



HALEY & ALDRICH, INC.  
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## MEMORANDUM

17 October 2018  
File No. 128064-005

SUBJECT: Location Restriction Demonstration - 40 CFR §257.60 Placement Above the Uppermost Aquifer  
Thomas Hill Energy Center  
Pond 1 – Cell 001  
Clifton Hill, MO

Associated Electric Cooperative, Inc. (AECI) owns and operates the coal-fired Thomas Hill Energy Center (THEC, Plant) located near Clifton Hill, Missouri. Pond 1 – Cell 001 (Unit) is an existing coal combustion residuals (CCR) surface impoundment at the Plant. This demonstration addresses the requirements of 40 CFR §257.60 *Placement Above the Uppermost Aquifer* of the U.S. Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257 rule (CCR Rule), effective 19 October 2015, with Amendments effective 29 August 2018, for the Unit.

*§257.60(a): New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this section that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.*

Haley & Aldrich reviewed available information provided by AECI related to the design and construction of the Unit. Based on this information, Haley & Aldrich determined the lowest base of Unit elevations range from approximately 733 to 734 feet.

Haley & Aldrich evaluated groundwater conditions to identify the uppermost aquifer based on previous completed reports (Haley & Aldrich, 2018), along with observational data related to recent construction activities. Based on the evaluation, the upper limit of the uppermost aquifer is a gradually sloping surface ranging from elevation 727± feet on the northern side to elevation 720± feet on the southern side of the Unit.

When separation distances were estimated between the upper limit of the uppermost aquifer and the base of unit elevations noted above, the resulting minimum separation was determined to exceed the 5.0 feet minimum separation requirement of §257.60(a).



*§257.60(b): 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 Missouri, 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 that the above-referenced CCR Unit does meet the requirements of 40 CFR §257.60(a).

Signed:   
Consulting Engineer

Print Name: Steven F. Putrich  
Missouri License No.: 2014035813  
Title: Project Principal  
Company: Haley & Aldrich, Inc.

Professional Engineer's Seal:

