PowerSouth® ENERGY COOPERATIVE
A Touchstone Energy® Cooperative

Charles R. Lowman Power Plant

Coal Combustion Residuals (CCR) Surface Impoundment Remedy

Selection and Design: Semi-Annual Progress Report
June 2022

Regulations codified at 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 selection of a remedy and the preparation of "a semiannual report describing the progress in selecting and designing the remedy" until a remedy is selected. 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 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.

During the semi-annual period since the previous progress report submitted in December 2021, the following activities have been completed:

- PowerSouth collected additional site data in support of the MNA demonstration and to increase understanding of dominant MNA mechanisms at the site. With respect to site groundwater, in April 2022 PowerSouth sampled 18 existing monitoring wells for analysis of the following MNA indicator parameters:

GW MNA Testing Parameters
Total and Dissolved Metals (Na, K, Ca, Mg, FE (II,III)
Bromide
Ortho-Phosphate-P
TOC and DOC
Nitrite/Nitrate
Total Alkalinity as calcium carbonate
Sulfide

- The second component of the MNA demonstration involved conducting subsurface soil characterization and testing, which will provide a baseline of existing soil conditions prior to completion of the CCR unit closure. During the month of June 2022, PowerSouth conducted a subsurface soil investigation involving soil sampling at 11 locations that span the site down gradient of the CCR facility. Boring locations were strategically selected based on historic groundwater data and previous studies. Three samples per boring (33 total samples) were submitted to the laboratory for the analysis listed in the next bullet.

- The soil samples were collected at varying depth intervals from the 11 borings and submitted to the lab for analysis of Site COCs with GWPS exceedances: arsenic, beryllium, cobalt, lithium, and molybdenum. All samples are being analyzed for the five metals via Synthetic Precipitation Leaching Procedure (SPLP), and via Sequential Extraction Procedures (SEP). Both SPLP and SEP analyses results, when used in conjunction with total COC analyses and other site information, can provide useful information regarding the estimation of the site-specific adsorption/desorption potential of each COC. Additional analysis/testing being performed includes Cation Exchange Capacity (CEC), Anion Exchange Capacity (AEC), and Total Organic Carbon (TOC). These tests will provide additional insight into the sorptive capacity of aquifer materials. Finally, geotechnical testing is also being performed on the soil samples that include USCS classification, sieve analysis, bulk/dry density, soil pH, moisture, and electrical conductivity (EC).

- In addition, Power South is preparing updates to site groundwater geochemical maps (DO, ORP, pH, and alkalinity), plus creating charts of groundwater COC's and geochemical parameters versus time for key monitoring wells to determine if correlations exist between the COC's and geochemical parameters. Updated charts of mass flux at select transects perpendicular to groundwater flow direction are also being prepared.

- PowerSouth is also evaluating seasonal variations in site groundwater hydraulic conditions and its potential effects on COC concentrations.

- PowerSouth has continued operating a dewatering treatment system being used to remove and treat interstitial water from the interconnected, multiunit CCR pond system in support of the planned closure of the CCR pond. The dewatering treatment commenced in September 2021.

- Engineering control measures were evaluated at the Lowman Facility in an effort to alleviate any potential groundwater impacts to the adjacent property on the south side of the plant. The report presenting this evaluation, "MW-3 Area Hydraulic Control System Remedial Design Workplan" was submitted to ADEM on January 7, 2022.