Coal Combustion Residuals Surface Impoundment

West Emergency Holding Pond Retrofit Plan and Certification

Laramie River Station

Prepared for
Basin Electric Power Cooperative

September 2024

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Laramie River Station Landfill
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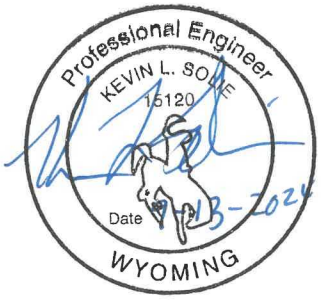
Certification

I hereby certify that I have, or my agent has examined the facility and, being familiar with the provisions of 40 CFR 257 Subpart D, attest that this Coal Combustion Residuals surface impoundment retrofit plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR § 257.102. I certify that the retrofit plan and design are adequate for this facility and that procedures for recordkeeping and reporting have been established.



Kevin L. Solie
Barr Engineering Co.
WY Registration Number PE-15120

Dated this 13th day of September 2024

1 Introduction and Purpose

Laramie River Station (LRS) is owned by Missouri Basin Power Project (MBPP) and operated by Basin Electric Power Cooperative (Basin Electric). LRS consists of three 570 megawatt (MW) units located approximately five miles northeast of Wheatland in Platte County, Wyoming. Coal Combustion Residuals (CCRs) generated at LRS include bottom ash, flue gas desulfurization (FGD) materials and fly ash. CCR management is subject to Federal Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments per 40 Code of Federal Regulations (CFR) 257 Subpart D. The LRS West Emergency Holding Pond (WEHP) is regulated by the Wyoming Department of Environmental Quality (WYDEQ) under permit 20-115 and the LRS CCR landfill is regulated under Solid and Hazardous Waste Division (SHWD) permit #20.066.

Basin Electric is planning to retrofit the WEHP during the 2024 and 2025 construction seasons. The WEHP contains an estimated 550,000 cubic yards (CY) of solid waste and standing (free) water is estimated at approximately 17 million gallons (Mgal). The waste consists of spent lime from the LRS water treatment plant and smaller amounts of flue gas desulfurization (FGD) material from LRS air pollution control equipment. Waste materials would be dewatered and excavated, with disposal in the onsite landfill; liquid waste would be transferred to existing, CCR-Rule compliant surface impoundments at LRS. This initial or any subsequent retrofit plan may be amended at any time.

The purpose of this document is twofold:

1. Provide certification from a qualified professional engineer that the CCR surface impoundment retrofit plan meets the requirements of 40 CFR § 257.102(k).
2. Demonstrate compliance with 40 CFR § 257.102(k) (Criteria for conducting the closure or retrofit of CCR units) which requires the owner or operator of a CCR unit to prepare a written retrofit plan that describes the steps necessary to retrofit the CCR unit consistent with recognized and generally accepted good engineering practices. The written retrofit plan must include, at a minimum, all of the following information:
    - A narrative description of the specific measures that will be taken to retrofit the CCR unit in accordance with § 257.102(k)
    - A description of the procedures to remove all CCR and contaminated soils and sediments from the CCR unit.
    - An estimate of the maximum amount of CCR that will be removed as part of the retrofit operation.
    - An estimate of the largest area of the CCR unit that will be affected by the retrofit operation.
    - A schedule for completing all activities necessary to satisfy the retrofit criteria in this section, including an estimate of the year in which retrofit activities of the CCR unit will be completed.

2 Retrofit Narrative

The WEHP will be retrofit in accordance with § 257.102(k) and recognized and generally accepted good engineering practices. WEHP will be dewatered and all CCR, riprap, existing membrane liner system and CCR contaminated soils will be removed. Free liquids and liquids released from the waste during dewatering efforts will be pumped to existing CCR Rule-compliant surface impoundments; solids removed from the WEHP will be hauled to and disposed in the existing LRS CCR landfill. The exposed subgrade will be visually inspected for CCRs and other deleterious materials. Following confirmation that all CCR and contaminated soils have been removed, the subgrade will be prepared for the installation of a new liner system.

The proposed composite liner system design and construction will be in accordance with § 257.72. The proposed liner system consists of a geocomposite clay liner (GCL) overlain by a synthetic liner. If high density polyethylene (HDPE) is used for the synthetic component, liner thickness will be 60-mil or greater. Construction Quality Assurance/Quality Control (QA/QC) methodologies consistent the industry guidelines will be utilized so that the WEHP liner is constructed to meet the requirements set forth in the CCR Rule. The proposed WEHP bottom liner design will also include a 12- to 24-inch-thick layer of bottom ash (or other granular drainage material) along with perforated piping drainage system placed above the synthetic liner system to facilitate future dewatering efforts.

3 CCR Removal Procedures

Free liquids will be removed from the WEHP and pumped to existing CCR-Rule compliant surface impoundments at LRS. CCR and CCR contaminated material (rip rap, existing membrane liner system and CCR contaminated soils) will be removed from the WEHP using conventional excavation and earth moving equipment (track hoes, front-end loaders, and haul trucks). Materials removed from the WEHP footprint will be transported to the LRS CCR landfill, regulated by WYDEQ under Solid and Hazardous Waste Division (SHWD) permit #20.066. The existing liner system consists of a 30 mil Hypalon liner protected by 12 inches of gravel filter and 12 inches of riprap. Because this membrane liner system is currently in place at the base of the WEHP, it is unlikely that additional CCR contaminated soils or sediments will be present. Once the existing liner system is removed, the exposed subgrade will be visually inspected, and CCRs, CCR contaminated soils or other deleterious materials will be removed and transported to the landfill.

4 Retrofit Area and Volume

The WEHP has a footprint of approximately 30.1 acres.

Based on bathymetric survey data collected by Basin Electric in 2018, the WEHP contains an estimated 550,000 CY of solid waste requiring removal and permanent disposal. The waste consists of spent lime from the LRS water treatment plant and smaller amounts of FGD material from LRS air pollution control equipment. The existing liner system, which will also be removed, has a volume of approximately 58,000 CY. Final volumes may vary based on conditions encountered during excavation and disposal operations.

5 Retrofit Schedule

5.1 WEHP Waste Excavation and Disposal

The excavation of CCRs and CCR-contaminated material is expected to start during the second half of 2024 with a duration of approximately 6 to 8 months. The excavation phase may be delayed slightly by inclement weather or unforeseen difficulties in dewatering and disposal of the CCR materials.

5.2 WEHP Reconstruction

Liner installation is expected to take 3 to 5 months and is anticipated to occur during late-spring or early-summer 2025. In any event, Basin Electric anticipates the retrofit will be substantially complete and the WEHP operational by 4th quarter 2025.

6 Recordkeeping & Reporting

Basin Electric will maintain a copy of the most recent retrofit plan in the facility's operating record in accordance with 40 CFR § 257.105 (Recordkeeping Requirements) and the plan will be made publicly available on the Basin Electric CCR web site in compliance with 40 CFR § 257.107 (Publicly Accessible Internet Site Requirements). Notification will be sent to the WYDEQ State Director in compliance with 40 CFR § 257.106 (Notification Requirements).

To comply with 257.102(k), Basin Electric will also post an Intent to Initiate Retrofit notice to the facility operating record no later than the date the retrofit is initiated. Within 30 days of completion of retrofit activities, Basin Electric will post a Notification of Completion of Retrofit Activities, certified by the engineer of record licensed in Wyoming, to the facility operating record.