

Charles R. Lowman Power Plant

Coal Combustion Residuals (CCR) Surface Impoundment Remedy

Selection and Design: Semi-Annual Progress Report December 2023

1. Introduction

Regulations codified in 40 C.F.R. § 257.97(a) and Alabama Department of Environmental Management (ADEM) Admin. Code r. 335-13-15-.06(8)(a) require the owner or operator to prepare “a semiannual report describing the progress in selecting and designing a remedy”. Once a final remedy is selected, the owner or operator must prepare and submit a final report. PowerSouth Energy Cooperative submitted an Assessment of Corrective Measures (ACM), on July 11, 2019, for the Charles R. Lowman Power Plant. The ACM identified and evaluated monitored natural attenuation (MNA), a permeable treatment barrier, and groundwater recovery and treatment as potential remedies. The ACM recommended MNA as the primary remedy. In response to comments provided by ADEM, a Revised ACM was prepared and submitted on May 5, 2020. The Revised ACM provided additional information, including the anticipated effects of source control. The Revised ACM discussed potential corrective measures and again recommended MNA as the primary remedy. Both versions of the ACM are available on the CCR compliance website for the Lowman Power Plant. To fulfill the requirements of 40 CFR §257.96(e) and ADEM Admin Code r. 335-13-15-.06(7)(e), PowerSouth hosted a public meeting at the Jackson Community Center in Jackson, Alabama on June 29, 2020, to present the proposed remedy to the community and solicit public comment.

2. Summary of Work Completed During Reporting Period

During the current semi-annual period (July through December 2023) the following activities were completed:

- Analytical results from the April 2023 semi-annual groundwater sampling were received, reviewed, and included in the 2023 Semi-Annual GWMR submitted in July 2023.
- MNA-focused analytical and physical testing results from subsurface soil samples collected in June 2022 were further evaluated during the current reporting period. Results of the evaluation generally support the selection of MNA as the primary groundwater remedy.

- Groundwater geochemical maps (DO, ORP, pH, and alkalinity) were updated with data collected in April 2023, and evaluations were conducted and are ongoing.
- Charts comparing groundwater COCs and geochemical parameters versus time were updated to include the April 2023 sample event data for key monitoring wells along multiple trendlines. Evaluations were continued and are ongoing to determine where correlations exist between the COCs and geochemical parameters.
- Charts of COC concentrations versus time along multiple trend lines at varying distances downgradient from the multi-unit CCR Pond system were updated to include the April 2023 sample event data. Evaluation of these charts are ongoing.
- Charts of COC Mass Flux along 3 transects at distances of 100 ft., 500 ft., and 1,200 ft. downgradient from the multi-unit CCR Pond system were updated to include the April 2023 sample event data. Evaluation of these charts are ongoing.
- PowerSouth continued operating a dewatering treatment system for removal and treatment of interstitial water from the interconnected, multi-unit CCR pond system in support of closure of the CCR pond system. The dewatering treatment system has been operating since September 2021.
- In April 2023, PowerSouth installed and sampled a temporary monitoring well (TW-1) at a location hydraulically downgradient of MW-3 but still on PowerSouth property. The first round of groundwater samples collected from TW-1 in April 2023 did not contain any concentrations of the analytical constituents at levels above the GWPS for the facility. A second sampling event of TW-1 was conducted in October 2023, which also did not contain any concentrations of the analytical constituents at levels above the GWPS for the facility. These sampling events indicate the down-gradient extent of the cobalt plume is contained within PowerSouth's property boundary. We will continue to sample TW-1 to verify cobalt levels remain below the GWPS.
- As stated in the 2023 Semi-Annual Groundwater Monitoring Report (July 2023), it was necessary to abandon Monitoring Wells MW-2 and MW-4 onsite due to construction of a new bridge along the approach to the new Lowman Energy Center facility. These wells were properly abandoned in July 2023, along with the drilling and installation of the two replacement wells (MW-2R & MW-4R). PowerSouth is currently working on the submission of a minor permit modification request (Permit No. 65-06) for the monitoring well abandonment and reinstallation.

3. Preliminary Monitored Natural Attenuation Data

As noted above, additional groundwater data and soil data pertaining to the MNA evaluation were generated during the reporting period and evaluation of these data with respect to the viability of an

MNA remedy is on-going. The following summarizes the types of data currently under evaluation. PowerSouth anticipates submitting a comprehensive analysis of the MNA data in a future report.

Groundwater

Eighteen monitoring wells at the site were sampled for a suite of MNA indicator parameters during 2022, and field geochemical data (DO, ORP, pH, conductivity) are collected during each semi-annual monitoring event, including the October 2023 event that was conducted during the current reporting period.

MNA parameter analytical data from the 2022 groundwater sampling event along with semi-annual field geochemical data are being evaluated on an ongoing basis to support the ongoing MNA demonstration.

Soil

In June 2022, soil samples were collected from 11 soil borings (SB-49 thru SB-59) from across the site at locations generally downgradient (towards the river) from the former Unit 2/3 CCR pond undergoing closure. Each boring had three soil samples collected from pre-determined sampling intervals.

Data from the June 2022 soil sampling activities have been evaluated and will be incorporated with data collected during subsequent sampling activities.

A comprehensive presentation and evaluation of soil and groundwater data will be included in the Remedy Selection Report to be prepared and submitted in accordance with the schedule contained in the PowerSouth Energy Cooperative Charles R. Lowman Power Plant Corrective Action Plan submitted to the Department on February 10, 2021.