

CCR Retrofit Plan

Basin Electric Power Cooperative
Laramie River Station

Bottom Ash Surface Impoundment 1, Bottom Ash Surface
Impoundment 2 and East Emergency Holding Pond

AECOM Project No.: 60609386
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Laramie River Station Bottom Ash Surface Impoundment CCR Retrofit Plan Revision History

Revision No.	Revision Date	Section Revised	Summary of Revision(s)
0	1/9/2020		Original Document

Revisions are accomplished in accordance with Section 3.

1. Background

The purpose of this CCR Retrofit Plan (Plan) is to identify and describe the measures needed to retrofit the Laramie River Station Bottom Ash Surface Impoundment (BAP) 1, Bottom Ash Surface Impoundment 2 and the East Emergency Holding Pond (EHP-E) consistent with recognized and generally accepted good engineering practices and in accordance with the Coal Combustion Residuals Rule (CCR Rule). The following sections provide background information on the facility and related regulatory requirements.

1.1 Facility Information

Name of Facility	Laramie River Station (LRS)
Name of CCR Units	Bottom Ash Surface Impoundment 1 (BAP 1), Bottom Ash Surface Impoundment 2 (BAP 2) and East Emergency Holding Pond (EHP-E)
Name of Operator	Basin Electric Power Cooperative
Facility Mailing Address	347 Grayrocks Road, Wheatland, WY 82201
Location	Approximately five (5) miles northeast of Wheatland, WY
Facility Description	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 (3) 570 megawatt (MW) units. Unit 1 went online in 1980, Unit 2 went online in 1981 and Unit 3 went online in 1982.

1.2 Regulatory Requirements

This plan has been developed for the LRS BAP 1, LRS BAP 2 and LRS EHP-E in accordance with 40 CFR 257.102 (k). The CCR Rule requires preparation of a retrofit plan for units that describes the steps necessary to retrofit the CCR unit consistent with recognized and generally accepted good engineering practices.

The owner or operator of a CCR unit must prepare a written retrofit plan that includes, at a minimum, the information specified in 40 CFR 257.102 (k) (2) (i)(A) through (E). These items and the section of this plan responsive to each as follows:

40 CFR 257.102 (k)(2) Written Retrofit Plan

- i. Content of the Plan
 - A. Narrative description of the specific measures that will be taken to retrofit the CCR unit in accordance with the CCR Rule.
 - B. A description of the procedures to remove all CCR and contaminated soils and sediments from the CCR unit.
 - C. An estimate of the maximum amount of CCR that will be removed as part of the retrofit operation.
 - D. An estimate of the largest area of the CCR unit that will be affected by the retrofit operation
 - E. A schedule for completing all activities necessary to satisfy the retrofit criteria in the CCR Rule, including an estimate of the year in which retrofit activities of the CCR unit will be completed.

In accordance with 40 CFR 257.102 (k)(1)(iii), BAP 1, BAP 2 and EHP-E will remain in compliance with applicable requirements of the CCR Rule including any corrective actions required for the Unit.

2. Retrofit Description

This Plan describes the steps needed to retrofit BAP 1, BAP 2 and EHP-E in accordance with the CCR Rule and recognized and generally accepted good engineering practices. Plan items required under the CCR Rule described in this section constitute the narrative description of the specific measures that will be taken to retrofit the CCR Unit, description of CCR removal procedures, estimated volume of CCR to be removed, estimated surface area of the Units that will be affected by the retrofit, and a milestone schedule of retrofit activities. This initial or any subsequent Plan may be amended at any time.

2.1 Retrofit Description

The Plan will include the removal of all CCR and CCR impacted materials from the footprint of BAP 1 and BAP 2. Materials to be removed included bottom ash and other CCR materials, the existing rip rap and cover material, the existing membrane liner system, and the bedding layer present below the liner system. Upon removal of these layers, the exposed subgrade will be visually inspected for the presence of any CCR materials or any other materials which need to be removed to prepare the subgrade for the proposed construction. Once the subgrade has been prepared, a liner system consisting of either 2 feet of compacted clay or a geocomposite clay liner system (GCL) will be installed. A synthetic membrane liner will then be installed to create a composite liner system in accordance with section 257.71 of the CCR Rule.

All CCR and CCR impacted materials in EHP-E will be consolidated into the eastern portion of the impoundment. Materials to be consolidated included FGD waste, other CCR materials, non-CCR sludge materials from the water treatment plant, the existing rip rap and cover material, and the existing membrane liner system. Upon removal of these layers, the exposed subgrade will be visually inspected for the presence of any CCR materials or any other materials which need to be removed to prepare the subgrade for the proposed construction. Once the subgrade has been prepared, a liner system consisting of either 2 feet of compacted clay or a geocomposite clay liner system (GCL) will be installed. A synthetic membrane liner will then be installed to create a composite liner system in accordance with section 257.71 of the CCR Rule. A divider berm will be constructed between the portion of EHP-E that will be retrofit and the portion which will contain the CCR materials for future capping or beneficial use.

2.2 CCR Removal

CCR and CCR contaminated soils and sediments will be removed from BAP 1 and BAP 2 by mechanical excavation or hydraulic dredging. The materials will be removed from within the footprint of BAP 1 and BAP 2 and will be disposed of within Bottom Ash Surface Impoundment 3 (BAP 3), which is located to the south of BAP 1 and BAP 2. Once all CCR containing materials have been removed, any free water will be removed from the surface of the existing membrane system and will be pumped into BAP 3. The membrane liner system will then be removed and will be disposed of in BAP 3. The underlying bedding material will then be removed by mechanical excavation methods and will be disposed of in BAP 3. Since a membrane liner system is currently in place below the impoundments, it is not anticipated that any CCR contaminated soils or sediments will be present below the bedding layer. This will be confirmed by visual observation of the exposed subgrade once the bedding layer has been removed.

CCR and CCR contaminated soils and sediments will be consolidated into the eastern portion of EHP-E by mechanical methods. Once all CCR containing materials have been consolidated, any free water will be removed from the surface of the existing membrane system and will be pumped into an existing CCR Unit. The membrane liner system will then be removed and will be disposed of in the waste consolidation area. Since a membrane liner system is currently in place below the impoundments, it is not anticipated that any CCR contaminated soils or sediments will be present below the liner. This will be confirmed by visual observation of the exposed subgrade once the membrane has been removed.

2.3 CCR Volumes

Based on bathymetric survey data collected in 2018, the estimated total volume of CCR and CCR impacted materials in BAP 1 is 132,000 CY and 141,000 CY in BAP 2. Final removal volumes may vary based on CCR which has been generated since the survey was completed, or due to variations in the elevations of the existing pond construction

from the original design drawings for the facility. We estimate 205,000 CY of CCR and non-CCR solids are present within the footprint of EHP-E.

2.4 CCR Unit Area

BAP 1 and BAP 2 have surface areas of 15.5 and 30.9 acres respectively. The full surface area of the impoundments will be impacted by the retrofit operations and the newly constructed liner system will cover the entire footprint. The retrofit impoundments will have the same footprint as the existing units.

EHP-E has a total surface area of 27.9 acres. The solids within EHP-E will be consolidated into approximately 13 acres in the eastern portion of EHP-E and the remaining 15 acres will be retrofit. The new retrofit impoundment will have a footprint of approximately 15 acres.

2.5 Retrofit Schedule

Retrofit construction activities for BAP 1, BAP 2 and EHP-E will be completed consecutively in 2020 and 2021. Retrofit construction activities will commence in March of 2020. A milestone schedule for retrofit activities is as follows:

- Contractor Mobilization – March 2020
- EPH-E CCR Removal and Dewatering – March 2020 to May 2020
- EHP-E Earthwork and Liner Installation – May 2020 to August 2020
- EPH-E Commissioning and Commencement of CCR Placement – August 2020 to November 2020
- BAP 1 CCR Removal and Dewatering – March 2020 to May 2020
- BAP 1 Earthwork and Liner Installation – May 2020 to July 2020
- BAP 1 Commissioning and Commencement of CCR Placement – July 2020
- BAP 2 CCR Removal and Dewatering – April 2021 to June 2021
- BAP 2 Earthwork and Liner Installation – June 2021 to September 2021
- BAP 1 Commissioning and Commencement of CCR Placement – October 2021
- Completion of Retrofit Activities – November 2021

3. Amendment of CCR Retrofit Plan

This initial or any subsequent written retrofit plan developed pursuant to 40 CFR 257.102 (k) may be amended at any time.

The Plan must be amended whenever:

- There is a change in the operation of the CCR unit that would substantially affect the written retrofit plan in effect; or
- Before or after retrofit activities have commenced, unanticipated events necessitate a revision of the written retrofit plan.

The written retrofit plan must be amended at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise an existing written retrofit plan. If a written retrofit plan is revised after retrofit activities have commenced for a CCR unit, the current retrofit plan must be amended no later than 30 days following the triggering event.

A written certification from a qualified professional engineer that the initial and any amendment of the written retrofit plan meets the requirements of § 257.102 (k) must be obtained.

Plan changes will be documented using the Revision History which prefaces this Plan. Substantial changes to this plan will be certified by a Qualified Professional Engineer.

4. Engineering Certification

Certification Statement 40 CFR § 257.102(k)(2)(iv) – Activities for the Retrofit of an Existing CCR Surface Impoundment

CCR Unit: Basin Electric Power Cooperative; Laramie River Station; Bottom Ash Surface Impoundment 1, Bottom Ash Surface Impoundment 2 and East Emergency Holding Pond.

I, Jeremy Thomas, being a Registered Professional Engineer in good standing in the State of Wyoming, 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, for the above-referenced CCR Unit, that the retrofit activities contained in the retrofit plan dated January 9, 2020 meet the requirements of 40 CFR § 257.102.

Jeremy Thomas
Printed Name

January 9, 2020
Date

