelated to the LAN Landfill and LAN Upper Ash Pond. This additional assessment will be summarized in ACM Addendum No. 2, which is now in progress.

Several activities have been completed since the initial arsenic GPS exceedances to enhance IPL's understanding of arsenic concentrations downgradient of the CCR units:

- Installation and sampling of the monitoring well nest MW-307 and MW-307A directly between the arsenic impacted well MW-302 and the CCR units.
- Installation of water level wells MW-308 and MW-309 to the north of well MW-302.

- Four rounds of groundwater sampling at monitoring wells MW-307/MW-307A.
- Re-evaluation of horizontal and vertical groundwater flow conditions after the installation of the new MW-307/MW-307A wells and water level wells MW-308 and MW-309.
- Two rounds of surface water sampling results from the surface water outfall adjacent to impacted monitoring well MW-302.
- A review of the CCR well boring logs to identify variations in soil and presence of natural sources of organic carbon.
- Water sample analysis from the Upper Ash Pond.
- Evaluation of the interceptor drain located between the Upper Ash Pond and well MW-302.
- Evaluation of the construction and closure history of the Lower Ash Pond located between the CCR units and well MW-302.
- A geochemical assessment of arsenic in groundwater by ReSolution Partners LLC.

The site conceptual model has been revised to incorporate information from the activities listed above and will be included in ACM Addendum No. 2.

### **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.
- Continue evaluation of groundwater flow and groundwater quality.
- Update conceptual site model based on findings of the ongoing groundwater sampling.
- Complete ACM Addendum No. 2 to update the No-Action alternative.
- Hold a public meeting.
- Complete the Selection of Remedy report.
- Continue LAN Upper Ash Pond closure construction.
- Initiate LAN Landfill closure construction.

## Tables

- 1A Timeline for Completed Groundwater Sampling and Corrective Action Work – Selection of Remedy
- 1B Timeline for Closure Related Work – Selection of Remedy
- 2 CCR Rule Groundwater Samples Summary



## Figures

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