



TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.

HEADQUARTERS: P.O. BOX 33695 DENVER, COLORADO 80233-0695 303-452-6111

August 18, 2020

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. 141
Incidental Boundary Revision**

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 technical revision 141 (TR-141) to Permit No. C-1981-019. TR-141 proposes a reduction in Colowyo's permit boundary to remove 139 acres of non-mined (native) lands north of Streeter Ditch.

Included in this technical revision are a revision application, a proposed public notice, and a change of index sheet to ease incorporation of this technical revision into the permit document. If you should have any additional questions or concerns, please feel free to contact Tony Tennyson at (970) 824-1232 at your convenience.

Sincerely,

DocuSigned by:
Daniel Casiraro
B70D69F114324DE...

Daniel J. Casiraro
Senior Manager
Environmental Services

DJC:TT:der

Enclosure

cc: Jennifer Maiolo (BLM-LSFO)
Chris Gilbreath (via email)
Tony Tennyson (via email)
Angela Aalbers (via email)
File: C. F. 1.1.2.130
G471-11.3(21)d

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

Mine Company Name: Colowyo Coal Company

Date: **August 13, 2020**

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

Revision Description: **TR-141 Incidental Boundary 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	Pages ix and x (2 pages)	Pages ix and x (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
2A			No Change
2B			No Change
2C			No Change
2D			No Change
2E			No Change
3			No Change
4			No Change
5A			No Change
5B			No Change
6	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
6	Map 1	Map 1	Map 1 has been updated.
6	Map 2	Map 2	Map 2 has been updated.
6	Map 4	Map 4	Map 4 has been updated.
6	Map 10C	Map 10C	Map 10C has been updated.
7	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
7	Map 12	Map 12	Map 12 has been updated.
7	Map 18	Map 18	Map 18 has been updated.
7	Map 19	Map 19	Map 19 has been updated.
8	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
8	Map 22	Map 22	Map 22 has been updated.
8	Map 23	Map 23	Map 23 has been updated and consolidated with Map 23B
8	Map 28	Map 28	Map 28 has been updated.
8	Map 29	Map 29	Map 29 has been updated.

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9	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
10	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
12	South Taylor/Lower Wilson pages viii and ix (2 pages)	South Taylor/Lower Wilson pages viii and ix (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
12	South Taylor/Lower Wilson Rule 2, Page 2 (1 page)	South Taylor/Lower Wilson Rule 2, Page 2 (1 page)	Citation to Map 23A has been updated to Map 23.
12	South Taylor/Lower Wilson Rule 2, Page 15 (1 page)	South Taylor/Lower Wilson Rule 2, Page 15 (1 page)	Citation to Map 23A has been updated to Map 23.
12	South Taylor/Lower Wilson Rule 2, Page 56 (1 page)	South Taylor/Lower Wilson Rule 2, Page 56 (1 page)	Citation to Map 23A has been updated to Map 23.
12	South Taylor/Lower Wilson Rule 2, Page 66 (1 page)	South Taylor/Lower Wilson Rule 2, Page 66 (1 page)	Citation to Map 23A has been updated to Map 23.
12	South Taylor/Lower Wilson Rule 2, Pages 70 to 75 (5 pages)	South Taylor/Lower Wilson Rule 2, Pages 70 to 75 (5 pages)	Citations to Maps 19B and 23A have been updated to Maps 19 and 23.
12	South Taylor/Lower Wilson Rule 2, Pages 85 and 86 (2 pages)	South Taylor/Lower Wilson Rule 2, Pages 85 and 86 (2 pages)	Citations to Maps 19B and 23A have been updated to Maps 19 and 23.
12	South Taylor/Lower Wilson Rule 2, Page 89 (1 page)	South Taylor/Lower Wilson Rule 2, Page 89 (1 page)	Citation to Map 23A has been updated to Map 23.
12	South Taylor/Lower Wilson Rule 4, Page 7 (1 page)	South Taylor/Lower Wilson Rule 4, Page 7 (1 page)	Citations to Maps 19B and 23A have been updated to Maps 19 and 23.
12	South Taylor/Lower Wilson Rule 4, Page 10 (1 page)	South Taylor/Lower Wilson Rule 4, Page 10 (1 page)	Citations to Maps 19B and 23A have been updated to Maps 19 and 23.
12	South Taylor/Lower Wilson Rule 4, Page 13 (1 page)	South Taylor/Lower Wilson Rule 4, Page 13 (1 page)	Citation to Map 23A has been updated to Map 23.
13			No Change
14	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
14	Map 5A	Map 5A	Map 5A has been updated.
14	Map 5B	Map 5B	Map 5B has been updated.

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14	Map 19B		Map 19B has been consolidated with Map 19.
14	Map 23A		Map 23A has been consolidated with Map 23.
14	Map 35A	Map 35A	Map 35A has been updated.
14	Map 36A	Map 36A	Map 36A has been updated.
14	Map 44	Map 44	Map 44 has been updated.
15	Pages xi and xii (2 pages)	Pages xi and xii (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
16	Exhibit 1, Item 13, Pages Exh. 1, Item 13-1 through Exh. 1, Item 13-14 (14 pages)	Exhibit 1, Item 13, Pages Exh. 1, Item 13-1 through Exh. 1, Item 13-17 (17 pages)	Exhibit 1, Item 13 has been updated.
17			No Change
18A			No Change
18B			No Change
18C			No Change
18D			No Change
19			No Change
20			No Change
21	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
21	Map 7A	Map 7A	Map 7A has been updated.
21	Map 10B	Map 10B	Map 10B has been updated.
21	Map 11B	Map 11B	Map 11B has been updated.
21	Map 11C	Map 11C	Map 11C has been updated.
22	List of Maps Pages 1 and 2 (2 pages)	List of Maps Pages 1 and 2 (2 pages)	List of Maps has been updated with Maps 19B and 23A to Maps 19 and 23.
22	Map 13B Sheet 1	Map 13B Sheet 1	Map 13B Sheet 1 has been updated.
22	Map 13B Sheet 2	Map 13B Sheet 2	Map 13B Sheet 2 has been updated.
22	Map 15B Sheet 1	Map 15B Sheet 1	Map 15B Sheet 1 has been updated.

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

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Date: **August 13, 2020**

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

Revision Description: **TR-141 Incidental Boundary
Revision**

Volume Number	Page, Map or other Permit Entry to be REMOVED	Page, Map or other Permit Entry to be ADDED	Description of Change
22	Map 15B Sheet 2	Map 15B Sheet 2	Map 15B Sheet 2 has been updated.
22	Map 15B Sheet 3	Map 15B Sheet 3	Map 15B Sheet 3 has been updated.
22	Map 16B	Map 16B	Map 16B has been updated.
22	Map 17	Map 17	Map 17 has been updated.

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RULE 2 PERMITS

Overburden material will be excavated and stockpiled in a permanent out-of-pit disposal facility identified on Map 23 as Out of Pit Spoil and Overburden Stockpile or used for backfilling and re-contouring the pit. In addition, overburden materials around the perimeter of the mine blocks will be exposed but not removed.

Colowyo drilled boreholes to obtain overburden and interburden samples for physicochemical analysis. The locations of the boreholes relevant to this application are shown on Map 7A. These boreholes are 83-D3-06, 83-D3-07, 83-D3-10, 83-D3-12, 83-D3-14, 97-06, 97-09, 97-15, 99-02, 99-04, 99-09, 00-03, 00-08, and ST-06-08. These drill holes are near or within the footprints of the surface mine expansions.

The Division *Guidelines for the Collection of Baseline Water Quality and Overburden Geochemistry* recommends sampling one hole per square mile, with a minimum of three. The drill holes are distributed sufficiently to meet this criterion.

Overburden and interburden samples from drill holes 97-06, 97-09, 97-15, 99-02, 99-04, 99-09, 00-03, and 00-08 were collected from cuttings obtained during the drilling of each hole. The holes were drilled with air. When a water source was encountered during drilling, water was injected to help flush the cuttings from the holes. This continued until cuttings were no longer obtainable.

Overburden samples from drill holes 83-D3-06, 83-D3-07, 83-D3-10, 83-D3-12, 83-D3-14 and ST-06-08 were obtained from core samples. Drilling depths ranged from ground surface to between approximately 110 feet and 930 feet in depth. Samples were collected from intervals based on the material properties such as color and texture or were collected at regular predefined intervals. Sample intervals ranged from 0.1 feet to 91 feet and averaged 8.5 feet. A total of 555 discrete samples were collected and analyzed to characterize approximately 4731 feet of overburden. Coal seams within the drill holes were also analyzed but are not included in this section because coal will not be used as reclamation material.

The following analyses and sample preparation were performed on overburden and coal samples:

The bottomland type is comprised of a variable mixture of communities - primarily sagebrush, but also grassland, mountain shrub, riparian woodland, and small stream-side wetland communities that exist intermittently along the historic floodplain of Wilson Creek. These community extensions into the alluvial and colluvial drainage bottom soils have been segregated from their upland progenitors and renamed (as Bottomland) because of the typical increase in productivity characteristic of this geomorphic landform.

Within the study area, the bottomland community exhibits an occasional overstory deciduous boxelder tree (*Acer negundo*), and a shrub stratum strongly dominated by Mountain big sagebrush with various areas of herbaceous subdominance by cheatgrass (*Bromus tectorum*), Great Basin wildrye (*Elymus cinereus*), and western wheatgrass. A very narrow ribbon of wetland occurs along each bank of Wilson Creek through both segments of the study area. This small palustrine emergent persistent wetland community has been separately delineated and evaluated for COE 404 permitting. Dominant vegetation along this narrow wetland corridor include: Baltic rush (*Juncus balticus*), broad-leaved cattail (*Typha latifolia*), spikerush (*Eleocharis palustris*), Nebraska sedge (*Carex nebrascensis*), redtop (*Agrostis alba*), and bulrush (*Schoenoplectus lacustris*).

A total of 30 species were observed within the non-wetland portion of the bottomland community with a distribution of 15 grasses, 9 forbs, and 5 shrubs or trees. Average ground cover of vegetation (2005) within the study area was 54.67% with 0% rock, 30.0% litter, and 15.3% bare ground exposure. Dominant species included: western wheatgrass, Mountain big sagebrush, cheatgrass, Sandberg bluegrass (*Poa secunda*), needle and thread, bluegrass, and Indian ricegrass (*Oryzopsis hymenoides*). The number of perennial herbaceous species exhibiting between 3% and 50% relative cover (composition) was determined to be 5 grasses and 0 forbs.

Cropland (LU) - A very small amount (3.12 acres) of dry-land cropland is included in the northern 22-acre segment of the Study Area (Wilson Creek haul road crossing). This cropland is planted to winter wheat in alternating years (average of 30 bushels/ac/yr) and is fallow when not planted to wheat. This field was fallow in 2005.

Stock Tank (LU) - Two very small stock tank watering facilities (stock ponds) occur in the study area but are largely devoid of vegetation due to livestock / wildlife trampling. The uppermost stock tank exhibits a very small amount of wetland vegetation near the small spring that feeds this facility and along the outfall structure. However, this wetland area can be measured in square feet (i.e., ~200 ft²) rather than acres. These stock tank areas occupy a total of 0.27 acres.

Justification for Reference Area Selection

COLLUM ASPEN REFERENCE AREA

The Collom Aspen Reference Area (2005) is a suitable replacement for the 1984 Aspen Reference Area, comparability for both total cover and production, when comparing the 2005 Collom Aspen Reference Area with the Aspen Reference Area (1984) and the Danforth Baseline Study. Please see Exhibit 10, Item 6.

SAGEBRUSH REFERENCE AREA

Colowyo will use the originally established Sagebrush Reference Area (C-SRA-1981) for weighted future revegetation success comparisons in the Lower Wilson disturbance areas. Colowyo will use the C-SRA as the sole “targeted” reference area for ground cover and production testing for all South Taylor disturbance areas as delineated by the green tie-in boundary shown on Map 23 pursuant to Section 4.15.7(3)(b)(iii). Colowyo has determined to use this reference area in this manner instead of the “Harner

2.05.2 Operation Plan - Estimated Area for Life of Operation

Information regarding the permit term is delineated in Section 2.01.5. Information for the operation plan is delineated in Section 2.05.3. Likewise, for purposes of this application, the permit area identifies the area for the life of the mine.

Colowyo will employ detailed and current engineering designs for all surface mining activities in order to maximize coal recovery. The open pit mining technique minimizes or eliminates coal rib losses and coal fenders. The mining operations described in Section 2.05.3 are designed for maximum coal recovery.

2.05.3 (1) Operation Plan –Production Methods

Colowyo has selected its mining procedures on the basis of information from numerous exploration drill holes which penetrated the overburden, the interburden, and the coal seams. Each phase of mining has been carefully scheduled so that all equipment can be operated in situations suitable to their design capabilities. The overall operation plan is designed to flow logically from topsoil removal through reclamation. The plan is designed to maximize coal recovery and minimize environmental disturbances. Colowyo's operation plan is described in detail within Volume 1, Section 2.05.3.

Topsoil removal schedules and stockpile locations are delineated on the Topsoil Handling Map, (Map 28). The amounts of topsoil to be replaced is found in Volume 1 on Table 2.05-1. Topsoil will be removed from an area primarily during the summer and fall months to allow for one year of mining advance. A buffer zone, with topsoil removed, will be left between the undisturbed area and the crest of the pit.

Once the overburden is sufficiently fragmented to allow for efficient removal and loading, overburden removal will commence. The location of the area to be mined is shown on the Mine Plan Map (Map 23).

Colowyo will utilize two distinct methods of overburden removal in the mining operation of South Taylor: (1) truck/shovel techniques and (2) dragline technique. By combining the use of both shovel and trucks, and draglines, Colowyo can both efficiently and economically handle the logistics involved in a multiseam, open pit coal mine.

The truck/shovel operation will be used to open up the initial boxcut, and then will be generally utilized in removing overburden over the upper coal seams. In some areas of the pit the truck/ shovel will be utilized by taking all seams from the "X3" to the "G8" (X3, X4, B0, B1, B2, B3, C5, D1, D2, E2, F1, F6, F7, FA, FB, G7 and G8). In the dragline portions of the pit the dragline will generally uncover the "F6" through the "G8" (F6, F7, FA, FB, G7 and G8). From time to time, based on production requirements, truck/shovel or loader/truck methods may be utilized to assist the dragline operation in the lower seams.

The overburden material is removed in a series of lifts or benches; the height of these benches will be influenced by the distance between the coal seams to be mined (see Map 24B, Mining Range Diagrams), and the equipment mining those benches.

Overburden removal by the, truck/shovel method progresses on approximately 170-240 foot wide benches and has a maximum highwall height of about 60 feet. Electric shovels or front-end loaders load this overburden into 50, 170, 190 or 240-ton trucks. The trucks then haul the overburden around the active coal pit and dump this material into the mined-out or stock pile areas. The truck/shovel operation will always precede the dragline operation in the multiple seam pits.

A dragline will be used for overburden removal over the lower coal seams and the generalized multi-seam dragline sequence at the Colowyo operation is as follows:

60%. Once the coal has been recovered and stockpiled in the pit, then the coal will be transported to the primary crusher and train loadout by coal haul trucks. Refer to Map 23 for the location of potential highwall mining areas.

As soon as possible after the coal is removed from the mining area and sufficient room is available for back-filling, reclamation begins. In general, rough backfilling is completed by the over-burden trucks and bulldozers. As stated earlier, overburden material removed ahead of the operation is transported by truck around the active coal mining areas and deposited into the mined-out and stockpile areas. A dragline may also be utilized on the backfill material to assist in final spoil placement and in achievement of the planned final topography. Final grading for topsoil placement will be done in a manner that reduces erosion and provides a surface for topsoil that minimizes slippage. Prior to completion of topsoil replacement on 3:1 (horizontal to vertical) slopes, a dozer will construct a drainage control bench or furrow, where necessary, to slow water flow on the longer slopes and minimize erosion. The design Calculations for the benches and furrows are found in Exhibit 7, Hydrology Information. At the completion of the final grading, topsoil will be redistributed over the regraded spoil and revegetated in accordance with Volume 1, Section 2.05.4.

Other surface treatments are also described in Volume 1, section 2.05.4. A list of the equipment used by Colowyo in order to perform the day-to-day operation of coal mining is shown in Volume 1, Table 2.05-3.

2.05.3 (2) Operation Description

A detailed narrative description of the land to be affected within the South Taylor area is provided above under the heading Production Methods and Equipment. The mining plan for South Taylor is graphically portrayed on the Mine Plan Map (Map 23). The various acreages to be affected by the planned mine operation are shown in Volume 1, Section 2.03 on Table 1, Affected Areas for Mining and Reclamation. The details of these operations for South Taylor are shown on the Mining Range Diagram (Map 24B).

The lines on Map 23 refer to coal seam mining, the lines on Map 28, Topsoil Handling, refer to the anticipated overall disturbance that not only includes coal mining, but also associated perimeter disturbances as well.

2.05.3 (3) Mine Facilities

The existing buildings, structures, utility corridors and other facilities are shown on the Existing Structures - North Map (Map 21), Existing Structures - South Area (Map 22) and Existing Structures – South Taylor Area (Map 22A). Colowyo only anticipates the need for a minimal amount of major structures within the South Taylor area, which will include the installation of utility lines, water lines and in-pit haulage routes. No out of pit haul roads are anticipated. All other support facilities are located on maps 21 and 22, which will continue to be used for the life of mine.

Please refer to Volume 1, Section 2.05 for a complete description of Operational procedures within the permit boundary including the South Taylor area.

Power Lines

Because Colowyo utilizes many electric-powered mining machines, a network of electric power lines is located in the permit area to supply electricity to the equipment. The locations of the Colowyo power lines are shown on the Existing Structures maps (Map 22A and Map 22B).

Electrical power lines located in the permit area will be constructed in accordance with requirement of Section 4.18 to minimize potential electrical hazards to large raptors.

The major pieces of equipment that are powered by electricity and will be used in the South Taylor area are draglines, shovels and the highwall miner. Therefore, during the life of the mine it is necessary to periodically move the existing power line loop to accommodate the advancement of the pit.

Along the both end walls and both highwalls of the South Taylor pit operations, highwall mining activities will be conducted to extract coal that would otherwise be deem non-recoverable under existing operational procedures and economic conditions. See Map 23 for the location of the area to be mined.

Haul and Access Roads

All truck routes within the South Taylor area and connecting the South Taylor area to the existing operation will be constructed as in-pit truck routes, due to their location within existing pit limits. Therefore, all truck routes constructed during the permit term within the immediate mining area are exempt from any construction specifications, since roadways within the immediate mining pit area are not designed in accordance with Rule 4.03.1(1)(d)(i).

In order to access the Section 28 Sediment Pond during construction and to access this area for routine monitoring and maintenance operations, the existing two-track Sturgeon Road will be upgraded. See Section 4.03 for construction requirements and Map 25B for road design information.

2.05.3 (4) Operation Plan – Ponds, Impoundments, and Diversions

To control runoff, and protect surface and ground water quality, Colowyo will construct several new sedimentation structures and diversion ditches. The designs for these features are presented in Exhibit 7, Item 20. All ponds, impoundments, and diversions are designed to meet or exceed the requirements of 2.05.3(4) and 4.05.6. All sediment ponds will be constructed and maintained in accordance with the parameters mentioned in Volume 1, Section 2.05. Impoundments will be inspected quarterly as discussed in Section 4.05.6.

2.05.3 (5) Topsoil

Prior to any mining related disturbances, topsoil will be removed from the site to be disturbed as discussed in Volume 1, Section 2.05 and Section 4.06 and redistributed or stockpiled as necessary to satisfy the needs of the reclamation timetable.

Topsoil will be removed in the permit area by large crawler mounted bulldozers, loaders or scrapers as described in Volume 1, Section 2.05.3.

RULE 2 PERMITS

The sequence and timetable for all topsoil redistribution and revegetation activities is found on the Topsoil Handling Map (Map 28). The overall life-of-mine topsoil balance is estimated in Volume 1, Table 2.05-1.

All yardage and acreage figures have been calculated based upon the assumption that topsoil would be removed in advance of mining activities as shown on Topsoil Handling Map (Map 28).

Mine development into the South Taylor area required an initial boxcut, resulting in additional stockpiling of topsoil. The stockpiling of topsoil will continue until all pit development has progressed to its maximum extent. After mining and regrading operations have ceased, all stockpiled topsoil will be used to reclaim the pit disturbance.

Topsoil will be stored in topsoil stockpiles as shown on Map 28A. Construction specifications for these stockpiles will follow all prudent regulations within this section (2.05.3(5)) and as follows. Stockpiles will be constructed with stable slopes and will be located to avoid erosion from wind and water and additional compaction or contamination. As can be determined from the Topsoil Handling Map (Map 28), all stockpiles are located within stable areas. The piles will be protected from wind erosion by planting a perennial mixture as explained in Section 4.06.3 as soon as conditions allow. Proper seasons of planting will be early spring or late fall. In addition to the planted material, a considerable amount of volunteer growth can be expected to grow on all stockpiled topsoil.

External erosion will be controlled through proper location of the stockpiles. No topsoil stockpiles will be placed in a drainage bottom where external erosion might pose a potential threat.

Unnecessary compaction will be avoided by keeping all but essential traffic off the stockpiled areas. Topsoil signs will identify topsoil stockpiles. Contamination of the stockpiles will be eliminated by the careful selection of sites that are distant from the areas where actual mining activities are occurring. Drainage ways and areas near spoiling and blasting will be avoided where possible.

2.05.3 (6) Overburden

The complete description of the removal, handling and storage of all overburden material within the permit area is described under the Production, Methods and Equipment Section found at the beginning of Section 2.05.3. The spoil handling procedures and spoil monitoring plan parameters for the operation can be found on Section 2.05.3 of Volume 1. The mining sequence for the planned operation is shown on the Mine Plan Map (Map 23). Cross sections showing the mining operation during the "steady-state" operation are found on the Mining Range Diagram (Map 24B). For the spoil disposal locations and volumes for both the East and West Taylor valley fills and the temporary overburden stockpile, please refer to Map 35A. The cross-sections that are associated with the design of the valley fills and the temporary stockpile can be found on Map 40A. Permanent Valley fill construction and design criteria is described in detail in Section 4.09.

A temporary overburden stockpile will be built above the East Taylor valley fill. The spoil suitability and special handling procedures are described in detail in section 2.05.3(1). The initial development of the stockpile began in 2008 and completed in 2013. The temporary overburden stockpile was constructed in 50 foot lifts by use of trucks, dozers and loaders. The side slope of the temporary overburden stockpile are generally at a 1.3H:1V slope and will be maintained during active times of operation. Maintenance techniques consist of blading of roads and ramps, along with the use of dust control during active times of operation. Sediment control will be implemented to ensure adequate containment of potential runoff throughout the life of the operation. Following the completion of mining, this temporary overburden stockpile will be removed and placed back into the open pit.

Blasting

All blasting within the South Taylor area will be conducted in accordance with the blasting parameter described in Volume 1, Section 2.05.

Colowyo will keep a record of each individual blast by utilizing report formats shown in Volume 1, Figure 2 - Blasting Report (coal and overburden), and Volume 1, Figure 3 – Colowyo Chargeweight Sheet (overburden only).

Pre-Blasting Survey

In accordance with Rule 4.08.2, written notification was provided to all residents and/or owner of dwellings or other structures that are located within one-half mile of the permit amendment area. Copies of the letters are included Exhibit 14, Item 6. These residents/ owners include:

Colorado Department of Transportation
Highway 13
Region 3, Section 6
270 Ranney Street
Craig, Colorado 81625

Stevens Residences
6647 & 7072 MCR 51
Meeker, Colorado 81641

White River Electric Association
P.O. Box 958
Meeker, Colorado 81641

Tri-State Generation and Transmission Association, Inc.
1100 West 116th Avenue
Westminster, Colorado 80234

Wold Oil Properties, Inc.
139 West 2nd Street, Suite 200
Casper, Wyoming 82601

Qwest
12680 Weld County Road 58
Greeley, Colorado 80648

Texaco, Inc.
7265 South County Road 9
Craig, Colorado 81625

Pre-blasting surveys and assessments of surface structures have been conducted for eleven power pole foundations and the two residential structures located at 6647 and 7072 MCR 51. Copies of the summary reports are included as Exhibit 14, Items 4 & 5 and are summarized in Section 4.08.2 of this document.

Public Notice of Blasting Schedule

Colowyo will annually publish a blasting schedule similar to the one set forth in Volume 1, Section 2.05 Figure 1.

Disposal of Excess Spoil

Colowyo constructed two separate “valley fills” which are called the East Taylor Fill and the West Taylor Fill. These fills were necessary due to the early operation of the South Taylor mining area; overburden needed to be placed into the fills so that sufficient working area could be developed prior to the placement of subsequent overburden into the mined-out areas.

Detailed geotechnical investigations were completed for both the East Taylor Fill and the West Taylor Fill. A report of the investigations can be found in Exhibit 21 Item 1. Construction plans for the fills, addressing the requirements of Rule 4.09, Disposal of Excess Spoil, can also be found in Section 4.09 and Exhibit 23B. Locations of the East Taylor Fill and West Taylor Fill can be found in Exhibit 23B and on Map 23.

2.05.4 (1) Reclamation Plan

The reclamation objective for the South Taylor area is to restore the mined area to a land use capability which will, be equal to or better than that which currently exists. The first objectives of all reclamation practices are to stabilize the soils, maintain hydrologic and vegetation resources, and to restore the approximate original contour of the mined area. Ultimately, the areas being mined will be returned to their approximate original use as rangeland with watersheds having their approximate pre-mining character. In general, the long term appearance and usefulness of the mine plan area will be similar to that which would have been encountered prior to any mining.

The reclamation plan for the existing mining areas provides information relevant to the reclamation of the South Taylor mining area, which can be found in Volume 1, Section 2.05.4. Specific topics requested by the regulations and not incorporated into Volume 1 are included in the following subsections.

2.05.4 (2)(a) Reclamation Timetable

The sequence for reclamation following the mining process is shown on Map 29. Final reclamation of the South Taylor pit will be delayed, due to the shape, size and depth of the pit; which will result in leaving the majority of the spoil backfilling process until final pit closure. The majority of the spoil will be stacked in the initial boxcut area and associated valley fill areas, allowing adequate space to perform mining operations in a geotechnically safe environment. Although the final reclamation of the South Taylor will be delayed due to the mining operations in the pit, Colowyo is committed to reclamation in accordance with Rule 4.13 and will perform reclamation activities as contemporaneously as practicable with the South Taylor mining operations. With the limitation of areas available for reclamation prior to final pit backfill, Colowyo will reclaim as many areas as allowed by the mine plan as shown on Map 29, prior to final pit closure. The South Taylor pit reached a steady state operation in 2013; where as all spoil material produced in the advancing cut is backfilled into the previously mined areas. In general, it is anticipated that the vast majority of reclamation activities in the South Taylor pit area will begin in the lower elevation areas and progress upslope to the highest elevation areas. This is a matter of practical necessity due to the operational constraints encountered in the area which were also reflected in the hydrological modeling found in Exhibit 7, Item 20. Major departures from this premise will result in the need to revisit the adequacy of the sediment control structures designed and submitted as part of this permit.

2.05.4 (2)(b) Reclamation Costs

The estimate of the cost of reclamation of the operations required to be covered by the performance bond is found under Rule 3.

2.05.4 (2)(c) Backfilling Plan

As the mining progresses to the west, overburden material from each successive cut will be backfilled into the previously mined out area and the additional spoil will continue to buildup in previously mined areas. This cycle will be repeated for the entire mining area. Due to shape, size and depth of the South Taylor pit results in leaving the majority of the spoil backfilling process until final pit closure. As a result, Colowyo has been granted a variance for a delay in contemporaneous reclamation based on Rule 4.14.1(1)(d) which states that “Rough backfilling and grading shall be completed within 180 days following coal removal and shall not be more than four spoil ridges behind the pit being worked..”. The mining techniques utilizing dragline and truck/shovel operation are shown in detail on Mining Range Diagram (Map 24B), and show the approximate distance between topsoil removal and replacement. Premining topography is presented on Map 18A and the postmining topography is shown on Map 19. Map 20B provides cross-sections of the premining and postmining topography. Map 28 presents the topsoil handling movements and the timing of stripping activities. Map 29 shows the spoil grading sequence timing of reclamation activities.

The backfilled mining areas will be graded to establish a stable post mine topography that blends into the undisturbed areas outside the mining limits (Map 19). Colowyo will grade all final slopes so that overall grades do not exceed 33% (Map 20B). Additional information on the backfilling and regrading plan are discussed further in Volume 1, Section 2.05.4 and Section 4.14.

2.05.4 (2)(d) Topsoil Salvage and Replacement

Prior to any mining-related disturbances, all available topsoil will be removed from the site to be disturbed as discussed in Section 2.05.3, and will be redistributed or stockpiled as necessary to satisfy the needs of the reclamation timetable.

Final grading before topsoil placement will be conducted in a manner that minimizes erosion and provides a surface for the topsoil that minimizes slippage. If spoil compaction is a problem, the spoil will be ripped with a dozer to minimize compaction, assure stability and minimize slippage after topsoil replacement.

Topsoil will normally be reapplied by hauling in trucks or scrapers, from topsoil stockpiles or from areas where topsoil has been removed for mining advance, to the regraded spoil areas and then redistributed with scrapers and/or dozers. Topsoil replacement depths for the South Taylor area are discussed in Volume 1, Section 2.05.4.

Reapplied topsoil will be left in a rough condition to control wind and water erosion prior to seeding. Seedbed preparation, other surface manipulation practices, and seeding will be completed primarily during the fall months. Contour furrows, approximately 4-12 inches deep at the deepest point and 20-36 inches wide, which have been used on slope areas very successfully during the past years, will be used on as needed to reduce erosion potential, conserve moisture, and maintain site stability until vegetation is sufficiently established. The size of the furrows may be increased if necessary to control erosion, and the distance between the furrows will vary, depending on each application. Small rock check dams may also

2.06 PERMIT REQUIREMENTS - SPECIAL MINING CATEGORIES

2.06.1-3 Scope, Experimental Mining, and Mountain Top Removal

There will be no experimental mining practices at the South Taylor or Lower Wilson pits.

2.06.4 Steep Slope Mining

The steep slope mining procedures specified in Rule 2.06.4(2) will not be applicable to the South Taylor Mining Area; however, Colowyo will be requesting a variance from approximate original contour for steep slope mining in accordance with Rule 2.06.5 as outlined in the following section.

2.06.5 Variance from Approximate Original Contour Restoration Requirements

The South Taylor mining area will include non-mountaintop removal steep slope surface coal mining and reclamation operations, where the operation is not to be reclaimed to achieve the approximate original contour as required in Rules 4.14.1-4.14.6 and 4.27.3. Therefore, Colowyo is requesting a variance from approximate original contour in the post-mining topography (PMT). This is due to the fact that steep slopes will not remain steep slopes in the post-mining topography. However, the PMT will reflect the pre-mining topography generally, with drainages and drainage divides remaining in their approximate current locations. Post-mining topography is shown on Map 19. The PMT was designed by Norwest Corporation based on the Division rules for Operations on Steep Slopes as discussed in Section 4.27 of this document.

2.06.5 (2) (a) Post-Mining Land Use

Post-mining land use (agricultural/ rangeland) will be enhanced by the PMT since the reduced slopes will allow an increase in forage, will decrease erosion, and will tend to modulate surface-water runoff. Rangeland is the current and only post-mining use of the land. The written request by Colowyo for this variance is included in the cover letter.

2.06.5 (2) (b) Consultation with Planning Agencies

The land to be mined is owned by Colowyo and the Bureau of Land Management. Therefore, consultation from land-use planning agencies is not applicable.

2.06.5 (2) (c) Alternative Postmining Land Uses

Rangeland is the current and only post-mining use of the land.

2.06.5 (2) (d) Watershed Improvements

The reduced slopes of the PMT will decrease erosion and control surface-water runoff; therefore, reducing the total suspended solids and other pollutants discharged to ground and surface waters from the permit area. The total volume of flows from the permit area will not vary in a way that adversely affects the ecology. Approval from environmental agencies is not applicable.

2.06.5 (2) (e) Owner Approval

The owners of the property within the revision area are Colowyo and the Bureau of Land Management. A letter requesting that the variance from Approximate Original Contour for Steep Slope Mining be granted from BLM is included as Figure 2.06.5-1.

2.06.5 (2) (f) Compliance with Limited Variances

The operations will be completed in compliance with the requirements of limited variances as outlined in Section 4.27.4 of this permit document.

2.06.6 Prime Farmlands

Prime farmlands do not exist within the South Taylor/Lower Wilson permit revision boundary (see Section 2.04.12).

2.06.7 Reclamation Variance

There will be no delay in contemporaneous reclamation due to underground mining activities; therefore, this section is not applicable.

2.06.8 Alluvial Valley Floor (AVF)

General

Both a field investigation and technical evaluation of the Wilson Creek drainage was conducted in accordance with this Section and draft OSM Technical Guideline, “OSM Alluvial Valley Floor Guidelines”, dated June 11, 1980. The investigation resulted in no identification of alluvial valley floors in the area to be mined; however, some of the floodplains of Good Spring Creek, West Fork Good Spring Creek, Wilson Creek, lower Taylor Creek, and lower Jubb Creek may conform to the geomorphic criteria of alluvial valley floor (AVF) surface landforms because they are underlain by unconsolidated material of Quaternary Age (Map 11B). None of these floodplains are located in the area to be mined as shown on Map 23.

The Gossard Loadout is located in an area between Wilson Creek and Taylor Creek near the junction of these two drainages; however, no major subsurface disturbance has occurred in this area that might adversely affect the possible subsurface hydrologic system with regards to potential alluvial valley floors. The actual area to be mined is located well above the flood plain of Wilson, Taylor, and Good Spring Creeks, both topographically and hydrologically. As discussed in Section 2.04.7, the existence of groundwater in the mining area is limited to perched systems that primarily discharge small amounts of water in the canyon walls near the mine on a seasonal basis and in some of the unconsolidated alluvium. Very little water is found in the current active mine; and, based on existing geological and hydrological evidence, the areas to be mined provide no or only minor amounts of recharge to local surface water features. Therefore, the flood plains of Wilson Creek, Good Spring Creek, lower Taylor Creek, and their tributaries will not be directly impacted except at road crossings (discussed elsewhere in the application) and should not be adversely affected by mining operations.

“On the basis of a September 18, 1981 field reconnaissance by Colowyo personnel together with Dave Craig and Brian Munson of the CMLRD staff, it was agreed that the SCS classification of Taylor Creek as an area of stratified alluvium was and is erroneous particularly as geomorphic criteria required to describe an AVF are absent. As a consequence, the designation of the Taylor Creek Drainage as quaternary alluvium on Map 10B, Regional Hydrology has been deleted. This area should be mapped as colluvium.

“Other examination of the area on September 18, 1981 further confirmed a colluvial classification, in that some unsuccessful irrigation in the area is presumed to have occurred, and such irrigation was practiced on the colluvial slopes adjacent to the bottom of the drainage. No irrigation ditches, however, are extant, and it is apparent that no subirrigation occurs in the area.

“Additionally, insufficient water flows in the Taylor drainage to sustain any flood irrigation. Irrigation apparently began from a ditch known as the Mary C. ditch in 1913 on an undetermined acreage, but was certainly less than 25 acres. The state Division of Water Resources records date back to 1960, and they have no record that this ditch has been used since that time. Years ago small isolated areas such as this could be irrigated economically, and were important to 160 acre size homesteads.

“However, in recent years with larger farms and ranches, larger equipment, and increased labor costs, small isolated areas such as this are seldom irrigated. This is especially the case when the water source is from an ephemeral drainage such as Taylor Creek, and runoff is mostly a function of snow melt and large precipitation events, and varies largely from year to year.

“The revised Map 10B will be submitted when all of the map revisions have been completed. Map 10 will also be revised to show that the area of quaternary alluvium extends to the confluence of Taylor and Wilson Creeks from the north. The labeling of the gauging stations at the confluence of Taylor and Wilson Creeks will also be corrected on the revised Map 10B”.

In order to verify the predicted effects of mining activities on groundwater and surface water, Stipulation #1 of the initial Permit required Colowyo to submit a comprehensive water monitoring plan. For further details regarding this plan, refer to Section 4.05.13, Surface and Groundwater Monitoring. Refer to the 1983 - 1989 Annual Reclamation Reports for further details as to the data collected.

2.06.9 Augering and Highwall Mining

In the South Taylor Pit, highwall mining has successfully occurred on the E seam in the northwestern area of the West Taylor Fill and the northeastern extent of the box cut. Please see Map 23 for these locations. Currently, Colowyo is proposing to highwall mine the G7/G8, E, and D2 seams on the low wall and end wall of the South Taylor Pit (see Map 23). The planned highwall mining sequencing will begin with the G7/G8 seam, and once mining is completed the pit will be backfilled to the E seam. Colowyo plans to highwall mine the E seam then backfill to up to the next seam and highwall mine it accordingly. This sequencing of highwall mining and backfill will adequately mine the full extent of the reserve over time. One additional area has been proposed to be highwall mined on the western perimeter of the South Taylor Pit (see Map 23); however, at this time additional engineering studies and exploratory drilling evaluations may be needed to fully define the mineable reserve in this area.

RULE 4 PERFORMANCE STANDARDS

4.05.14 – 4.05.18 Various Topics

These sections are addressed in the Volume 1.

4.06 TOPSOIL

The topsoil removal, storage, and redistribution plan for the disturbed area associated with the Lower Wilson and South Taylor mining areas will follow the procedures described in Section 4.06 in Volume 1 and as described in Section 2.05.3 (5) and 2.05.4 (2) (d) of this Volume (Volume 12)..

4.07 SEALING OF DRILLED HOLES AND UNDERGROUND OPENINGS

Drill holes and underground openings will be sealed in accordance with the procedures outlined in the Section 4.07 in Volume 1.

4.08 USE OF EXPLOSIVES

Explosives will be used for blasting in accordance with the procedures and specifications presented in Volume 1, Section 4.08.. Map 26A presents distances to various structures of possible concern surrounding the mining area. Only Section 4.08.2 has changed from Volume 1; see Sections 4.08.1 and 4.08.3 through 4.08.6, in Volume 1.

4.08.2 Pre-Blast Survey

In accordance with Rule 4.08.2(1), pre-blast surveys have been offered to owners of all structures within one-half mile of the permit area. Pre-blast surveys were conducted on residential structures located at 6647 and 7072 Moffat County Road 51, various associated groundwater supply wells, and eleven power pole foundations located along the ridge between Wilson and Taylor Creeks. Copies of the surveys are included in Exhibit 14, Item 4.

4.09 DISPOSAL OF EXCESS SPOIL

Spoil removed from the South Taylor pit will be stockpiled in valley fill area as shown on Map 23 and Map 45. Colowyo expects a 20% swell of excavated materials; therefore, part of the material stockpiled in the East and West Taylor Fills will remain at the conclusion of the project as shown on Post Mining Topography Map 19. Placement will occur as described in previous sections of this volume and in Volume 1.

Design of the two (East Taylor and West Taylor) fills associated with the South Taylor Mine plan are provided in Exhibit 23B. The East Taylor Fill will contain approximately 30.6 million yards of temporary out-of-pit spoil and approximately 5.7 million yards of permanent out-of-pit spoil. The West Taylor Fill will contain approximately 12.2 million yards of temporary out-of-pit spoil and approximately 22.1 million yards of permanent out-of-pit spoil. Both fills will be regraded in accordance with the approved Post Mine Topography shown on Map 19. The final configuration of the fills is designed to minimize erosion. This takes into account a number of the components of the other fill piles at the mine which have proven successful. The final outslope will not exceed 3h:1v.

Fill Name	Temporary Volume	Permanent Volume
East Taylor Fill	30,642,877 Cubic Yards	5,766,400 Cubic Yards
West Taylor Fill	12,263,314 Cubic Yards	22,051,300 Cubic Yards

RULE 4 PERFORMANCE STANDARDS

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.

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.

RULE 4 PERFORMANCE STANDARDS

To date these efforts have proven successful. Large herds of deer and elk are regularly seen grazing on the reclaimed areas. Rodent and small game populations have reestablished on the reclaimed areas providing a readily available food source for local raptor populations and other predators.

4.19 PROTECTION OF UNDERGROUND MINING

Colowyo will conduct no coal mining closer than 500 feet to any point of either an active or abandoned underground mine. Underground coal mines have been operated in the past as discussed in Section 2.04.4, but their locations were on the-northern side of Streeter Draw well over 500 feet from present Colowyo mining.

The surface mining activities of Colowyo have been designed so as not to endanger any present or future operations of either surface or underground mining operations. As discussed in Section 2.05.3, Colowyo has engineered its mining plan to maximize recovery of coal by current economical surface mining methods.

4.20 SUBSIDENCE CONTROL

Colowyo is conducting a surface coal mining operation. Therefore, the requirements of 4.20 are not applicable to the Colowyo operation.

4.21 COAL EXPLORATION

All coal exploration activities within the South Taylor/Lower Wilson permit revision area will be completed in accordance with the requirements and procedures outlined in Volume 1.

4.22 CONCURRENT SURFACE AND UNDERGROUND MINING

Colowyo does not currently plan to have concurrent surface or underground mining activities; therefore, the requirements of this Section are not applicable to this permit application.

4.23 AUGER AND HIGHWALL MINING

4.23.1 Scope

This Section establishes environmental protection performance standards in addition to those applicable performance standards in Rule 4, to prevent any unnecessary loss of coal reserves and to prevent adverse environmental effects from auger mining incident to surface mining activities.

4.23.2 Maximize Recoverability of Mineral Reserves

Colowyo has identified areas suitable for highwall mining at South Taylor (Map 23). Highwall mining allows for the recovery of additional coal resources beyond the final pit highwalls and end-walls. These coal reserves are economically recoverable using highwall mining methods.

From a strip mining perspective, the South Taylor Pit clearly delineates the maximum recoverable coal resources attainable today with modern surface technology and coal market demand and pricing. The highwall mining of the G-seams on the west side of the pit represents recovery of reserves that would not have been recovered by any other means utilizing either surface or underground mining techniques.

Section 4.23 of Volume 1 contains additional discussion regarding the removal of coal using highwall mining methods. The document includes a summary of the geologic factors that limit removal of the coal using conventional methods, the requirements for leaving undisturbed areas of coal in un-mined sections,

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Exhibit 1, Item 13
Colowyo Mine Permit Boundary Description

In total, Colowyo's permit boundary consists of lands described in the following four tables:

Table 1: That Portion of Colowyo's Permit Boundary Described by Quarter-Quarter Location within Moffat County, Townships 3N and 4N, Ranges 93W and 94W, 6th PM. This portion contains 22,716.2 acres.

Table 2: That Portion of Colowyo's Permit Boundary Described by Quarter-Quarter Location within Rio Blanco County, Township 3N, Ranges 93W and 94W, 6th PM. This portion contains 2,109.6 acres.

Table 3: That Portion of Colowyo's Permit Boundary Described by Metes & Bounds within Moffat County, Township 3N, Range 93W, 6th PM. This portion contains 821.1 acres.

Table 4: That Portion of Colowyo's Permit Boundary Described by Metes & Bounds within Moffat County, Township 4N, Range 93W, 6th PM. This portion contains 490.2 acres.

The total Colowyo permit boundary is 26,137.1 acres.

Table 1
That Portion of Colowyo's Permit Boundary Described by Quarter-Quarter Location
within Moffat County, Townships 3N and 4N, Ranges 93W and 94W, 6th PM

<i>Township</i>	<i>Range</i>	<i>Section</i>	<i>Description</i>	<i>Approx. Acres</i>
T3N	R93W	4	All	653.3
T3N	R93W	5	All	649.5
T3N	R93W	6	All	646.7
T3N	R93W	7	SE1/4, SE1/4 of NE1/4, NE1/4 of NE1/4, SW1/4 of NE1/4 lying South and East of County Road 51 and Lot 1	307.2
T3N	R93W	8	All	640.0
T3N	R93W	9	All	642.3
T3N	R93W	14	that portion of Section 14 lying west of the western right-of-way boundary of State Highway 13	103.7
T3N	R93W	15	that portion of Section 15 lying west of the western right-of-way boundary of State Highway 13	594.2
T3N	R93W	16	All	627.4

Table 1
That Portion of Colowyo's Permit Boundary Described by Quarter-Quarter Location
within Moffat County, Townships 3N and 4N, Ranges 93W and 94W, 6th PM

<i>Township</i>	<i>Range</i>	<i>Section</i>	<i>Description</i>	<i>Approx. Acres</i>
T3N	R93W	17	All	641.0
T3N	R93W	18	E/2, E/2SW/4	399.6
T3N	R94W	1	All	650.9
T3N	R94W	2	All	651.8
T3N	R94W	3	All	649.8
T3N	R94W	10	All	639.7
T3N	R94W	11	All	639.7
T3N	R94W	12	All, EXCEPT Lot 2, Lot 3, Lot 4 and SW1/4 SW1/4	557.8
T3N	R94W	14	All	639.7
T3N	R94W	15	All	639.6
T4N	R93W	15	that portion of the SW/4SW/4 of Section 15 lying south and east of the eastern right-of-way boundary of County Road 51	12.6
T4N	R93W	16	That portion of Lots 2, 3 and 4 lying South of County Road 51 and EXCEPT that portion of Lot 4 lying south of Lot 5.	144.3
T4N	R93W	17	SW/4, SE/4SE/4 and a portion of Lot 4 lying south of County Road 32	208.7
T4N	R93W	18	A portion of Lot 7 lying South and West of County Road 32	53.8
T4N	R93W	20	All	639.6
T4N	R93W	21	All	640.0
T4N	R93W	22	W/2 of Section 22	320.3
T4N	R93W	26	Lot 3 and the <u>Northerly</u> 34.81 acres, more or less, of Lot 2 (Lot 2 was described in the Original Survey as E/2NW/4 of Section 26)	85.8
T4N	R93W	27	N/2NE/4, W/2	400.2
T4N	R93W	28	All	640.5
T4N	R93W	29	All	639.8
T4N	R93W	30	All	637.3
T4N	R93W	31	All	638.96
T4N	R93W	32	All	639.8
T4N	R93W	33	All	640.2
T4N	R93W	34	W/2	320.0

Table 1
That Portion of Colowyo's Permit Boundary Described by Quarter-Quarter Location
within Moffat County, Townships 3N and 4N, Ranges 93W and 94W, 6th PM

<i>Township</i>	<i>Range</i>	<i>Section</i>	<i>Description</i>	<i>Approx. Acres</i>
T4N	R94W	12	Lot 11 and that portion of Lots 3, 7, and 10 lying South and West of County Road 32 and the SE/4SW/4, SW/4SE/4	143.49
T4N	R94W	13	All except that portion of Lot 1 lying East of County Road 32	643.5
T4N	R94W	23	E/2NE/4, E/2SW/4, SE/4	321.5
T4N	R94W	24	All except the SE1/4 of the SE1/4	600.9
T4N	R94W	25	All	641.4
T4N	R94W	26	All	641.6
T4N	R94W	27	SE/4	160.6
T4N	R94W	34	All	642.8
T4N	R94W	35	All	641.7
T4N	R94W	36	All	642.3
Subtotal, Table 1				22,395.6

Table 2
That Portion of Colowyo's Permit Boundary Described by Quarter-Quarter Location
within Rio Blanco County, Township 3N, Ranges 93W and 94W, 6th PM

<i>Township</i>	<i>Range</i>	<i>Section</i>	<i>Description</i>	<i>Approx. Acres</i>
T3N	R93W	19	E/2	319.2
T3N	R93W	20	All	638.6
T3N	R93W	21	that portion of Section 21 lying west of the western right-of-way boundary of State Highway 13	612.2
T3N	R93W	22	that portion of Section 22 lying west of the western right-of-way boundary of State Highway 13	126.7
T3N	R93W	28	those portions of Tract 47 and Tract 48 located within Section 28, Lots 24 and 6 and that portion of Tract 45 located within Section 28 lying west of the western right-of-way boundary of State Highway 13.	144.2
T3N	R93W	29	N/2NW/4, all of Lots 1, 2, 3, 4, 6, 10, 11 and 13 of Tract 48 located within Section 29 and the northernmost 401' of Lot 12.	228.8
T3N	R93W	30	NE/4NE/4	39.9
Subtotal, Table 2				2,109.6

Table 3
That Portion of Colowyo's Permit Boundary Described by Metes & Bounds within Moffat
County, Township 3N, Range 93W, 6th PM

The following Metes & Bounds description of a portion of the Colowyo Mine permit boundary within portions of Section 2, portions of Section 3, the W½ and SE¼ of Section 10, and the NW¼ NE¼ of Section 11, all within Township 3N, Range 93W, 6th PM, Moffat County, Colorado, and being more particularly described as follows:

Commencing at the northeast corner of Section 3, Township 3N, Range 93W, thence S 88°30' 15" E 2,576.03 feet along the northern boundary of said Section 3 to the POINT OF BEGINNING,

thence S 08°15'27" E a distance of 57.12'to a ;
thence S 06°22'37" E a distance of 141.34'to a ;
thence S 04°22'47" E a distance of 402.70'to a ;
thence S 02°49'45" E a distance of 207.61'to a ;
thence N 90°00'00" W a distance of 341.80'to a ;
thence N 00°00'00" W a distance of 576.26'to a ;
thence N 76°14'49" W a distance of 150.17'to a ;
thence N 81°45'42" W a distance of 40.11'to a ;
thence N 87°12'57" W a distance of 78.83'to a ;
thence S 88°15'01" W a distance of 68.32'to a ;
thence S 84°36'56" W a distance of 121.16'to a ;
thence S 79°18'14" W a distance of 128.98'to a ;
thence S 80°57'46" W a distance of 117.39'to a ;
thence N 75°04'36" W a distance of 129.38'to a ;
thence N 45°26'40" W a distance of 64.69'to a ;
thence N 43°33'24" W a distance of 38.79'to a ;
thence S 01°35'31" W a distance of 79.55'to a ;
thence S 01°55'59" W a distance of 225.70'to a ;
thence S 00°11'10" E a distance of 189.90'to a ;
thence S 05°52'20" E a distance of 166.09'to a ;
thence S 10°27'08" E a distance of 136.43'to a ;
thence S 11°01'53" E a distance of 127.90'to a ;
thence S 73°52'01" E a distance of 4.40'to a ;
thence S 68°23'34" E a distance of 84.72'to a ;
thence S 64°14'07" E a distance of 87.58'to a ;
thence S 64°00'04" E a distance of 53.32'to a ;
thence S 71°34'45" E a distance of 32.09'to a ;
thence S 57°24'06" E a distance of 38.75'to a ;
thence S 49°00'09" E a distance of 39.15'to a ;
thence S 31°22'15" E a distance of 58.63'to a ;
thence S 28°34'28" E a distance of 70.12'to a ;
thence S 27°35'21" E a distance of 56.38'to a ;
thence S 22°17'26" E a distance of 52.77'to a ;
thence S 17°53'30" E a distance of 44.79'to a ;
thence S 00°53'46" E a distance of 45.44'to a ;

thence S 04°46'06" W a distance of 21.64'to a ;
thence S 01°52'06" W a distance of 31.01'to a ;
thence S 01°48'17" E a distance of 55.42'to a ;
thence S 07°13'56" W a distance of 42.08'to a ;
thence S 17°04'32" W a distance of 52.61'to a ;
thence S 19°09'23" W a distance of 49.12'to a ;
thence S 14°46'29" W a distance of 54.53'to a ;
thence S 15°08'51" W a distance of 56.46'to a ;
thence S 21°38'49" W a distance of 54.87'to a ;
thence S 20°55'56" W a distance of 85.11'to a ;
thence S 16°31'02" W a distance of 81.04'to a ;
thence S 10°44'33" W a distance of 110.11'to a ;
thence S 12°27'41" W a distance of 85.40'to a ;
thence S 11°46'37" W a distance of 18.96'to a ;
thence S 13°09'44" W a distance of 32.58'to a ;
thence S 17°41'34" W a distance of 69.92'to a ;
thence S 20°47'07" W a distance of 11.10'to a ;
thence S 12°41'26" W a distance of 31.18'to a ;
thence S 55°19'30" E a distance of 7.46'to a ;
thence S 45°01'21" E a distance of 29.15'to a ;
thence S 45°01'21" E a distance of 6.31'to a ;
thence S 29°46'04" E a distance of 13.09'to a ;
thence S 34°43'02" E a distance of 12.08'to a ;
thence S 29°29'27" E a distance of 15.67'to a ;
thence S 24°19'17" E a distance of 15.95'to a ;
thence S 20°56'30" E a distance of 17.62'to a ;
thence S 14°32'55" E a distance of 18.83'to a ;
thence S 07°21'33" E a distance of 15.80'to a ;
thence S 05°23'36" E a distance of 25.73'to a ;
thence S 06°51'10" W a distance of 32.86'to a ;
thence S 08°07'50" W a distance of 13.57'to a ;
thence S 16°19'36" W a distance of 52.93'to a ;
thence S 32°01'29" W a distance of 19.81'to a ;
thence S 10°21'12" W a distance of 53.56'to a ;
thence S 07°24'55" W a distance of 87.65'to a ;
thence S 08°08'16" W a distance of 13.79'to a ;
thence S 10°18'39" W a distance of 16.14'to a ;
thence S 11°19'14" W a distance of 25.98'to a ;
thence S 28°19'09" W a distance of 35.66'to a ;
thence S 31°50'20" W a distance of 93.60'to a ;
thence S 42°43'56" W a distance of 54.63'to a ;
thence S 04°11'17" W a distance of 89.67'to a ;
thence S 17°14'20" W a distance of 38.59'to a ;
thence S 18°52'59" W a distance of 73.18'to a ;
thence S 24°51'39" W a distance of 107.84'to a ;
thence S 31°30'38" W a distance of 99.05'to a ;

thence S 36°05'18" W a distance of 121.91'to a ;
thence S 35°18'31" W a distance of 106.37'to a ;
thence S 48°50'12" W a distance of 63.62'to a ;
thence S 54°44'16" W a distance of 89.99'to a ;
thence S 66°08'08" W a distance of 78.10'to a ;
thence S 78°41'56" W a distance of 44.20'to a ;
thence S 60°57'53" W a distance of 10.74'to a ;
thence S 44°14'46" W a distance of 11.27'to a ;
thence S 32°47'26" W a distance of 29.14'to a ;
thence S 25°55'10" W a distance of 87.66'to a ;
thence S 44°53'11" W a distance of 41.30'to a ;
thence S 51°31'54" W a distance of 39.24'to a ;
thence S 59°33'16" W a distance of 81.73'to a ;
thence S 60°42'42" W a distance of 103.50'to a ;
thence S 50°32'09" W a distance of 75.31'to a ;
thence S 42°35'40" W a distance of 43.01'to a ;
thence S 27°34'20" W a distance of 5.46'to a ;
thence S 30°04'11" W a distance of 90.51'to a ;
thence S 29°35'50" W a distance of 80.61'to a ;
thence S 39°51'48" W a distance of 71.89'to a ;
thence S 54°49'19" W a distance of 52.61'to a ;
thence S 57°06'22" W a distance of 101.73'to a ;
thence S 49°50'31" W a distance of 12.29'to a ;
thence N 40°09'29" W a distance of 150.00'to a ;
thence N 49°50'31" E a distance of 21.81'to a ;
thence N 57°06'22" E a distance of 108.26'to a ;
thence N 54°49'19" E a distance of 32.25'to a ;
thence N 41°36'31" E a distance of 28.41'to a ;
thence N 29°35'50" E a distance of 75.97'to a ;
thence N 30°04'11" E a distance of 87.86'to a ;
thence N 27°34'20" E a distance of 21.97'to a ;
thence N 42°35'40" E a distance of 73.20'to a ;
thence N 50°32'09" E a distance of 49.73'to a ;
thence N 51°29'46" E a distance of 54.44'to a ;
thence N 60°42'42" E a distance of 110.18'to a ;
thence N 59°33'16" E a distance of 69.70'to a ;
thence N 51°31'54" E a distance of 20.01'to a ;
thence N 44°53'11" E a distance of 7.54'to a ;
thence N 25°55'10" E a distance of 71.61'to a ;
thence N 32°47'26" E a distance of 53.19'to a ;
thence N 44°14'46" E a distance of 48.36'to a ;
thence N 60°57'53" E a distance of 56.19'to a ;
thence N 78°41'56" E a distance of 51.09'to a ;
thence N 66°08'08" E a distance of 46.62'to a ;
thence N 54°44'16" E a distance of 67.29'to a ;
thence N 48°50'12" E a distance of 38.10'to a ;

thence N 35°18'31" E a distance of 89.60'to a ;
 thence N 36°05'18" E a distance of 116.94'to a ;
 thence N 31°30'38" E a distance of 84.35'to a ;
 thence N 24°51'39" E a distance of 91.29'to a ;
 thence N 18°52'59" E a distance of 63.19'to a ;
 thence N 17°14'20" E a distance of 19.28'to a ;
 thence N 04°11'17" E a distance of 59.82'to a ;
 thence N 04°16'19" E a distance of 30.41'to a ;
 thence N 12°32'14" E a distance of 24.11'to a ;
 thence N 25°47'15" E a distance of 22.83'to a ;
 thence N 35°23'01" E a distance of 22.55'to a ;
 thence N 42°43'56" E a distance of 54.85'to a ;
 thence N 31°50'20" E a distance of 74.68'to a ;
 thence N 28°19'09" E a distance of 8.64'to a ;
 thence N 10°28'13" E a distance of 14.22'to a ;
 thence N 08°08'16" E a distance of 10.00'to a ;
 thence N 07°24'55" E a distance of 90.55'to a ;
 thence N 10°21'12" E a distance of 78.19'to a ;
 thence N 25°21'53" E a distance of 25.24'to a ;
 thence N 32°01'29" E a distance of 10.14'to a ;
 thence N 16°19'36" E a distance of 7.49'to a ;
 thence N 16°19'36" E a distance of 14.02'to a ;
 thence N 08°07'50" E a distance of 1.15'to a ;
 thence N 06°51'10" E a distance of 15.10'to a ;
 thence N 05°23'36" W a distance of 7.06'to a ;
 thence N 07°21'33" W a distance of 3.80'to a ;
 thence N 14°32'55" W a distance of 1.03'to a ;
 thence N 20°56'30" W a distance of 4.82'to a ;
 thence N 24°19'17" W a distance of 4.76'to a ;
 thence N 29°29'27" W a distance of 2.05'to a ;
 thence N 34°43'02" W a distance of 10.97'to a ;
 thence N 45°01'21" W a distance of 2.10'to a ;
 thence N 55°19'30" W a distance of 4.57'to a ;
 thence N 52°37'11" W a distance of 3.96'to a ;
 thence N 52°37'11" W a distance of 4.79'to a ;
 thence N 47°30'39" W a distance of 9.62'to a ;
 thence N 49°12'32" W a distance of 10.70'to a ;
 thence N 39°37'58" W a distance of 19.26'to a ;
 thence N 26°41'11" W a distance of 44.18'to a ;
 thence N 03°48'52" W a distance of 21.74'to a ;
 thence N 02°57'52" W a distance of 16.62'to a ;
 thence N 01°03'40" E a distance of 19.83'to a ;
 thence N 11°34'10" E a distance of 16.29'to a ;
 thence N 12°41'26" E a distance of 34.02'to a ;
 thence N 12°41'26" E a distance of 10.93'to a ;
 thence N 20°47'07" E a distance of 17.67'to a ;

thence N 17°41'34" E a distance of 59.94'to a ;
thence N 13°09'44" E a distance of 24.84'to a ;
thence N 11°46'37" E a distance of 18.05'to a ;
thence N 12°27'41" E a distance of 84.05'to a ;
thence N 10°44'33" E a distance of 115.42'to a ;
thence N 16°31'02" E a distance of 94.39'to a ;
thence N 20°55'56" E a distance of 91.83'to a ;
thence N 21°38'49" E a distance of 49.87'to a ;
thence N 14°46'29" E a distance of 104.68'to a ;
thence N 19°09'23" E a distance of 52.14'to a ;
thence N 17°04'32" E a distance of 36.96'to a ;
thence N 07°13'56" E a distance of 17.31'to a ;
thence N 01°48'17" W a distance of 48.38'to a ;
thence N 01°52'06" E a distance of 39.61'to a ;
thence N 04°46'06" E a distance of 18.02'to a ;
thence N 00°53'46" W a distance of 15.61'to a ;
thence N 17°53'30" W a distance of 16.62'to a ;
thence N 22°17'26" W a distance of 40.07'to a ;
thence N 27°35'21" W a distance of 48.15'to a ;
thence N 28°34'28" W a distance of 65.17'to a ;
thence N 31°22'15" W a distance of 31.70'to a ;
thence N 49°00'09" W a distance of 4.87'to a ;
thence N 57°24'06" W a distance of 9.08'to a ;
thence N 71°34'45" W a distance of 23.37'to a ;
thence N 64°00'04" W a distance of 62.95'to a ;
thence N 64°14'07" W a distance of 81.83'to a ;
thence N 68°23'34" W a distance of 72.11'to a ;
thence N 73°52'01" W a distance of 27.16'to a ;
thence N 64°06'43" W a distance of 39.53'to a ;
thence N 40°37'27" W a distance of 47.16'to a ;
thence N 11°01'53" W a distance of 183.69'to a ;
thence N 10°27'08" W a distance of 143.18'to a ;
thence N 05°52'20" W a distance of 179.53'to a ;
thence N 00°11'10" W a distance of 200.12'to a ;
thence N 01°55'59" E a distance of 231.54'to a ;
thence S 72°05'02" W a distance of 130.45'to a ;
thence N 50°27'37" W a distance of 115.70'to a ;
thence N 35°06'54" W a distance of 133.85'to a ;
thence N 27°05'19" W a distance of 130.44'to a ;
thence N 52°19'31" W a distance of 43.45'to a ;
thence S 81°23'25" W a distance of 77.41'to a ;
thence N 81°32'05" W a distance of 147.39'to a ;
thence N 59°03'15" W a distance of 135.03'to a ;
thence N 64°39'51" W a distance of 101.39'to a ;
thence N 46°08'35" W a distance of 32.54'to a ;
thence N 70°42'09" W a distance of 70.90'to a ;

thence N 73°27'14" W a distance of 97.86'to a ;
thence N 88°15'56" W a distance of 83.84'to a ;
thence N 88°09'13" W a distance of 80.18'to a ;
thence S 81°07'32" W a distance of 79.70'to a ;
thence S 71°34'38" W a distance of 80.43'to a ;
thence S 47°50'09" W a distance of 105.75'to a ;
thence S 43°42'32" W a distance of 51.53'to a ;
thence S 39°29'21" W a distance of 63.02'to a ;
thence S 53°37'27" W a distance of 63.87'to a ;
thence S 50°12'52" W a distance of 64.43'to a ;
thence S 54°28'54" W a distance of 67.92'to a ;
thence S 44°11'35" W a distance of 77.27'to a ;
thence S 85°14'23" W a distance of 86.84'to a ;
thence N 77°19'33" W a distance of 77.24'to a ;
thence N 71°23'55" W a distance of 65.59'to a ;
thence N 35°15'47" W a distance of 100.07'to a ;
thence N 20°45'41" W a distance of 79.14'to a ;
thence N 13°47'13" W a distance of 138.48'to a ;
thence N 03°51'12" E a distance of 129.95'to a ;
thence N 02°47'51" E a distance of 124.39'to a ;
thence N 01°30'31" E a distance of 86.78'to a ;
thence N 41°51'53" W a distance of 90.09'to a ;
thence N 45°15'40" W a distance of 78.70'to a ;
thence N 45°01'13" W a distance of 83.33'to a ;
thence N 49°12'18" W a distance of 85.53'to a ;
thence N 31°16'54" W a distance of 85.43'to a ;
thence N 58°15'31" W a distance of 50.30'to a ;
thence N 70°12'51" W a distance of 71.78'to a ;
thence N 60°15'10" W a distance of 82.36'to a ;
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thence N 52°22'19" W a distance of 97.06'to a ;
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thence S 41°04'30" W a distance of 95.78'to a ;
thence S 30°11'28" W a distance of 130.62'to a ;
thence S 28°53'56" W a distance of 147.26'to a ;
thence S 46°31'40" W a distance of 117.25'to a ;
thence S 30°16'27" W a distance of 91.75'to a ;
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thence S 78°41'52" W a distance of 61.17'to a ;
thence N 50°43'50" W a distance of 59.23'to a ;
thence N 39°49'32" W a distance of 71.07'to a ;
thence N 05°26'39" W a distance of 62.21'to a ;
thence N 03°10'58" W a distance of 96.93'to a ;
thence N 24°54'56" E a distance of 82.12'to a ;

thence N 20°25'06" E a distance of 83.88'to a ;
 thence S 80°20'04" W a distance of 84.28'to a ;
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 thence N 36°53'22" W a distance of 61.92'to a ;
 thence N 84°57'40" W a distance of 84.55'to a ;
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 thence S 47°01'47" W a distance of 186.64'to a ;
 thence S 37°53'41" W a distance of 162.74'to a ;
 thence S 23°16'30" W a distance of 209.98'to a ;
 thence S 58°17'48" W a distance of 154.76'to a ;
 thence S 57°08'13" W a distance of 50.36'to a ;
 thence S 01°43'47" W a distance of 1833.65'to a ;
 thence S 79°19'49" E a distance of 49.68'to a ;
 thence S 79°19'49" E a distance of 56.99'to a ;
 thence S 75°10'25" E a distance of 147.27'to a ;
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 thence S 63°52'39" E a distance of 118.47'to a ;
 thence S 63°05'00" E a distance of 74.35'to a ;
 thence S 61°18'50" E a distance of 55.19'to a ;
 thence S 72°15'19" E a distance of 16.82'to a ;
 thence S 77°54'19" E a distance of 42.87'to a ;
 thence S 72°23'43" E a distance of 29.28'to a ;
 thence S 81°56'44" E a distance of 69.97'to a ;
 thence N 86°59'14" E a distance of 47.88'to a ;
 thence N 81°52'12" E a distance of 94.86'to a ;
 thence N 79°41'43" E a distance of 79.94'to a ;
 thence N 07°24'14" W a distance of 121.84'to a ;
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 thence N 35°25'26" E a distance of 35.03'to a ;
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 thence S 02°32'14" W a distance of 5889.25'to a ;
 thence S 60°30'15" E a distance of 2585.35'to a ;
 thence N 88°49'16" W a distance of 2639.36'to a ;
 thence N 88°48'52" W a distance of 2639.29'to a ;
 thence N 01°12'25" E a distance of 2647.58'to a ;
 thence N 01°12'31" E a distance of 2647.65'to a ;
 thence N 01°20'40" E a distance of 2632.50'to a ;
 thence N 02°01'07" E a distance of 2729.30'to a ;
 thence S 88°29'52" E a distance of 2721.20'to a ;
 thence S 00°00'00" E a distance of 1305.71'to a ;
 thence N 90°00'00" E a distance of 352.13'to a ;
 thence N 90°00'00" E a distance of 105.38'to a ;
 thence N 35°56'57" E a distance of 110.33'to a ;
 thence N 26°55'15" E a distance of 116.15'to a ;
 thence N 55°32'10" E a distance of 72.96'to a ;
 thence N 47°01'47" E a distance of 163.37'to a ;
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 thence N 20°22'30" E a distance of 147.46'to a ;
 thence N 28°27'22" E a distance of 141.69'to a ;
 thence N 62°51'25" E a distance of 144.72'to a ;
 thence S 84°57'40" E a distance of 115.75'to a ;
 thence S 66°48'58" E a distance of 63.00'to a ;
 thence S 36°53'22" E a distance of 55.91'to a ;
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 thence N 80°20'04" E a distance of 42.53'to a ;
 thence N 85°42'03" E a distance of 93.60'to a ;
 thence S 23°13'13" E a distance of 106.51'to a ;
 thence S 20°25'06" W a distance of 131.53'to a ;
 thence S 24°54'56" W a distance of 61.02'to a ;
 thence S 03°10'58" E a distance of 69.93'to a ;

thence S 05°26'39" E a distance of 29.30'to a ;
thence S 39°49'32" E a distance of 30.59'to a ;
thence S 50°43'50" E a distance of 2.45'to a ;
thence N 78°41'52" E a distance of 5.23'to a ;
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thence N 41°04'30" E a distance of 128.98'to a ;
thence N 67°42'29" E a distance of 155.92'to a ;
thence S 52°22'19" E a distance of 144.65'to a ;
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thence S 60°15'10" E a distance of 76.79'to a ;
thence S 70°12'51" E a distance of 73.54'to a ;
thence S 58°15'31" E a distance of 84.76'to a ;
thence S 31°16'54" E a distance of 93.64'to a ;
thence S 49°12'18" E a distance of 73.41'to a ;
thence S 45°01'13" E a distance of 86.78'to a ;
thence S 45°15'40" E a distance of 81.46'to a ;
thence S 41°51'53" E a distance of 132.82'to a ;
thence S 01°30'31" W a distance of 120.98'to a ;
thence S 04°52'05" E a distance of 133.12'to a ;
thence S 11°04'40" W a distance of 124.07'to a ;
thence S 13°47'13" E a distance of 110.34'to a ;
thence S 20°45'41" E a distance of 60.33'to a ;
thence S 35°15'47" E a distance of 54.72'to a ;
thence S 71°23'55" E a distance of 27.79'to a ;
thence S 77°19'33" E a distance of 56.73'to a ;
thence N 85°14'23" E a distance of 34.07'to a ;
thence N 44°11'35" E a distance of 48.83'to a ;
thence N 54°28'54" E a distance of 73.20'to a ;
thence N 50°12'52" E a distance of 63.68'to a ;
thence N 53°37'27" E a distance of 54.45'to a ;
thence N 39°29'21" E a distance of 54.31'to a ;
thence N 43°42'32" E a distance of 58.81'to a ;
thence N 47°50'09" E a distance of 130.37'to a ;
thence N 71°34'38" E a distance of 109.81'to a ;
thence N 81°07'32" E a distance of 97.44'to a ;
thence S 88°09'13" E a distance of 89.46'to a ;
thence S 88°15'56" E a distance of 96.74'to a ;
thence S 73°27'14" E a distance of 113.26'to a ;
thence S 70°42'09" E a distance of 95.07'to a ;
thence S 46°08'35" E a distance of 38.00'to a ;

thence S 64°39'51" E a distance of 89.99'to a ;
 thence S 59°03'15" E a distance of 120.06'to a ;
 thence S 81°32'05" E a distance of 112.50'to a ;
 thence N 81°23'25" E a distance of 105.14'to a ;
 thence S 52°19'31" E a distance of 108.58'to a ;
 thence S 27°05'19" E a distance of 145.81'to a ;
 thence S 35°06'54" E a distance of 113.37'to a ;
 thence S 50°27'37" E a distance of 47.42'to a ;
 thence N 72°05'02" E a distance of 57.52'to a ;
 thence N 43°22'33" E a distance of 89.64'to a ;
 thence N 73°19'03" E a distance of 72.32'to a ;
 thence S 62°10'36" E a distance of 59.25'to a ;
 thence S 51°37'24" E a distance of 67.64'to a ;
 thence S 43°33'24" E a distance of 37.96'to a ;
 thence S 45°26'40" E a distance of 50.64'to a ;
 thence S 75°04'36" E a distance of 105.54'to a ;
 thence N 80°57'46" E a distance of 106.06'to a ;
 thence N 79°18'14" E a distance of 130.57'to a ;
 thence N 84°36'56" E a distance of 125.06'to a ;
 thence N 88°15'01" E a distance of 71.88'to a ;
 thence S 87°12'57" E a distance of 83.19'to a ;
 thence S 81°45'42" E a distance of 44.90'to a ;
 thence S 76°14'49" E a distance of 112.55'to a ;
 thence N 00°00'00" W a distance of 171.54'to a ;
 thence N 90°00'00" E a distance of 303.89'to a ; to the TRUE POINT OF BEGINNING, said
 parcel having an area of 821.1 acres more or less

Subtotal, Table 3 821.1 acres

Table 4
That Portion of Colowyo's Permit Boundary Described by Metes & Bounds within Moffat
County, Township 4N, Range 93W, 6th PM

The following Metes & Bounds description of a portion of the Colowyo Mine permit boundary within portions of the S/2 of Section 13, portions of the SE/4SE/4 of Section 15, portions of the E/2 of Section 22, portions of Section 23, and portions of the W/2NW/4 of Section 24, all within Township 4N, Range 93W, 6th PM, Moffat County, Colorado, and being more particularly described as follows:

Commencing at the Southwest corner of Section 24, Township 4N, Range 93W, thence N 01°31' 58" E 1,554.97 feet along the westerly boundary of said Section 24 to the POINT OF BEGINNING,

thence N 89°22'47" W a distance of 1574.62';
thence N 28°20'06" E a distance of 781.61';
thence N 46°22'45" E a distance of 267.45';
thence N 49°38'50" E a distance of 421.56';
thence N 43°24'54" E a distance of 72.93';
thence N 37°35'51" E a distance of 256.61';
thence N 39°40'21" E a distance of 312.98';
thence N 42°37'55" E a distance of 506.32';
thence N 40°03'36" E a distance of 318.96';
thence N 39°25'53" E a distance of 422.89';
thence N 36°26'29" E a distance of 169.64';
thence N 17°16'02" E a distance of 74.10';
thence N 35°21'54" E a distance of 587.44';
thence N 36°12'25" E a distance of 161.31';
thence N 37°20'10" E a distance of 293.93';
thence N 41°03'01" E a distance of 114.24';
thence N 43°22'17" E a distance of 562.22';
thence N 43°42'10" E a distance of 565.88';
thence N 44°37'03" E a distance of 296.76';
thence N 43°23'02" E a distance of 352.58';
thence N 48°10'25" E a distance of 163.39';
thence N 59°56'26" E a distance of 142.17';
thence N 67°39'18" E a distance of 282.14';
thence N 59°35'15" E a distance of 602.88';
thence N 67°43'34" E a distance of 118.24';
thence N 65°19'59" E a distance of 118.33';
thence N 86°33'44" E a distance of 136.10';
thence S 52°06'24" E a distance of 338.33';
thence S 41°44'23" E a distance of 78.22';
thence S 49°24'15" E a distance of 130.29';
thence S 49°32'04" E a distance of 118.21';
thence S 77°40'27" E a distance of 17.12';

thence N 73°19'40" E a distance of 100.77';
thence N 40°03'16" E a distance of 98.11';
thence N 35°15'42" W a distance of 71.90';
thence N 78°42'43" W a distance of 99.58';
thence N 49°32'04" W a distance of 145.53';
thence N 42°09'58" W a distance of 88.12';
thence N 52°06'15" W a distance of 401.75';
thence N 71°03'12" W a distance of 16.63';
thence S 86°34'18" W a distance of 213.61';
thence S 65°58'45" W a distance of 148.95';
thence S 67°38'57" W a distance of 127.14';
thence S 59°35'24" W a distance of 603.17';
thence S 67°41'26" W a distance of 279.57';
thence S 60°07'46" W a distance of 75.47';
thence S 59°43'22" W a distance of 96.79';
thence S 48°10'38" W a distance of 184.36';
thence S 43°28'05" W a distance of 375.25';
thence S 44°57'30" W a distance of 175.26';
thence S 44°21'46" W a distance of 261.01';
thence S 43°23'35" W a distance of 434.15';
thence S 43°53'16" W a distance of 221.85';
thence S 42°57'19" W a distance of 321.52';
thence S 41°03'11" W a distance of 121.38';
thence S 37°20'30" W a distance of 301.16';
thence S 36°12'36" W a distance of 164.06';
thence S 35°21'52" W a distance of 613.60';
thence S 16°46'55" W a distance of 70.85';
thence S 36°26'20" W a distance of 141.49';
thence S 39°42'15" W a distance of 731.42';
thence S 43°21'23" W a distance of 274.29';
thence S 41°35'10" W a distance of 194.84';
thence S 40°00'08" W a distance of 356.61';
thence S 38°37'51" W a distance of 93.84';
thence S 37°02'05" W a distance of 132.94';
thence S 50°11'06" W a distance of 783.97';
thence S 35°03'03" W a distance of 743.05';
thence S 10°05'48" W a distance of 211.99';
thence N 88°30'08" W a distance of 648.04';
thence N 01°59'05" E a distance of 497.33';
thence N 89°02'59" W a distance of 3758.02';
thence N 01°34'32" E a distance of 2837.07';
thence N 35°57'09" E a distance of 698.33';
thence N 01°36'43" E a distance of 284.41';
thence N 16°49'02" E a distance of 563.39';
thence N 72°33'37" W a distance of 407.74';
thence S 21°38'00" W a distance of 591.43';

thence N 65°00'00" W a distance of 260.42';
thence S 25°00'00" W a distance of 222.16';
thence S 65°00'00" E a distance of 159.40';
thence S 21°38'00" W a distance of 380.09';
thence N 88°30'15" W a distance of 1350.88';
thence S 01°28'36" W a distance of 2638.57';
thence S 01°28'36" W a distance of 2639.17';
thence S 88°33'01" E a distance of 2641.14';
thence S 88°35'29" E a distance of 2829.05';
thence N 01°26'21" E a distance of 181.77';
thence S 88°23'30" E a distance of 1307.69';
thence N 41°08'40" E a distance of 1791.58'; to the TRUE POINT OF BEGINNING, said parcel
having an area of 490.2 acres, more or less.

Subtotal, Table 3 490.2 acres

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