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MEMORANDUM

17 October 2018
File No. 129342-012

SUBJECT: Location Restriction Demonstration - 40 CFR §257.60 Placement Above the Uppermost Aquifer
New Madrid Power Plant
Pond 004
New Madrid, MO

Associated Electric Cooperative, Inc. (AECI) owns and operates the coal-fired New Madrid Power Plant (NMPP, Plant) located near New Madrid, Missouri. Pond 004 (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 including historic record drawings and design drawings. The base of the unit was determined to be at its lowest point at an elevation of approximately 286± feet.

Haley & Aldrich reviewed the groundwater monitoring elevation data during the 2016 to 2018 sampling events and found that the majority of data points are below elevation 278± feet, exhibiting greater than five feet of separation for a majority of the monitoring data during that timing interval. However, an intermittent and recurring hydraulic connection with the base of the Unit has been observed, although only observed during Mississippi River flood stage levels. As such, and based on review and evaluation of the information provided, the results do not continuously demonstrate compliance with the requirements of 40 CFR §257.60(a).

Given that there is no use of groundwater downgradient of the AECI site (i.e., between the subject CCR Unit and the Mississippi River), the ultimate point of exposure is the Mississippi River. Furthermore, based on the limited, intermittent, and recurring hydraulic connection with the base of the CCR Unit and

seasonal high groundwater, this condition is unlikely to pose an exposure concern in groundwater or the Mississippi River.

§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 not 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: