



March 30, 2021

Mr. Zach Trujillo  
Environmental Protection Specialist  
Colorado Division of Reclamation, Mining & Safety  
Department of Natural Resources  
1313 Sherman Street, Room 215  
Denver, CO 80203

**RE: Colowyo Coal Company L.P.**  
**Permit No. C-1981-019**  
**Technical Revision No. 145**  
**Fourth Adequacy Response**

Dear Mr. Trujillo,

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Axial Basin Coal Company, which is the general partner to Colowyo Coal Company L.P. (Colowyo). Therefore, Tri-State on behalf of Colowyo is submitting this fourth adequacy response for technical revision 145 (TR-145) to Permit No. C-1981-019.

Tri-State received the fourth adequacy letter from the Division dated March 25, 2021. Adequacy comments that were noted as addressed are not included in this response. Only the remaining comments have been included. Therefore, Tri-State is providing the following responses to the Division's concerns:

Adequacy Item #5

- On proposed Exhibit 7, Page 2 of the PAP, Tri-State proposes the removal of some of the currently approved text in Section 1.5. The Division accepts the removal of the term "worst case condition," but believes that additional text should be added to Exhibit 7. Rule 4.05.6(3) states that a pond must contain or treat the runoff from a 10-year, 24-hour precipitation event. It is the Division's interpretation that this is true at all times prior to final bond release, including when the watershed conditions are such that the runoff volume is highest and not just the final post-mining topography. In order to address Rule 4.05.6(3), the Division suggests providing revised text to be included to Exhibit 7. Please see the following text as a recommendation:

*Hydrologic modeling related to the analysis of channels and/or ponds is based on the largest runoff volume or peak flow for a given return event (e.g. 10 year, 24 hour event) during the life of the structure (conservative estimate). The largest values for runoff volume and peak flow are generally associated with the watershed condition immediately after all reclamation has been completed; however, that may not always be the case. In some situations the highest volume or flow could occur prior to the end of reclamation. As such, a judgment to determine the appropriate condition must be made in the hydrologic*



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*modeling. In some cases, it may be appropriate to execute the model under more than one condition and compare results for runoff volume and flow and utilize the more conservative estimate.*

**Response:** There is not a rule requirement for Tri-State to include the text noted by the Division. Section 1.5 as provided sufficiently outlines Tri-State's surface water hydrology model approach. No changes are being made in response to this comment.

- On page Exh. 7-ET-3, there is a sentence near the middle of the page that states, "The assumed hydrologic condition for all three channels is the post mine condition when the entire East Taylor watershed is reclaimed and reporting to the East Taylor Pond." Based on the updated SEDCAD models associated with the East Taylor Pond, it appears that this statement may no longer remain accurate. The Division respectfully requests that this statement be revised.

**Response:** The text noted has been removed.

- On proposed page Exh. 7-ET-3, it states that the 10-year, 24-hour storm for the East Taylor Pond produces 5.76 acre-feet of runoff. This appears to be an error and should be 3.53 acre-feet based on the "East Taylor Pond Model Summary Structure # 2 East Taylor Pond" provided in Tri-State's adequacy response letter dated March 25, 2021. Please provide an updated Exh. 7-ET-3.

**Response:** The runoff of the East Taylor Pond has been corrected as noted.

Also include with this adequacy response is a change of index sheet to ease incorporation of these revised materials into the permit. If you should have any additional questions or concerns regarding this adequacy response, please feel free to contact Tony Tennyson at (970) 326-3560 at your convenience.

Sincerely,

DocuSigned by:  
A handwritten signature in black ink that reads "Daniel Casiraro".  
B70D69F114324DE...

Daniel J. Casiraro  
Senior Manager  
Environmental Services

DJC:TT:der



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Enclosure

cc: Chris Gilbreath (via email)  
Tony Tennyson (via email)  
Angela Aalbers (via email)  
File: C. F. 1.1.2.127 - G471-11.3(21)d

## CHANGE SHEET FOR PERMIT REVISIONS, TECHNICAL REVISION, AND MINOR REVISIONS

Mine Company Name: Colowyo Coal Company

Date: **March 29, 2021**

Permit Number: **C-1981-019**

Revision Description: **TR-145 West Pit and South Taylor PMT Revision**

Volume Number	Page, Map or other Permit Entry to be REMOVED	Page, Map or other Permit Entry to be ADDED	Description of Change
1			No Change
2A			No Change
2B			No Change
2C			No Change
2D			No Change
2E	Page Exh. 7-ET-3 (1 page)	Page Exh. 7-ET-3 (1 page)	Exhibit 7 has been updated.
3			No Change
4			No Change
4			No Change
5A			No Change
5B			No Change
6			No Change
7			No Change
8			No Change
9			No Change
10			No Change
12			No Change
13			No Change
14			No Change
15			No Change
16			No Change
17			No Change
18A			No Change
18B			No Change
18C			No Change
18D			No Change

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Taylor PMT Revision**

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19			No Change
20			No Change
21			No Change
22			No Change

Modeling a constant inflow using SEDCAD™ is somewhat complex. The methodology suggested by SEDCAD™ primary author, Pam Schwab, was used to model the impact of a constant inflow. In the current version of SEDCAD™, a fixed flow can only be input by inserting a "dummy" upstream reservoir with a watershed large enough to produce a "tank" flow, and then setting the output of the dummy reservoir as a constant "User Defined" outflow curve, independent of pool elevation in the dummy reservoir. A flow of 0.56 cfs (250 gpm) was conservatively utilized to represent the flow from the East Taylor Seep, which in reality is lower based on the seasonable availability of water. The watershed, time of concentration, and curve number utilized for this simulated flow are theoretical in nature. The synthesized 250 gpm flow was then dropped directly into East Taylor Pond.

For the reclamation case at the East Taylor Pond, the 10 year 24 hour storm produces 3.53 acre feet of runoff, and the entire storm event is contained below the principal spillway elevation. The 25 year 24 hour storm event peaks at the 6,953.49 elevation which is below the emergency spill way elevation of 6,954.0’.

### **East Taylor Permanent Post Mine Channels**

The East Taylor watershed is comprised of three post-mining channels. One channel, the Taylor Ditch, conveys all the post mining surface water flows to the East Taylor Pond, while the East Taylor Ditch and Taylor Trib Ditch are tributaries to the Taylor Ditch. The locations of all three channels are presented on Map 12 and Figure Exh. 7-14ET-2. The channel profiles are presented on Map 33.

#### **Taylor Ditch**

The area contributory to the Taylor Ditch in some locations is less than one square mile. However, portions of this channel pass over a permanent fill, and the lower portion below the confluence with the East Taylor Ditch is larger than one square mile so the modeled storm event required by rule is the 100 year 24 hour event. The entire length of the Taylor Ditch will be riprap lined. Two stock ponds TD-1 and TD-2 have been constructed inline in the channel to reduce peak flows from larger storm events, and provide a water source to support the post mine land use.

A SEDCAD™ model (100 Year 24 Hour Channel Demonstration model) has been included which evaluates the peak flow and total runoff volume for each of the channel segments for the 100 year, 24-hour storm event. The channel configurations for the 100 year, 24 hour storm for the Taylor Ditch summarized below.