

Charles R. Lowman Power Plant

Coal Combustion Residuals (CCR) Surface Impoundment Remedy

Selection and Design: Semi-Annual Progress Report December 2024

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 2024) the following activities were completed:

- Analytical results from the April 2024 semi-annual groundwater sampling event were received, reviewed, and included in the 2024 Semi-Annual GWMR submitted in July 2024.
- A semi-annual assessment groundwater monitoring event was conducted in October 2024, which consisted of sampling all site compliance monitoring wells for parameters listed in Appendix III and IV of 40 CFR Part 257 and ADEM Admin. Code r. 335-13-15.
- 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 2024, and evaluations were conducted and are ongoing.
- Charts comparing groundwater COCs and geochemical parameters versus time were updated to include the April 2024 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 2024 sample event data. Evaluation of these charts is 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 2024 sample event data. Evaluation of these charts is 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 initial 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. Groundwater samples have been collected from TW-1 during each of the subsequent semi-annual groundwater monitoring events since October 2023. The analytical results from these samples have not indicated concentrations of cobalt 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. PowerSouth will continue to collect samples from TW-1 to verify cobalt levels remain below the GWPS.
- As stated in the 2023 Annual Groundwater Monitoring Report (January 2024), 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 received a modified Coal Combustion Residuals Permit to Close (Permit No. 65-06) from ADEM on April 12, 2024, which incorporated the two replacement wells (MW-2R & MW-4R). The replacement wells are being sampled as part of the semi-annual compliance monitoring activities.

3. Preliminary Monitored Natural Attenuation Data

As noted above, additional groundwater 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 2024 event that was conducted during the current reporting period.

MNA parameter analytical data from the groundwater sampling events along with semi-annual field geochemical data are being evaluated on an ongoing basis to support the 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 from the former Unit 2/3 CCR pond currently undergoing closure. From each boring, three soil samples were collected from pre-determined intervals and submitted for laboratory analysis of the suite of MNA parameters.

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.