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Charles R. Lowman Power Plant

Coal Combustion Residuals (CCR) Surface Impoundment Remedy

Selection and Design: Semi-Annual Progress Report December 2025

1. Introduction

The Coal Combustion Residual (CCR) Rule regulates the handling and disposal of CCRs as non-hazardous solid waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA). Subpart D—Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments. These regulations are 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). The Rules require the owner or operator of a CCR disposal unit 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. It also 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 2025) the following activities were completed:

- Analytical results from the April 2025 semi-annual groundwater sampling event were reviewed and included in the 2025 Semi-Annual Groundwater Monitoring Report (GWMR) submitted in July 2025.

- The second 2025 semi-annual groundwater monitoring event was conducted in October 2025, which consisted of sampling all site compliance monitoring wells for CCR parameters listed in Appendix III and IV of 40 CFR Part 257 and ADEM Admin. Code r. 335-13-15. The results are currently being reviewed and evaluated and will be included in the 2025 Annual GWMR that will be submitted in January 2026.

- Groundwater geochemistry data (DO, ORP, pH, and alkalinity) were collected in October 2025.

- Charts of the three (3) primary 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 2025 sample event data.

- COC mass flux charts for the three (3) primary COCs 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 2025 sample event data.

- 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.

- PowerSouth continues to collect samples from temporary monitoring well (TW-1) to verify cobalt levels remain below the groundwater protection standards (GWPS). To date, no Appendix IV constituents have been detected in TW-1 at levels above the GWPS for the facility.

3. Monitored Natural Attenuation Data

The cumulative semi-annual groundwater COC analyses continue to be evaluated to document MNA progression. COC data trends relevant to the MNA evaluation for Lowman are summarized below. The site's established GWPS for the COCs are:

- arsenic - 0.01 mg/L
- cobalt - 0.013 mg/L
- lithium - 0.04 mg/L

Groundwater

Groundwater monitoring wells at the site have been sampled twice per year since 2016. In 2016, there were a total of 18 monitoring wells. Additional monitoring wells have been installed or replaced over the last nine years; the current monitoring well count is 31. During each sampling

event groundwater samples are field tested for field parameters (DO, ORP, pH, conductivity), and laboratory analyzed for Appendix III and Appendix IV constituents.

Results from those sampling events have been submitted to ADEM and posted to the facility's publicly available CCR website in Semi-Annual and Annual Groundwater Monitoring Reports. As indicated in those reports, from 2016 through 2021 there were five (5) COC's (arsenic, beryllium, cobalt, lithium, and molybdenum) with groundwater concentrations at statistically significant levels (SSLs) greater than the Lowman site-specific groundwater protection standards (GWPS). Molybdenum declined below its GWPS of 0.100 mg/l in 2022 and has further declined since then. Beryllium declined below its GWPS of 0.004 mg/l in 2023 and has further declined since then. There are only 3 COCs (As, Co, Li) with reported exceedances of the GWPS since 2022.

As part of the MNA evaluation, PowerSouth has developed individual well charts of COC concentrations versus time, charts of groundwater COC concentrations along multiple trendlines, and mass-flux calculations and charts along three transects (lines/groups of wells perpendicular to groundwater flow).

Arsenic Data

- Arsenic concentrations generally peaked between Spring 2016 and Spring 2022 and have been declining since. As of the April 2025 sampling event, only three wells have indicated Arsenic concentrations above the site GWPS (0.010 mg/L).

Cobalt Data

- Cobalt concentrations generally peaked between Fall 2016 and Fall 2022 and have been declining since. As of the April 2025 sampling event, only six wells have indicated Cobalt concentrations above the site GWPS (.013 mg/L).

Lithium Data

- Lithium concentrations generally peaked between Spring 2018 and Spring/Fall 2021 and have been declining since. As of the April 2025 sampling event, eight wells have indicated Lithium concentrations above the site GWPS (0.40 mg/L).

Summary

Beryllium and molybdenum groundwater concentrations declined below their respective GWPS in 2022 and have remained and/or declined further since 2022. Evaluation of arsenic, cobalt, and lithium concentrations, as can be found in the Lowman Plant Semi-Annual and Annual Groundwater Monitoring Reports, demonstrates a trend of sustained overall COC concentration declines since 2016 which continued through 2025. This important trend of declining individual well concentrations plus declines along multiple trends lines meets one of the key criteria for MNA viability and effectiveness. In addition, low overall mass-flux across the Site, and declining mass-flux trends are additional lines of evidence in support of MNA viability and effectiveness. Seasonal effects on groundwater geochemical data and water levels cause minor fluctuations in

COC levels and trends which are being evaluated on an ongoing basis. A detailed discussion of these results and analyses will be provided in the final Remedy Selection and Design Report.