aes Indiana

Harding Street Generating Station

2021 CCR Surface Impoundment Inflow Design Flood Control System Plan

Revision 0

October 5, 2021

Issue Purpose: Use

Project No.: 10572-141

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1.0 PURPOSE

AES Indiana's Harding Street Generating Station ("Harding Street" or the "Station") has three existing coal combustion residual (CCR) surface impoundments, Ponds 1, 2A/2B, and 3, that are regulated by the U.S. Environmental Protection Agency's "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments," 40 CFR Part 257 Subpart D, also referred to herein as the Federal CCR Rule. In accordance with 40 CFR 257.82(c)(1), this report documents the 2021 inflow design flood control system plan for Ponds 1, 2A/2B, and 3 at Harding Street. Pursuant to 40 CFR 257.82(c)(4), this inflow design flood control system plan was prepared within five years of the previous plan.

2.0 HYDROLOGIC & HYDRAULIC ASSESSMENT

Federal CCR Rule Reference: 40 CFR 257.82(c)(1)

Per the 2021 hazard potential classification assessment completed in accordance with 40 CFR 257.73(a)(2), Ponds 1 and 3 are both classified as significant hazard potential CCR surface impoundments. Meanwhile, Pond 2A/2B is classified as a low hazard potential CCR surface impoundment. Pursuant to 40 CFR 257.82(a)(3), the inflow design flood event for Ponds 1 and 3 is based on the 1,000-year storm while the inflow design flood event for Pond 2A/2B is the 100-year storm. Because all three ponds are connected in series, the 1,000-year storm is used to evaluate the inflow design flood control systems for all three CCR surface impoundments. This is conservative for Pond 2A/2B. Per the National Oceanic and Atmospheric Administration's Atlas 14, the precipitation value for the 1,000-year, 24-hour storm event at the Harding Street site is 7.67 inches.

In October 2020, AES Indiana initiated closure of Ponds 1, 2A/2B, and 3, and, therefore, no longer uses these three CCR surface impoundments to manage any of Harding Street's wastestreams and indirect stormwater flows. As of the 2020 annual inspection performed in accordance with 40 CFR 257.83(b), no impounded water was present in Ponds 1 and 2A/2B, and only about 1 foot of water was present in Pond 3. Accordingly, this periodic inflow design flood control system plan evaluates the hydrologic and hydraulic capacities of Ponds 1, 2A/2B, and 3 by verifying the empty ponds (or almost empty in the case of Pond 3) can adequately manage direct precipitation during the design storm event and any corresponding storm water run-on into the ponds.

Ponds 1, 2A/2B, and 3 are interconnected with a network of discharge pipes. Water from Pond 1 is discharged to Pond 2A/2B via a 30-inch-diameter corrugated metal pipe with an upstream invert elevation of 681.50 feet NAVD88 and a downstream invert elevation of 681.40 feet NAVD88. Similarly, water from Pond 2A/2B is discharged to Pond 3 via a 24-inch-diameter corrugated metal pipe with an upstream invert elevation of 680.00 feet NAVD88 and a downstream invert elevation of 679.80 feet NAVD88. Meanwhile,

Pond 3 has a concrete outfall structure that has three, 12-inch-diameter steel pipes with an invert elevation of 678.50 feet NAVD88. These steel pipes convey water to an 18-inch-diameter reinforced concrete pipe that ultimately discharges to Lick Creek. Finally, it is noted that stormwater run-off from Former Pond 2 is conveyed into Pond 2A/2B via a swale at the southwestern corner of Pond 2A/2B. Similarly, stormwater run-off from Former Pond 4 is conveyed into Pond 3 via a swale at the southeastern corner of Pond 3.

The inflow design flood control system for each CCR surface impoundment was analyzed to evaluate how the inflow design flood would be collected and managed in Ponds 1, 2A/2B, and 3. The results from this hydrologic and hydraulic assessment are summarized in Table 1. Per these results, water will be discharged from Pond 2A/2B to Pond 3 during the design storm event through the 24-inch-diameter corrugated metal pipe between the two ponds. However, water will not be discharged from Pond 1 or Pond 3 during the design storm event because the estimated maximum surface water elevations are below the invert elevations for both ponds' discharge structures. Finally, water will not overtop the dikes of any of the CCR surface impoundments during the design storm event since the estimated maximum surface water elevations are all below the minimum crest elevations for Ponds 1, 2A/2B, and 3. Therefore, all three CCR surface impoundments at Harding Street are able to collect and control the inflow design flood event specified in 40 CFR 257.82(a)(3).

TABLE 1: SUMMARY OF HYDROLOGIC & HYDRAULIC ASSESSMENT FOR PONDS 1, 2A/2B, & 3

CCR Unit	Hazard Potential Classification	Inflow Design Flood	Total Storm Water Inflow	Maximum Surface Water Elevation	Discharge Structure Invert Elevation	CCR Unit Minimum Crest Elevation
			acre-feet	feet NAVD88	feet NAVD88	feet NAVD88
Pond 1	Significant	1,000 Year	4.79	680.08	681.50	688.00
Pond 2A/2B	Low[1]	1,000 Year	8.08	683.63	680.00	686.00
Pond 3	Significant	1,000 Year	36.89	678.31	678.50	685.00

Notes:

1. Although Pond 2A/2B is classified as a low hazard potential CCR surface impoundment, its inflow design flood control system is evaluated against the 1,000-year flood instead of the 100-year flood because all three CCR surface impoundments at Harding Street are connected in series. This is conservative.

3.0 CERTIFICATION

Federal CCR Rule Reference: 40 CFR 257.82(c)(5)

I certify that:

- This periodic inflow design flow control system plan was prepared by me or under my direct supervision.
- The work was conducted in accordance with the requirements of 40 CFR 257.82.
- I am a registered professional engineer under the laws of the State of Indiana.

Certified By: David E. Nielson Date: October 5, 2021

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