

**MEMORANDUM**

16 October 2018  
File No. 130116

**SUBJECT:** Location Restriction Demonstration – Unstable Areas  
Killen Electric Generating Station  
Collection Basin No. 2  
Manchester, Ohio

AES Ohio Generation, LLC (AES) operates the coal-fired Killen Electric Generating Station (Plant) located near Manchester, Ohio. The Collection Basin No. 2 (Unit) is an existing coal combustion residuals (CCR) surface impoundment at the Plant. This demonstration addresses the requirements of 40 CFR §257.64 *Unstable Area* of the US Environmental Protection Agency's (EPA) rule entitled *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities*. 80 Fed. Reg. 21302 (Apr. 17, 2015) (promulgating 40 CFR §257.64); 83 Fed. Reg. 36435 (July 30, 2018) (amending 40 CFR §257.64).

*§257.64(a): An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.*

*§257.64(b): The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:*

- (1) On-site or local soil conditions that may result in significant differential settling;*
- (2) On-site or local geologic or geomorphologic features; and*
- (3) On-site or local human-made features or events (both surface and subsurface).*

*Determination of compliance with §257.64(b)(1) - Conditions associated with the potential for significant differential settlement due to liquefaction were not identified in the area where the Plant is located. A liquefaction analysis performed at the Unit concluded that coarse grained soils beneath the Unit are susceptible to liquefaction. The post-earthquake stability analysis performed to model the stability of the impoundment slopes following an earthquake, liquefaction and soil strength loss produced acceptable factors of safety.*

*Determination of compliance with §257.64(b)(2) - Based on available United States Geological Survey (USGS), Ohio Department of Natural Resources (ODNR) information, and communication with DP&L representatives familiar with the Plant's history, karst topography or physiographic features such as sinkholes, vertical shafts, sinking streams, caves, large springs, or blind valleys do not exist at the Plant.*

To evaluate the susceptibility of landslides, we reviewed readily available USGS and Ohio Department of Transportation (ODOT) data. The USGS data indicates that the Plant is in an area of low landslide incidence. More detailed ODOT data indicates that there has not been a documented landslide occurrence at the Unit. The closest ODOT documented landslide occurrences are approximately 5,000 ft east of the Unit and appear to be roadway cut landslides associated with U.S. Route 52. Accordingly, it is our opinion that the Unit is not located in an area that has high susceptibility to landslides.

*Determination of compliance with §257.64(b)(3)* - There are no documented surface or subsurface anthropogenic activities that would be indicative of creating unstable foundation conditions.

*§257.64(c): The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration meets the requirements of paragraph (a) of this section.*

I, Steven F. Putrich, being a Registered Professional Engineer in good standing in the State of Ohio, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the demonstration indicating the CCR Unit is not located in an unstable area as included in the CCR Rule Location Restrictions Evaluation memorandum dated 12 October 2018 and, therefore, meets the requirements of 40 CFR §257.64(a).

Signed:   
Consulting Engineer

Print Name: Steven F. Putrich  
Ohio License No.: 67329  
Title: Vice President  
Company: Haley & Aldrich, Inc.

Professional Engineer's Seal:

