

## **Colstrip 1&2 Plantsite Ponds Closure Evaluation Interim Update 1/4/23**

On October 30, 2018, MDEQ approved the Revised Plantsite Remedy Evaluation Report (August 2018) with the preferred alternative identified as Alternative 4. Alternative 4 incorporated freshwater flushing, groundwater capture and treatment, and source control measures including dewatering and closure in place of the 1&2 A Pond, the 1&2 Bottom Ash Pond, and the 1&2 B Flyash Pond. The Alternative 4 remedy groundwater model projected the groundwater cleanup criteria to be met by 2049.

The groundwater remediation activities and corrective measures are in the process of being implemented. Operation of freshwater flushing began in 2020, groundwater capture began in 1985, and wastewater treatment will commence in 2023. These activities will continue until the cleanup criteria are met.

Source control is achieved through closure of Plantsite ponds. Pond closure activities include the following:

- 1&2 D1 to D3 Brine Ponds closed by removal in 1994, solids placed in effluent holding pond
- 1&2 D4 Brine Pond closed by consolidating solids in a lined repository in 2006
- 3&4 Scrubber Drain Pond closed by removal in early 2015, solids placed in A Pond
- 3&4 Wash Tray Pond closed by removal in early 2015, solids placed in A Pond
- 1&2 original Bottom Ash Pond closed by removal in early 2015, solids placed in A Pond
- 1&2 Cooling Tower Blowdown Pond closed in 2019, area used for Groundwater Capture Storage Pond
- 1&2 A Pond closed in place in 2019
- 1&2 Bottom Ash Pond scheduled for closure in place in 2022
- 1&2 B Flyash Pond scheduled for closure in place in 2023

Under the federal CCR Rule, the default deadline to complete closure activities is five years from commencement of closure activities. See 40 C.F.R. 257.102(f)(1)(ii). For the 1&2 Bottom Ash Pond, this five-year default closure deadline is 2025 and the default deadline for the 1&2 B Flyash Pond is 2027. If additional time is needed to complete closure due to factors beyond the facility's control, a two-year extension demonstration can be completed pursuant to the federal CCR Rule.

In January 2022, EPA issued its first proposed decisions on various power plant to facilities' Part A demonstrations under the federal CCR Rule requesting extension of the deadline to cease waste receipt in certain unlined CCR surface impoundments. Talen Montana did not submit a Part A demonstration for any of the Colstrip units, but EPA's assessment of the Part A demonstrations required EPA to opine on the Agency's position regarding how compliance with various provisions of the federal CCR Rule may be achieved. With respect to the closure in place performance standards, the federal CCR Rule provides that a CCR unit must be closed in a manner that will control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or the atmosphere. In EPA's January proposed Part A decisions, the Agency announced its position that "infiltration" refers to any kind of movement of liquids into a CCR unit, including liquid (i.e., groundwater) permeating from the bottom or sides of the unit. EPA's January 2022 proposed Part A decisions are currently being challenged in federal court. See *Electric Energy, Inc. v. EPA*, No. 22-1056 (D.C. Cir.).

Considering these new positions announced by EPA in January 2022, MDEQ and Talen engaged in discussions regarding the previously approved closure in place of the 1&2 A Pond, 1&2 Bottom Ash Pond, and 1&2 B Flyash Pond and the potential for portions of the closed ponds to be in contact with groundwater. MDEQ and Talen agreed to put the previously approved closure-in-place activities for the 1&2 Bottom Ash Pond and 1&2 B Flyash Pond on hold while a closure evaluation was conducted to understand the potential for these closed ponds to be in contact with groundwater and, if needed, to evaluate measures, such as engineering controls, that will control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste. It was determined that the closure activities should be deferred one year while an evaluation of closure method and engineering controls could be conducted to address potential infiltration of liquids. EPA recently confirmed in one of its final Part A decisions that engineering controls can be an acceptable means of addressing post-closure infiltration where contact with groundwater is identified, and issued further guidance on how engineering controls may be employed. See Hazardous and Solid Waste Management System: Disposal of CCR from Electric Utilities: A Holistic Approach to Closure Part A: Final Decision on Request for Extension of Closure Date Submitted by Gavin Power, LLC, Notice of Availability, 87 Fed. Reg. 72,989 (Nov. 28, 2022) ("Gavin Final Decision").<sup>1</sup>

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<sup>1</sup> Full text of the Gavin Final Decision available here: <https://www.regulations.gov/document/EPA-HQ-OLEM-2021-0590-0100>.

Based on groundwater model predictions, the initial technical component of the evaluation indicated that once the ponds are capped and closed consistent with the MDEQ closure plan and the remediation activities, including freshwater flushing and groundwater capture to meet cleanup criteria are completed, the groundwater level may rise such that the liner on part of the closed ponds may be in contact with groundwater. Although the initial evaluation indicates potential future contact, all three ponds have a liner to help prevent infiltration from contact: the 1&2 A Pond was constructed with a 3-foot clay liner, the 1&2 Bottom Ash Pond was also constructed with a 3-foot clay liner with its clearwell constructed with a double lined RFP liner, and the 1&2 B Pond was constructed with a double lined RFP liner.

The model assumptions in the initial technical component of the evaluation include infiltration recharge related to several surface water impoundments in the vicinity of the Plantsite even though the long-term presence of many of these features is unknown. Therefore, the simplifying assumption was made that these will persist into the future. Table 1 includes a list of recharge assumptions that may affect the water table elevation after shutdown of the capture and flushing system. Figures 1, 2, & 3 are included with this interim update to illustrate the model projections.

In addition to the initial technical aspects of this evaluation described above related to the potential for groundwater contact post-closure, the legal and permitting aspects also need to be incorporated into the evaluation, as does further assessment of potential engineering controls. As noted above, EPA's position on the closure-in-place performance standard infiltration requirement is currently the subject of litigation and will likely not be resolved until later 2023 at the earliest. Further, EPA supplied additional guidance on its position on use of engineering controls to meet the closure-in-place performance standards in the Gavin Final Decision released in November 2022, which Talen Montana is in the process of evaluating. Finally, any evaluation of an alternative closure-by-removal option needs to include a permitting review regarding potential Montana Solid Waste permitting requirements, potential CCR Rule permit requirements, and potential Montana Major Facility Siting Act (MFSa) amendment requirements (if any).

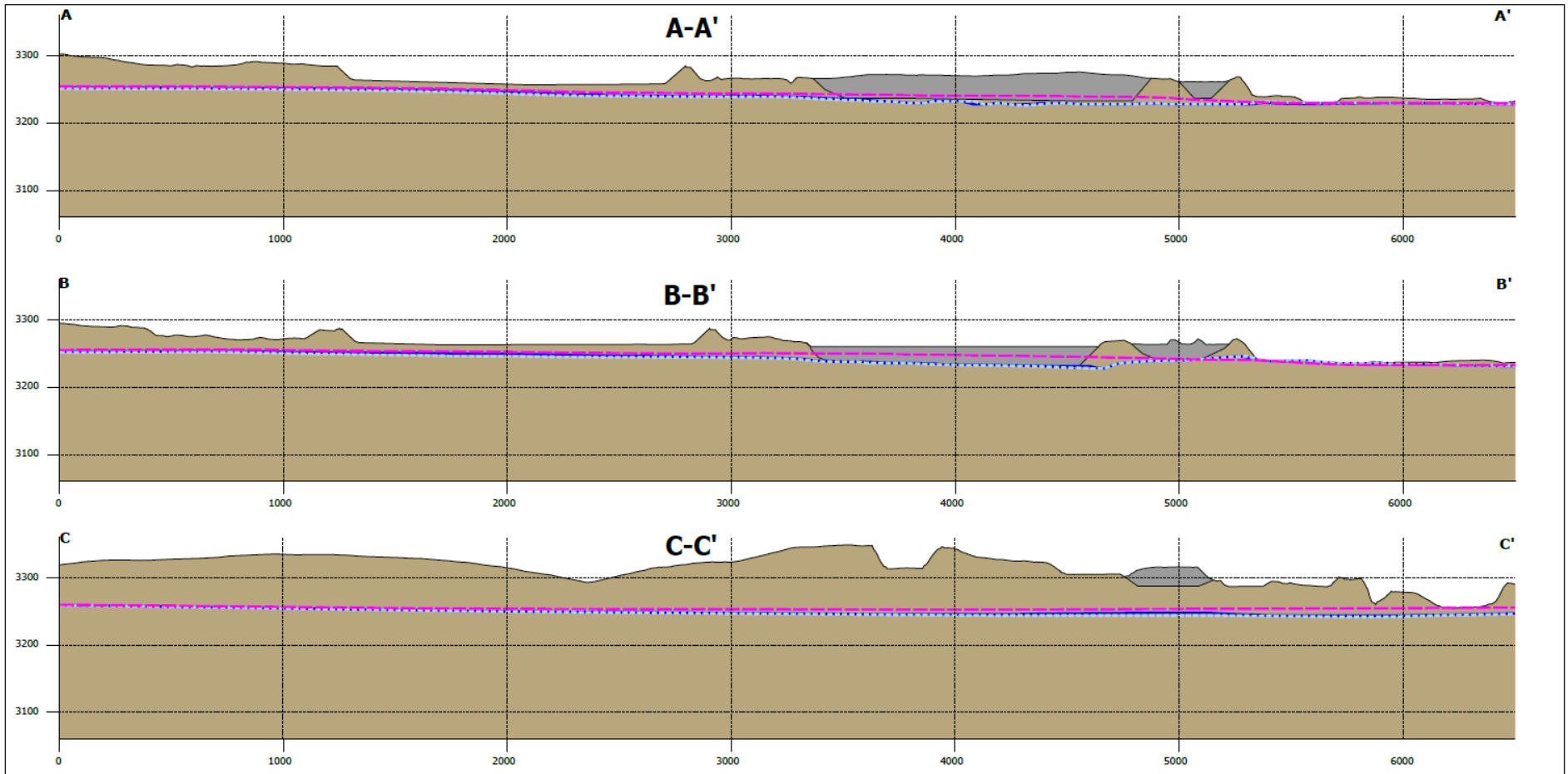
The following schedule is proposed to complete the closure evaluation as requested by MDEQ and identify the appropriate closure method for the 1&2 A Pond, 1&2 Bottom Ash Pond, and 1&2 B Flyash Pond.

- Complete the closure evaluation, including the evaluation of potential engineering controls to address potential infiltration of liquids. Submit this evaluation report to MDEQ by April 1, 2023.
- Further assess EPA's current position on the closure-in-place performance standard infiltration requirement that is presently the subject of litigation to help understand potential impact on closure methods (ongoing).
- Review the potential permitting requirements that could be required for a new landfill in a closure-by-removal alternative option, including Montana Solid Waste permitting requirements, federal CCR Rule permitting requirements, and MFSA amendment requirements (if any). Develop agreement with MDEQ on potential permitting requirements by April 1, 2023.
- If closure in place continues as approved, begin closure activities on the 1&2 Bottom Ash Pond by June 1, 2023. Complete closure of the 1&2 Bottom Ash Pond by November 1, 2023. Complete closure of 1&2 B Flyash Pond by November 1, 2024.
- If closure by removal is required, a schedule for designing, permitting, and constructing a new landfill, and completing excavation and closure activities will be submitted by mid-July 2023.

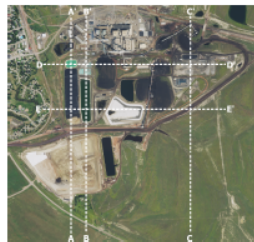
**Table 1. Relevant Seepage Rates – Plant Site**

Water Source	Seepage Rate (GPM)	Notes
Background Recharge	53.20	Assumes constant rate without any potential climatic changes
Un-Vegetated Area of Plant Site	52.30	Assumes constant rate without any potential climatic changes
Stormwater Pond 1	11.06	
Stormwater Pond 2	11.35	
WECO Pond PO-10	3.64	
WECO Pond PO-10A	19.31	
WECO Pond 151	58.18	
City of Colstrip Sewer Lagoons	129.69	

Figure 1 – Colstrip Plantsite Pond Simulated Groundwater Levels



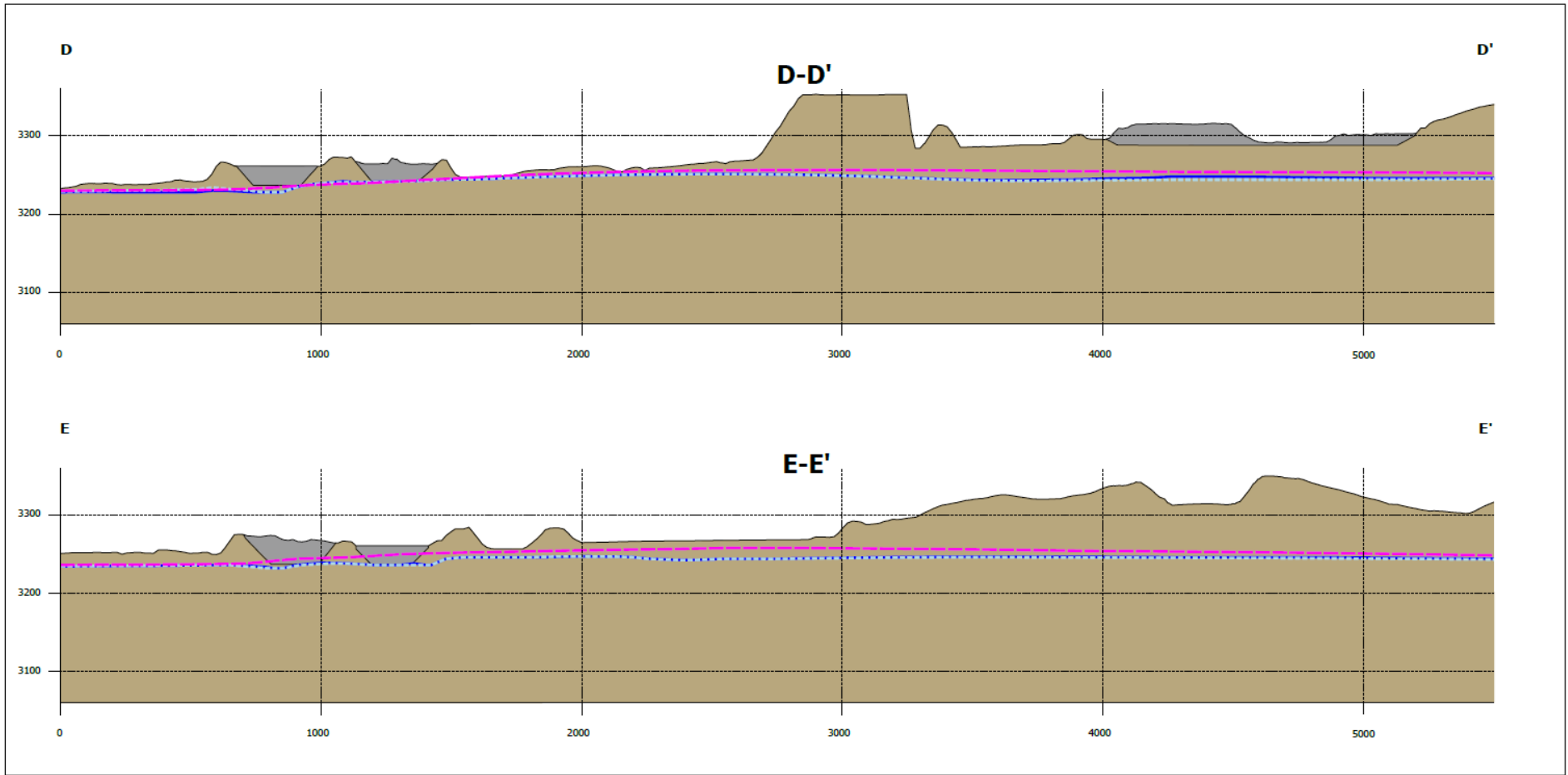
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Vertical exaggeration: 3x  
0ft 1000ft



- 2019 Simulated Water Table
- - - 2050 Simulated Water Table
- - - 2070 & 2120 Simulated Water Table
- Coal Ash
- Bedrock

Simulated Water Tables along Cross-Section A-A', B-B', and C-C'  
Plant Site  
CSES-Colstrip, Montana

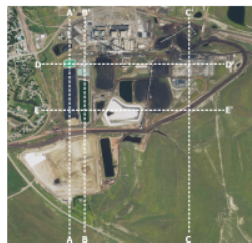
Figure 2 – Colstrip Plantsite Pond Simulated Groundwater Levels



Scale: 1:4,600  
Vertical exaggeration: 3x

0ft 1000ft

**NewFields**

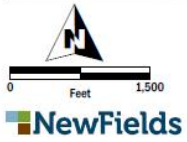
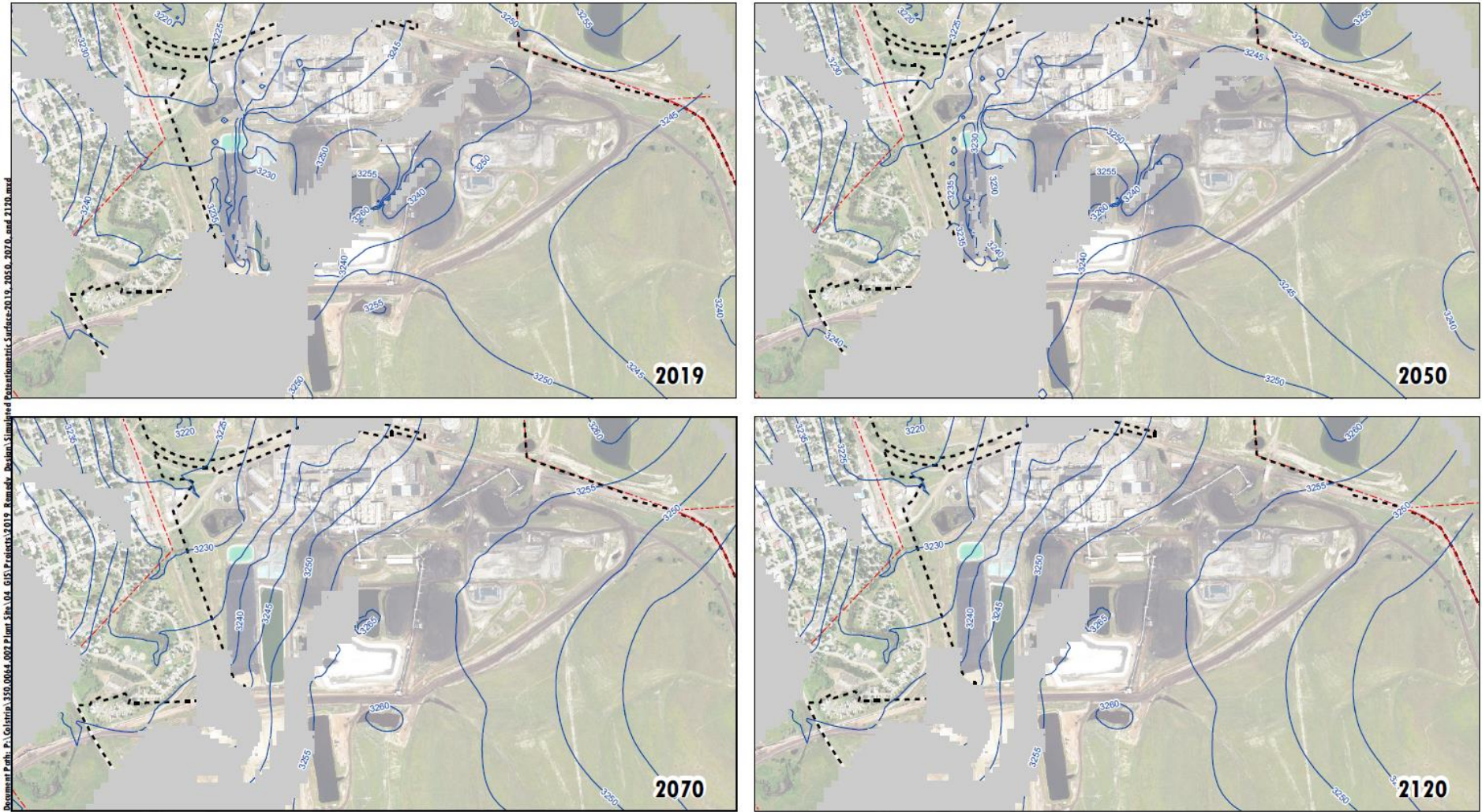


- 2019 Simulated Water Table
- - - 2050 Simulated Water Table
- - - 2070 & 2120 Simulated Water Table
- Coal Ash
- Bedrock

Simulated Water Tables along Cross-Section D-D' and E-E'  
Plant Site  
CSES-Colstrip, Montana



Figure 3 – Colstrip Plantsite Pond Simulated Groundwater Levels



- Dry Cells
- Potentiometric
- AOC Boundary
- CSES Property Boundary

Simulated Layer 1 Potentiometric Surfaces  
2019, 2050, 2070, and 2120  
Plant Site  
CSES-Colstrip, Montana