

June 22, 2020

SUBJECT: Ash Pond Groundwater Remedy Selection Semiannual Progress Report
Former Killen Electric Generating Station
Kingfisher Development, LLC
Monroe Township, Adams County, Ohio

INTRODUCTION

This report documents progress made toward selecting a groundwater remedy for the Ash Pond Coal Combustion Residual (CCR) unit (Bottom Ash/Fly Ash Pond Unit) at the former Killen Electric Generating Station (Site). Groundwater monitoring and corrective action requirements are completed at the Site in accordance with the U.S. Environmental Protection Agency's (USEPA) rule entitled *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities* (CCR Rule). The Site is a former coal-burning electricity generating facility located along the Ohio River near Manchester in Monroe Township, Adams County, Ohio. The plant was closed in June 2018 and is no longer in operation. This progress report fulfills the semiannual reporting requirement listed in §257.97(a) of the CCR Rule.

A Corrective Measures Assessment (CMA) report was initially completed in September 2019 and was amended in October 2019. The CMA report identified and evaluated various remedial alternatives. Since completion of the CMA report, Kingfisher Development LLC (KD) acquired the Site and assets (including environmental responsibilities) from AES Ohio Generation, LLC (AES). All groundwater monitoring and CMA activities completed through 2019 were completed by AES and their consultants. Considering that the Site is under new ownership, the previously prepared CMA reports are being evaluated to determine the compatibility of the previously developed remedial alternatives with potential future Site use. This progress report summarizes investigations and reports that were completed by AES. KD is evaluating these investigations and reports to determine if any modifications are appropriate at this time before moving forward with selecting and implementing a remedy. Any potential modifications to the existing program and CMA remedial alternatives will be completed in accordance with the CCR Rule requirements.

GROUNDWATER MONITORING AND CORRECTIVE MEASURES ASSESSMENT SUMMARY

AES implemented a groundwater monitoring program compliant with the April 17, 2015 CCR Rule published by the USEPA. Detection monitoring indicated statistically significant increases (SSI) for some Appendix III constituents. Assessment monitoring completed in 2018 evaluated the presence and concentration of Appendix IV constituents in groundwater as specified in the CCR Rule. Of the 15 Appendix IV parameters evaluated, only two, molybdenum and lithium, were detected at statistically significant levels (SSL) above the Groundwater Protection Standards (GWPS) established for the Ash Pond Unit.

A detailed environmental evaluation of the Ash Pond Unit and surrounding area was completed as part of the CMA. The environmental evaluation included a risk evaluation to identify whether current groundwater conditions posed an unacceptable risk to human health and the environment, and whether corrective measures would mitigate such an unacceptable risk, if present. The risk evaluation concluded

that there are no adverse effects on human health or the environment currently or under reasonably anticipated future uses from either surface water or groundwater due to CCR management practices at the Ash Pond Unit.

The following conditions were considered when completing the CMA: presence and distribution of lithium and molybdenum in groundwater, Ash Pond Unit configuration, hydrogeologic setting, and the results of the risk evaluation. Within the Ash Pond Unit, CCR is managed in an impoundment that extends to a depth of approximately 75 feet (ft) below the top of the dike (about 20 ft below original grades). The alluvial aquifer beneath the Ash Pond Unit is approximately 90 ft in thickness. Flow within the alluvial aquifer is influenced by the Ohio River and bedrock topography.

REMEDIAL ALTERNATIVES

The CMA, prepared by AES, included the following remedial alternatives that were developed to achieve the GWPS:

- Alternative 1: Closure in place (CIP) with low permeability capping and monitored natural attenuation (MNA);
- Alternative 2: CIP with low permeability capping and hydraulic containment (HC) through groundwater pumping and ex-situ treatment;
- Alternative 3: CIP with low permeability capping, HC through groundwater pumping, and ex-situ groundwater treatment and barrier wall; and,
- Alternative 4: Closure by removal (CBR) with MNA.

These four alternatives were evaluated based on the threshold criteria provided in the CCR rule [§257.97 (b)] and then compared to three of the four balancing criteria stated in the CCR Rule [§257.97(c)].

These criteria consist of the following:

§257.97 Selection of remedy

(b) Remedies must [Threshold Criteria]:

- (1) Be protective of human health and the environment;
- (2) Attain the groundwater protection standard as specified pursuant to §257.95(h);
- (3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in Appendix IV to this part into the environment;
- (4) Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems; and,
- (5) Comply with standards for management of wastes as specified in §257.98(d).

(c) In selecting a remedy that meets the standards of paragraph (b) of this section, the owner or operator of the CCR unit shall consider the following evaluation factors [Balancing Criteria]:

- (1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful;

- (2) The effectiveness of the remedy in controlling the source to reduce further releases;
- (3) The ease or difficulty of implementing a potential remedy(s); and,
- (4) The degree to which community concerns are addressed by a potential remedy(s).

The threshold criteria must be met in order for a remedial alternative to be selected. All of the remedial alternatives proposed meet the threshold criteria. A risk assessment and exposure evaluation was completed as part of the CMA and it was concluded that there is no complete drinking water exposure pathway. The completed evaluation demonstrates that the Ash Pond Unit has no impact on drinking water and there is no evidence of impact to human health or the environment. There are no downgradient users of groundwater as drinking water – thus, there is no impact on drinking water. There is no exposure to CCR-derived constituents detected in groundwater at the Site. Even for the very few results that may be above GWPS for some of the groundwater sampling events, there is no complete drinking water exposure pathway to groundwater and thus there is no risk.

Each remedial alternative was evaluated with respect to the balancing criteria during the CMA. A favorability rating was assigned to each remedial alternative for each balancing criterion. However, balancing criterion number 4, which considers the degree to which community concerns are addressed, will be evaluated.

PREFERRED ALTERNATIVE

Alternative 1, CIP with low permeability capping and MNA, is the preferred alternative at this time. Alternative 1 satisfies all threshold criteria and is generally the most favorable alternative in the context of balancing criteria. Low permeability capping will effectively reduce vertical infiltration of precipitation. Natural attenuation of constituents will occur after a low permeability cover system is installed. Alternative 1 is the most appropriate remediation approach based on the evaluations performed to date.

In accordance with §257.97, a final report describing the selected remedy and how it meets the applicable standards will be completed after a remedy is selected. In accordance with §257.98, a corrective action groundwater monitoring program will be established and implemented after a remedial alternative is selected. Corrective measures are considered complete when monitoring reflects that the SSL constituent concentrations in groundwater downgradient of the Ash Pond Unit do not exceed the Appendix IV GWPS for three consecutive years.

FUTURE ACTIVITIES

1. This progress report summarizes investigations and reports that were completed by AES. KD is evaluating these investigations and reports to determine if any modifications are appropriate at this time before moving forward with selecting and implementing a remedy.
2. Select a remedy as soon as feasible and prepare a final report describing the selected remedy and how it meets the standards specified in §257.97.
3. Within 90 days of selecting a remedy, the owner or operator must initiate remedial activities. A corrective action groundwater monitoring program must be established and implemented.