



March 11, 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. 144
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 adequacy response for technical revision 144 (TR-144) to Permit No. C-1981-019.

Tri-State received your adequacy letter dated December 17, 2020, and is providing the following responses to the Division's concerns:

- 1. Based on previous Colowyo Mine Quarterly Fill Monitoring Reports (Reports) for the West Taylor Fill (Fill), global stability for the Fill has been done based on piezometer measurements and there are no past or current surface elevations evaluated in the Reports. Will elevation information be provided in the Reports that show a comparative analysis to baseline elevations? If so, please provide baseline elevation information that the Division can use to evaluate continued global stability of the Fill.*

Response: Please refer to the revised valley fill monitoring plan submitted under this cover in Section 4.09 in Volume 12. That being said, each quarter, elevations obtained from monuments that will be installed on the face of the fill surfaces, will be evaluated against a baseline elevation obtained when the monuments are installed. The baseline elevation and quarterly survey elevation will be analyzed and reported to the Division quarterly in accordance with Rule 4.09(11)(b).

- 2. Will the proposed monitoring plan be using elevation measurements at key points along the Fill to determine potential instability using surveying mirrors? If so, please provide the location of each surveying mirror to be installed along the Fill.*



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Response: Please refer to the revised valley fill monitoring plan submitted under this cover in Section 4.09 in Volume 12. The final locations of the monuments will be dictated by on the ground topography, the final location for a base point that Colowyo can use to visually see all the survey monuments on the face of the fill with the survey instrument, and the survey back site location. This information will not be known until the work is actually completed on the ground. That being said, each survey monument installed, the location, and elevation, will be noted in the quarterly report submitted in accordance with Rule 4.09(11)(b).

3. *Please provide additional discussion and details regarding the accuracy of the drone aerials that will ensure accurate and consistent measurements are being provided with the Reports.*

Response: Colowyo has determined that drone flights are not be an appropriate methodology to monitor the stability of the West and East Taylor Fills as originally proposed. Please see the revised monitoring plan proposed under this cover in Section 4.09 in Volume 15.

If you should have any additional questions or concerns, please feel free to contact Tony Tennyson at (970) 326-3560 at your convenience.

Sincerely,

DocuSigned by:

Daniel Casiraro

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Daniel J. Casiraro
Senior Manager
Environmental Services

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Enclosure

cc: Chris Gilbreath (via email)
Tony Tennyson (via email)
Angela Aalbers (via email)
File: C. F. 1.1.2.133 - G471-11.3(21)d

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

Mine Company Name: Colowyo Coal Company

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

Date: **March 10, 2021**

Revision Description: **TR-144 West Fill Piezometer**

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			No Change
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	Rule 4, Pages 9 through 11 (3 pages)	Rule 4, Pages 9 through 11 (3 pages)	Section 4.09 has been updated.
13			No Change
14			No Change
15			No Change
16			No Change
17			No Change
18A			No Change
18B			No Change
18C			No Change

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Volume Number	Page, Map or other Permit Entry to be REMOVED	Page, Map or other Permit Entry to be ADDED	Description of Change
18D			No Change
19			No Change
20			No Change
21			No Change
22			No Change

RULE 4 PERFORMANCE STANDARDS

1. Inspections will be conducted at least quarterly during the construction period and during the following specific construction periods.
 - a. removal of topsoil and organic material
 - b. placement of underdrain system
 - c. installation of surface drain system
 - d. placement of fill material to insure that the largest rocks are reaching the bottom of the dump face and that the formation of voids that adversely affect mass stability are prevented and
 - e. revegetation

The purpose of the inspections is two fold. First, these inspections will document and certify that the construction plan is being followed. Secondly, during the above phases of the construction, a key emphasis of all inspections will be to implement routine contingencies as situations warrant. For example, perhaps a section of underdrain should be reworked, or the spoil dump raised to provide optimum gravity spoil sorting. Inspections and implementation of contingencies during these critical phases of fill construction will be a routine but very important component of fill inspections.

2. Each certified inspection report will be provided to the Division within two weeks after each required inspection. Each report will certify that the fill has been constructed as specified in the minimum design approved by the Division. The reports will include a description of any appearances of instability, structural weakness and other hazardous conditions observed during the inspection.
3. Certified reports addressing the underdrain system will include color photographs taken during and after construction, but before the underdrain is covered with spoil.

After construction, the South Taylor fills will be monitored quarterly. The monitoring plan for the West and East Taylor Fills will include the following:

1. Once an adequate area on a fill has been constructed to final grade, six survey monuments (prisms) will be installed on the West Taylor Fill, and six monuments will also be installed on the East Taylor Fill.
2. Each survey monument location will be measured and surveyed upon installation to create a baseline monitoring elevation.
3. Fencing will be installed around each survey monument location to ensure it is protected.
4. Each quarter the survey monuments will be re-surveyed for evaluation against the baseline elevation.
5. On a quarterly basis, a certified report by a registered professional engineer will be completed taking into consideration any changes of the fill monument elevations from the baseline. The report will also note any surficial slope failure or the formation of springs and seeps on the face of the fill.

Monitoring of both fills will continue quarterly until the entire watershed contributing to the fill attains Phase II bond release. At that time, Colowyo at its discretion, will apply to the Division to release monitoring of the fills.

4.10 – 4.12 DISPOSAL OF EXCESS SPOIL

These sections are addressed in Volume 1.

4.13 CONTEMPORANEOUS RECLAMATION

All reclamation efforts, including backfilling, grading, topsoil replacement and revegetation, of land disturbed by the mining activities in the South Taylor pit shall occur as contemporaneously as practicable with mining

RULE 4 PERFORMANCE STANDARDS

operations. Colowyo has formally requested a variance for a delay in contemporaneous reclamation in the South Taylor mining area due to the unachievable requirements listed in Rule 4.14.1(1)(d), which the Division has approved.

4.14 BACKFILLING AND GRADING

4.14.1 General Requirements

The mining operations of Colowyo will not employ the use of contour mining methods.

Colowyo does not have thin or thick overburden as defined in Subsection 4.14.4 or Subsection 4.14.5.

The mining plan, as described in Section 2.05.3, maximizes coal conservation and recovery while minimizing adverse environmental impacts. Because of the multi-seam mining configuration planned by Colowyo, an exemption from the 180 day or four spoil ridge limitations has been formally requested and granted by the Division. The mining plan has been designed as a continuously-moving open pit operation with the mine advancing approximately parallel to the dip of the numerous coal seams. The mining operation is an extension of the existing Section 16 mine operation, and will progress in a southward direction with shovels/trucks/ proceeding along the entire length of the mining area (Map 23). With the numerous benches used in an open pit operation, the mine area will be opened for some time until the equipment comes back to initiate another pass on a designated bench.

As the mining operations remove coal seams, the mining area must be left open until such time as the lower-most coal seam can be recovered. With the mining configuration, the time differences between mining the upper-most seam versus the lower-most seam will be greater than 180 days. As the operation advances, backfilling will be as contemporaneous as practical but not so as to interfere with removal of the lower-most coal seam. Colowyo will rough backfill and grade as shown on the Map 29. All disturbed areas will be returned to the appropriate final contour by grading and backfilling with the use of a dragline, trucks, dozers, and scrapers. Additional detail of the backfilling and grading for the mining operation is set forth in the discussion under Sections 2.05.3 and 2.05.4.

The area to be mined will be restored to a topography approximating pre-mining grades. The slopes of backfilled areas, as necessary, will utilize terraces and/or contour furrows for erosion control and stability. These terraces and contour furrows will be constructed according to the requirements outlined in Section 2.06.2. Where applicable, Colowyo will retain all overburden and spoil on the solid portion of existing benches. The final graded slopes will not exceed the approximate original pre-mining slope grade as shown on the Map 19. Post-mining surface drainage channels will be located to minimize erosion and to minimize slippage.

4.14.2 General Grading Requirements

The final graded slopes at the mining operation will not exceed the approximate original pre-mining slope grade as shown on Map 19. Colowyo will retain all overburden and spoil material on solid portions of existing or new benches. The final highwall at the operation will be eliminated by backfilling overburden into the final pit area.

Small depressions of a holding capacity slightly greater than one cubic yard of water may be used to create a moist micro climate to aid in shrub establishment. See Section 2.05.4, Planting and Seeding Methods for further information regarding these small depressions. Also, several stock watering ponds will be constructed to compliment the post-mining land use. Providing a supply of water is an integral part of the grazing post-mining land use. Colowyo will not be mining on any slopes above 20° as shown on Map 18A.

RULE 4 PERFORMANCE STANDARDS

Final grading before topsoil placement will be conducted in a manner that minimizes erosion and provides a surface for the topsoil that minimizes slippage. Final grading will be accomplished so that overall grades will not exceed 1v:3h. The plan for backfilling and grading is shown graphically on the Map 29.

4.14.3 Covering Coal and Acid and Toxic Forming Materials

Colowyo will not have any exposed coal seams remaining at the end of mining and reclamation. Colowyo does not have any acid forming materials at the mine. For discussion on acid- and toxic-forming materials, refer to Section 2.04.6. For disposal of non-coal wastes or materials constituting a fire hazard, refer to Section 4.11.4.

4.14.4 Thin Overburden

Colowyo does not have a thin overburden situation as defined in Section 4.14.4 of the regulations.

4.14.5 Thick Overburden

Colowyo does not have a thick overburden situation as defined in Section 4.14.5 of the regulations.

4.14.6 Re-grading or Stabilizing Rills and Gullies

Please see Section 4.14.6 in Volume 1.

4.15 REVEGETATION REQUIREMENTS

4.15.1 – 4.15.7 Revegetation Requirements, Various

These sections are addressed in the Volume 1.

Field Trails

A full description of field trials that have occurred adjacent to the South Taylor Pit can be found in Volume 1, Section 4.15.6.

4.15.8 Revegetation Success Criteria

The vegetation monitoring methods and statistical analyses for the demonstration of revegetation success, vegetation cover, herbaceous production, and woody plant density are described in Volume 1, Sections 4.15.7 and 4.15.8. Refer to Section 2.04.10 of Volume 12 regarding vegetation reference areas applicable to the South Taylor and Lower Wilson mine areas.

4.15.9 Cropland Revegetation Success

None of the reclaimed land will be used as cropland; therefore, the requirements of this subsection are not applicable.

4.15.10 Previously Mined Land Revegetation Success Criteria

Although portions of the South Taylor pit have been previously mined, the revegetation success criteria established in 4.15.8 shall be used across the entire South Taylor pit.