



Indianapolis Power & Light Company
Eagle Valley Generating Station

Pond C Location Restriction Compliance:
Seismic Impact Zones

Prepared by



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1 DEMONSTRATION

Federal CCR Rule References: 40 CFR 257.53 and 257.63(a)

Indianapolis Power & Light Company (IPL) owns the Eagle Valley Generating Station (EVS), which is a retired coal-fired power plant. Pond C, an existing coal combustion residual (CCR) surface impoundment at the site, presently does not accept CCR and is planned to be closed in the future. This document addresses the demonstration required for the CCR unit to satisfy 40 CFR 257.63(a):

“New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates...that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.”

Pursuant to 40 CFR 257.53:

“*Seismic impact zone* means an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth’s gravitational pull (g), will exceed 0.10 g in 50 years.”

Per the United States Geological Survey’s (USGS) Earthquake Hazards Program, the preceding definition corresponds to an earthquake with a nominal return period of 2475 years. Based on a review of the USGS 2014 National Seismic Hazard Maps, Pond C is located in an area of the United States where the mapped maximum expected horizontal acceleration during the 2475-year earthquake is greater than 0.10 g. Per the USGS “Unified Hazard Tool,” the site’s maximum expected horizontal acceleration during the 2475-year earthquake is approximately 0.11 g. Therefore, Pond C is located in a seismic impact zone as defined by 40 CFR 257.53.

As documented in IPL’s “Safety Factor Assessment of CCR Surface Impoundments” for EVS, Pond C has an adequate seismic factor of safety, which was calculated per 40 CFR 257.53 “using analysis under earthquake conditions using the peak ground acceleration for a seismic event with a 2% probability of exceedance in 50 years” as a basis. Moreover, this CCR unit has an adequate factor of safety under post-earthquake liquefaction conditions, the primary hazard associated with the site’s maximum-considered seismic event. Thus, it has been demonstrated that Pond C can resist the maximum expected horizontal acceleration for the EVS site without release of its stored contents.

Since this unlined pond does not have any leachate collection or removal systems, a demonstration of these systems’ abilities to resist the aforementioned peak ground acceleration is not required. Moreover, as observed during Pond C’s most recent annual inspection, minimal water is stored within this surface impoundment. Consequently, its surface water control systems are no longer in use and therefore do not require a demonstration of their seismic stability.

Based on the preceding statements, Pond C meets the performance standard promulgated by 40 CFR 257.63(a).

2 CERTIFICATION

Federal CCR Rule Reference: 40 CFR 257.63(b)

The demonstration presented herein meets the requirements of 40 CFR 257.63(a).

I certify that this document was prepared by me or under my direct supervision, and that I am a registered professional engineer under the laws of the State of Indiana.

Certified By: David E. Nielson

Date: October 17, 2018

Seal:



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