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MEMORANDUM

31 March 2022
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TO: Associated Electric Cooperative, Inc
Jenny Jones – Manager, Land and Water Resources

FROM: Haley & Aldrich, Inc.
Steven F. Putrich, P.E., Senior Associate – Principal Consultant
Jason Pokorny – Program Manager

SUBJECT: Semi-Annual Remedy Selection Progress Report Pursuant to 40 CFR § 257.97(a)
Spring 2022
New Madrid Power Plant – Pond 003
New Madrid, Missouri

Associated Electric Cooperative, Inc. (AECI) has implemented the U.S. Environmental Protection Agency (USEPA) Federal Coal Combustion Residuals (CCR) Rule (Code of Federal Regulations Title 40 [40 CFR] §§ 257 and 261) effective 19 October 2015, along with subsequent revisions, for the active CCR surface impoundment referred to as Pond 003 at the New Madrid Power Plant (NMPP) located in New Madrid, Missouri. Section 257.97(a) of the CCR Rule requires the owner or operator of a CCR management unit that has completed an Assessment of Corrective Measures Assessment (ACM) for groundwater to prepare a semi-annual report describing the progress in selecting and designing the remedy. This report provides the Spring 2022 semi-annual remedy selection progress report and is comprised of activities during the period of October 2021 through March 2022.

The ACM was initiated for Pond 003 on 15 May 2019 in response to a statistically significant level (SSL) of an Appendix IV constituent (molybdenum) exceeding Groundwater Protection Standards (GWPS). Pursuant to 40 CFR § 257.96(a), a demonstration of need for a 60-day extension for the assessment of corrective measures was completed on 12 July 2019. The ACM Report was completed and placed in the facility operating record on 13 September 2019, and subsequently amended on 11 October 2019, and posted to AECI's CCR public website. Based on the results of the ACM, AECI must, as soon as feasible in accordance with the CCR Rule, select a remedy that meets the standards listed in 40 CFR § 257.97(b). A summary of the progress between October 2021 and March 2022 in selecting a remedy in compliance with the CCR Rule is provided below.

SUMMARY OF ACTIONS COMPLETED

The following actions have been completed during this reporting period (October 2021 through March 2022):

- AECI successfully completed construction of coal pile runoff infrastructure that will allow for the removal of a non-CCR wastestream from Pond 003. The treatment system is currently in operational startup.
- Continued Assessment Monitoring: Evaluated the results of the August (semi-annual) compliance wells sampling event. The August 2021 groundwater monitoring compliance wells were sampled and evaluated for SSLs compared to GWPS. No new constituent parameters or compliance wells were determined to exceed GWPS, therefore no additional information was needed to be included in the remedy selection process.
- Efforts to continue evaluation of the nature and extent (N&E) of the Appendix IV molybdenum in exceedance of the CCR Unit's GWPS continued pursuant to § 257.95(g). Groundwater samples were collected from the 15 N&E monitoring wells in August 2021. Supplemental geochemical parameters were being tested for in that sampling event to support the updated remedy modeling and analysis. The analytical results are being used to supplement and enhance the evaluation of the extent of groundwater impacts, assessment of corrective measures, and selection of remedy. An additional round of seasonal N&E sampling was completed in February 2022. Groundwater characterization of the N&E groundwater monitoring wells is ongoing.
- Refinement of the site conceptual model and associated groundwater modeling with geochemical analyses continued based on N&E results from August 2021 and ongoing compliance monitoring to further refine the extents of the plume.
- Continued evaluations of source control with monitored natural attenuation (MNA) as a potential remedy selection along with considerations of the other groundwater remedy options listed in the CMA. The initial evaluations of MNA as a groundwater treatment (in addition to source control) focused on Phase I and Phase II of the USEPA MNA technical guidance (USEPA, 2015¹) which provide demonstrations that the groundwater plume is not expanding (Phase I) and that the mechanism and rate of the attenuation process is sufficient to reduce contaminant concentrations to required levels (Phase II). Haley & Aldrich continues to consider all lines of evidence that provide support to geochemical processes associated with precipitation and attenuation of SSLs and has evaluated updates to the ACM groundwater model in the ongoing enhanced evaluation of MNA and other groundwater remedies considered in the ACM.

PLANNED ACTIVITIES

Anticipated activities for the upcoming semi-annual corrective measures selection progress period (April 2022 through September 2022) include the following (subject to change):

¹ USEPA, 2015. *Use of Monitored Natural Attenuation for Inorganic Contaminates in Groundwater at Superfund Sites*. Office of Solid Waste and Emergency Response. August.

- Continue engineering, design, permitting, construction, start-up, and operation of CCR and non-CCR flow reductions to Pond 003.
- Continue Assessment Monitoring: Collect groundwater samples in August 2022 from the CCR well network. The groundwater data will be evaluated for SSLs compared to GWPS. Any new constituent that exceeds GWPS will be considered in selection of the final remedy.
- Continue efforts to evaluate N&E by evaluating the groundwater analytical data collected during the semi-annual assessment monitoring sampling event that will include the N&E monitoring wells from August 2022.
- As appropriate, refine the conceptual site model and associated groundwater modeling.
- Continue to evaluate the effectiveness of MNA as a selection of remedy, specifically focusing on Phase I, Phase II, and Phase III of the USEPA MNA technical guidance (USEPA, 2015¹), along with considerations of the other corrective measures.
- Continue to perform an engineering review of the potential CMA alternatives in pursuit of the corrective measures remedy selection. For these reviews, emphases will be placed on understanding and reacting to impacts of newly gathered analytical results, identifying, and researching applicability of emerging technologies and their impacts on the CMA and selection of remedy process.
- Progress towards selecting a remedy that meets the standards of § 257.97(b), including the development of a final report which also contains a schedule for implementing and completing remedial activities as required by § 257.97(d).
- Provide a semi-annual progress report that summarizes AECI's progress and status regarding a selection of remedy.