2026 PERIODIC HAZARD POTENTIAL CLASSIFICATION

ASSESSMENT OF COAL COMBUSTION RESIDUAL (CCR)

SURFACE IMPOUNDMENTS AT COLSTRIP STEAM ELECTRIC STATION

Prepared for:

Talen Montana, LLC
P.O. Box 38
Colstrip, MT 59323

Prepared by:

Hydrometrics, Inc.
3020 Bozeman Avenue
Helena, MT 59601

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1.0 INTRODUCTION

1.1 BACKGROUND

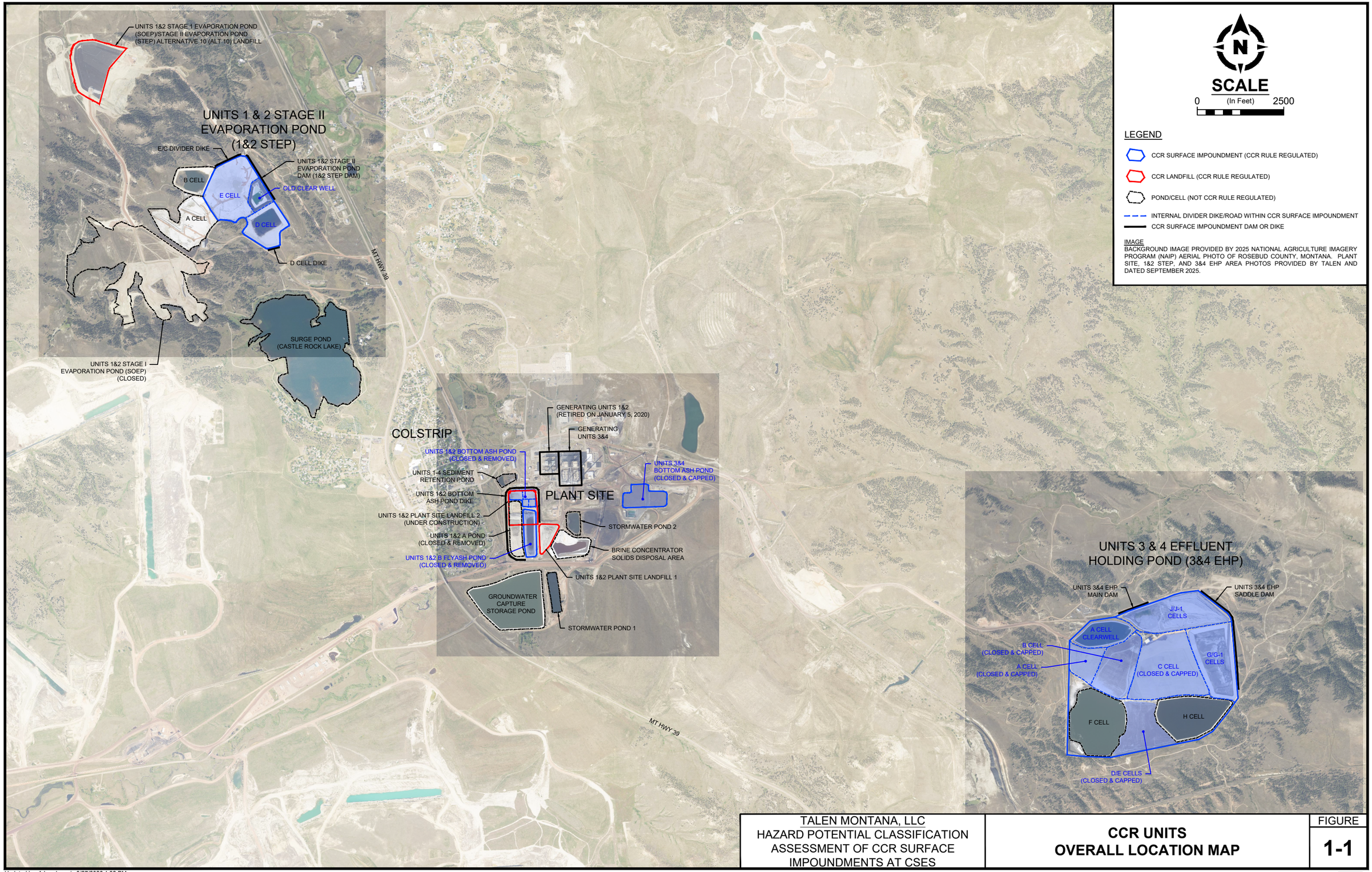
The United States Environmental Protection Agency (EPA) established regulations under Subtitle D of the Resource Conservation and Recovery Act (RCRA) to address the risks associated with disposal of Coal Combustion Residuals (CCRs) generated at electric utilities as well as independent power producers. These regulations became the Disposal of Coal Combustion Residuals from Electric Utilities final rule (CCR Rule), which was signed by the EPA Administrator on December 19, 2014 and was published to the Federal Register on April 17, 2015 as Title 40 CFR §257 Subpart D (EPA, 2015). Section 257.73 paragraph (a)(2)(i) of the CCR Rule requires a hazard potential classification assessment for each CCR surface impoundment. A CCR surface impoundment is defined by CCR Rule §257.53 as "*…a natural topographic depression, man-made excavation, or dike area, designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.*" CCR Rule §257.73 paragraph (f) specifies that the initial hazard potential classification assessment was to be performed by October 17, 2016, with a periodic update due every five years thereafter. The initial hazard potential classification assessment for the CCR surface impoundments at Colstrip Steam Electric Station (CSES) was completed on October 7, 2016 (Hydrometrics, 2016). The last periodic update to the initial hazard potential classification was completed on October 7, 2023 (Hydrometrics, 2023).

Talen Montana, LLC is the operator of the CSES located near Colstrip, Montana. Historically, CSES operated two pairs of coal-fired generating units known as Units 1&2 and Units 3&4. Units 1&2, originally placed in service in 1975, had a generating capacity of 330-megawatts-gross each (Hydrometrics, 2012). Units 1&2 owners include Talen Montana, LLC and Puget Sound Energy Inc. Units 1&2 were retired from service on January 5, 2020. Units 3&4, placed in service in 1983 and 1985, respectively, have a generating capacity of 805-megawatts-gross each (Hydrometrics, 2012). Units 3&4 owners include Talen Montana, LLC, PacifiCorp, Portland General Electric Company, and NorthWestern Energy.

CCRs produced by the generating units at CSES are handled and disposed of in a closed-loop process aimed at minimizing impacts to water resources in the area. The closed-loop system is comprised of several CCR surface impoundments on and off the plant site that perform various functions to handle and permanently store CCRs. These surface impoundments and their associated CCR units are regulated under the CCR Rule. Units 1&2 and Units 3&4 have their own respective surface impoundments with cells dedicated for CCR handling and storage. It is also important to note that because Units 1&2 have been retired, surface impoundments associated with Units 1&2 continue to store existing CCRs but no longer accept new CCRs. The CCR units at CSES regulated by the CCR Rule include:

- Units 1&2 Stage II Evaporation Pond (1&2 STEP) D and E Cells and Old Clearwell;
- Units 1&2 Bottom Ash Pond (1&2 BAP), (Closed);
- Units 1&2 B Flyash Pond (B Flyash Pond), (Closure in Progress);
- Units 3&4 Effluent Holding Pond (EHP) A (Closed), B (Closed), C (Closed), D/E (Closed), G/G-1 Cells, and J/J-1 Cells; and
- Units 3&4 Bottom Ash Pond (3&4 BAP) which is incised and closed.

Incised CCR units are exempt from the requirements of §257.73 paragraph (a)(2)(i). Furthermore, 3&4 BAP was closed and capped with a certified final cover system in 2019 (Geosyntec, 2023). Therefore, the 3&4 BAP will not be assigned a hazard potential classification. It is also notable that 1&2 BAP, closed by removal in 2024, and B Pond, closure currently in progress, were impounded by the Units 1&2 Bottom Ash Pond Dike (1&2 BAP Dike). Closure of both ponds included removal of CCR and construction of a CCR compliant landfill, identified as Units 1&2 Plant Site Landfill 2 (Landfill 2), within their former footprint (Geosyntec, 2026a). The locations of CCR units and their respective CCR surface impoundments are displayed on Figure 1-1.



TALEN MONTANA, LLC
HAZARD POTENTIAL CLASSIFICATION ASSESSMENT OF CCR SURFACE IMPOUNDMENTS AT CSES

CCR UNITS
OVERALL LOCATION MAP

FIGURE
1-1

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C:\Users\ajourdonnais\Dropbox\Talen - 2026 CCR Unit Assessments\7 - CAD\DWG\2600701h002.dwg [FIGURE 1-1 (HPCA)]

Hydrometrics, Inc.

1.2 PURPOSE

The purpose of this document is to provide a periodic hazard potential classification assessment for each federally regulated surface impoundment at CSES in accordance with the specific requirements of 40 CFR §257.73 paragraph (a)(2)(i). Each CCR unit impoundment will be assigned a hazard classification of low, significant, or high hazard. The basis for each classification will be provided. It is also important to note that the classification is not a statement on the condition of the impoundment but rather on the severity of the potential threat imposed on the downstream area by the impoundment in the event of failure. Under the CCR Rule each hazard potential classification is described as follows:

- ***Low Hazard Potential*** – 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 owner's property.
- ***Significant Hazard Potential*** – Failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns.
- ***High Hazard Potential*** – Failure or mis-operation will probably cause loss of human life.

1.3 REPORT ORGANIZATION

This report is organized as follows:

- Section 2.0 – Hazard Potential Classification Assessment of 1&2 STEP Dam;
- Section 3.0 – Hazard Potential Classification Assessment of 1&2 BAP Dike;
- Section 4.0 – Hazard Potential Classification Assessment of 3&4 EHP Main and Saddle Dams;
- Section 5.0 – Hazard Potential Classification Assessment Certification; and
- Section 6.0 – References.

2.0 HAZARD POTENTIAL CLASSIFICATION ASSESSMENT OF 1&2 STEP DAM

The following section provides the periodic hazard potential classification assessment for the 1&2 STEP Dam as required by §257.73 paragraph (a)(2)(i).

2.1 1&2 STEP DAM HAZARD POTENTIAL CLASSIFICATION

The 1&2 STEP Dam, which impounds the STEP CCR units, has been previously classified as high hazard (Maxim, 2006a; Hydrometrics, 2016; Hydrometrics, 2023). It is notable that operational changes at the 1&2 STEP facility over the last few years have significantly reduced the volume of liquid stored in the STEP CCR cells as well as the other cells at the STEP facility which are not regulated by the CCR Rule. To reflect these changes, inundation mapping for the 1&2 STEP Dam was updated in 2024 (Hydrometrics, 2024a). While the modeled flood wave showed a significant reduction in magnitude compared with previous inundation mapping efforts, sudden failure of 1&2 STEP Dam is still likely to result in property damage and has the potential to result in loss of human life. Review of the downstream inundation area revealed residences, businesses, a primary state highway, and railroad tracks within a short distance from the dam that remain at risk in the event of a sudden 1&2 STEP Dam failure (Hydrometrics, 2024a). For these reasons, it is appropriate for the 1&2 STEP Dam hazard potential classification to remain high.

3.0 HAZARD POTENTIAL CLASSIFICATION ASSESSMENT OF 1&2 BOTTOM ASH POND DIKE

The following section provides the periodic hazard potential classification assessment for 1&2 BAP Dike as required by §257.73 paragraph (a)(2)(i).

3.1 1&2 BAP DIKE

The 1&2 BAP Dike, which impounds 1&2 BAP and B Pond, received an initial hazard potential classification of high (Hydrometrics, 2016). The last periodic update of this document, conducted in 2023, also assigned a hazard potential classification of high to 1&2 BAP Dike (Hydrometrics, 2023). Since the last periodic update in 2023 and as mentioned in Section 1.1 above, the 1&2 BAP has been closed and replaced with Landfill 2. Landfill 2 is a CCR landfill as defined in §257.53. The 1&2 BAP Dike remains in place as part of the Landfill 2 structure, but the formerly impounded cells have been dewatered, had residual CCR removed by excavation, were regraded, and lined with a geosynthetic liner system(Geosyntec, 2026a and 2026b). The bottom liner and leachate collection system for Landfill 2 has been installed and certified as complete as of August 2026 (Geosyntec, 2026b). Given that 1&2 BAP Dike no longer impounds any appreciable volume of liquid, and the Landfill 2 bottom liner has a leachate collection system to remove liquid from the stored dry CCR waste, there is no longer a potential inundation hazard posed to the downstream area, and it is appropriate to revise the assigned hazard potential classification from high to low.

4.0 HAZARD POTENTIAL CLASSIFICATION ASSESSMENT OF 3&4 EHP MAIN AND SADDLE DAM

The following section provides the periodic hazard potential classification assessment for the Units 3&4 EHP Main and Saddle Dams as required by §257.73 paragraph (a)(2)(i).

4.1 3&4 EHP MAIN DAM AND SADDLE DAM

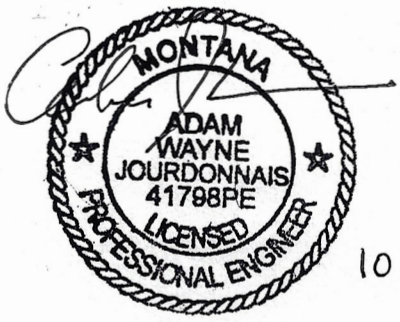
The 3&4 EHP Main and Saddle Dams were originally classified as low hazard under U.S. Army Corps of Engineers' guidelines (Maxim, 2006b). However, a 2009 EPA-mandated site-specific assessment of the surface impoundments at CSES recommended a hazard classification of "significant" based on the potential for economic and environmental damage in the event of a breach (GEI, 2009). Under CCR Rule requirements, Hydrometrics provided an initial hazard potential classification of significant in 2016 (Hydrometrics, 2016). A hazard potential classification of significant was again assigned during the latest periodic update of this document in 2023 (Hydrometrics, 2023).

The area downstream from the Main and Saddle Dams is a combination of rural, rangeland, and agricultural land. Sudden failure of the 3&4 EHP dams is expected to result in a breach flow, which would dissipate in the relatively broad, flat drainage valleys of Cow Creek and later Rosebud Creek. The nearest group of structures is located about eight miles from the EHP area along Rosebud Creek. Analysis of the existing dam breach model and resulting inundation map for the Main and Saddle Dams, updated in 2024 to reflect operational changes at 3&4 EHP resulting in decreased volumes of impounded liquid, determined that breach flows would reach this group of structures more than five hours after a sudden breach at an approximate maximum depth of 4 feet (Hydrometrics, 2024b). These structures are located on a small bluff approximately 12 to 15 vertical feet above Rosebud Creek. While shallow flooding of these structures is not impossible, it is extremely unlikely. Furthermore, the large amount of time between dam failure and the resulting breach flow reaching these structures, as well as other structures further downstream, provides sufficient time for advance warning and evacuation of potential occupants. For these reasons we have determined that loss of life from failure of the Main or Saddle Dam is negligible. Therefore, Main and Saddle Dam continue to be assigned a hazard potential classification of significant.

5.0 HAZARD POTENTIAL CLASSIFICATION ASSESSMENT CERTIFICATION

CERTIFICATION

I, Adam Jourdonnais, a registered Professional Engineer in the State of Montana, certify that this ***Hazard Potential Classification Assessment Report*** for the Colstrip Steam Electric Station was conducted in accordance with the requirements of ***40 CFR 257.73(a)(2)(i) Hazard Potential Classification Assessment.*** This certification is made in compliance with the specific requirements of §257.73(a)(2)(ii). This certification is based in part on review of reference documentation identified in Section 6.0 of this report.



10/15/2026

Adam W. Jourdonnais, P.E.

6.0 REFERENCES

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