



Five-Year Periodic Review - CCR Surface Impoundment Hazard Potential Classification

**Fly Ash Reservoir II
Brilliant, Ohio**

July 2026

Prepared For:

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Introduction

The Cardinal Power Plant (Plant) is located in Wells Township, Jefferson County, near the town of Brilliant in eastern Ohio. The Plant is owned by Buckeye Power, Inc. Cardinal Operating Company (Operator) operates the Plant. The Plant previously utilized the Fly Ash Reservoir II (FAR II) surface impoundment for storing coal combustion residuals (CCR). The FAR II is subject to the requirements of the United States Environmental Protection Agency's (USEPA) final CCR rule Title 40 Code of Federal Regulations (40 CFR) Part 257.73 - "Structural integrity criteria for existing CCR surface impoundments."

FAR II became operational in the 1980s and has been raised twice during its service life, the first raising performed in 1997, and the most recent raising being in 2013. Currently, FAR II has a design crest elevation of 983 feet, a maximum reservoir operating elevation of 974 feet, and a dam height of approximately 250 ft per. The 2013 raising of FAR II was completed using back-to-back mechanically stabilized earth (MSE) walls which were constructed over the then-existing crest placed during the 1997 dam raising, which was constructed using roller-compacted concrete (RCC). The MSE walls were constructed as back-to-back MSE walls over the RCC crest surface with installation of a vinyl sheet pile cut-off wall through the MSE backfill and RCC concrete (using a slurry trench excavation), which extends into the clay core of the dam. The emergency overflow spillway was raised using mass concrete to a minimum elevation of 974.5 as part of the second dam raising.

The Operator ceased sluicing fly ash into the impoundment in July 2021 and is nearing completion of closing FAR II, in accordance with the Closure Plan and the Permit to Install issued by the Ohio Environmental Protection Agency.

CCR Surface Impoundment – Hazard Potential Classification

The Ohio Department of Natural Resources Dam Safety (ODNR) has four (4) classes of dams pursuant to OAC Rule 1501:21-13-01 and is based on the height of the dam, storage volume, and potential downstream hazard. Each dam is evaluated in the following criteria and placed in the highest class that any one of these criteria meet:

Table 1: Summary of ODNR Dam Safety Hazard Classification

Dam Classification	Height of Dam (feet)	Storage Volume (acre-ft)	Potential Downstream Hazard
I	>60 ft	>5,000 acre-feet	Probable loss of life
II	>40 ft	>500 acre-feet	Health hazard, flood water damage to homes, businesses, industrial structures (no loss of life envisioned), damage to state and interstate highways, loss of public utilities, railroads, downstream dams, only access to residential areas
III	>25 ft	>50 acre-feet	Damage to low value non-residential structures, local roads, agricultural crops and livestock
IV	<25 ft	<50 acre-feet	Losses restricted mainly to the dam

According to the criterion summarized in Table 1, FAR II is a **Class I** dam.

The Hazard Potential Classification Systems according to Title 40 of the Code of Federal Regulations (40 CFR) Section 257.53 for coal combustion residual management units are as follows:

1. High hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis operation will probably cause loss of human life.
2. Low hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.
3. Significant hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

Based on the ODNR Class I categorization and the potential hazards located downstream of the dam, the Fly Ash Reservoir II dam can potentially result in loss of human life in the event of a dam failure. Therefore, Fly Ash Reservoir II dam/impoundment is classified as a High Hazard Potential surface impoundment in accordance with 40 CFR 257.73(a)(2).

I certify that this periodic hazard potential classification meets the requirements of 40 CFR 257.73(a)(2).



Signature of Professional Engineer

7/27/2026

Date

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Printed Name of Professional Engineer and
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