TRI-STATE

June 21, 2022

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
Minor Revision No. 242
Jubb Creek Light-Use Roads

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 minor revision 242 (MR-242) to Permit No. C-1981-019.

MR-242 proposes two light-use roads (JCR-1 and JCR-2) adjacent to the Collom Haul Road, to provide access for monitoring and periodic maintenance of several small sediment sumps. The two light-use roads will overall, utilize the footprints of pre-mining ranch roads. However, one section of the JCR-2 will require topsoil removal as this will be new disturbance along the toe of the out-slope of the Collom Haul Road. Exhibit 13C has not been updated with this proposed new disturbance as the topsoil volumes, disturbance acres, and reseeding acres contained with the Exhibit 13C for the Collom Haul Road assume ground disturbing activities all the way to the permitted disturbance limit. Colowyo did not disturbed out to the permit disturbance limit when constructing the Collom Haul Road; therefore, this minor disturbance is already captured under Exhibit 13C accordingly.

Included in this minor revision is a change of index sheet to ease incorporation of this minor revision into the permit document. 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:
Chris Gilbreath
D250C711D0BF450...

Chris Gilbreath
Senior Manager,
Remediation and Reclamation

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CG:TT:der

Enclosure

cc: Hunter Seim (BLM-LSFO)
Tony Tennyson (via email)
File: C. F. 1.1.1.223 - 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: **June 20, 2022**

Revision Description: **MR-242 Jubb Creek Light-Use Roads**

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
5A					No Change
5B					No Change
6					No Change
7					No Change
8					No Change
9					No Change
10					No Change
12					No Change
13					No Change
14					No Change
15			Figure 4.03.1		Figure 4.03-1 has been inserted.
15	Collom Rule 4, Page 3 through Rule 4, Page 13 (11 pages)		Collom Rule 4, Page 3 through Rule 4, Page 13 (11 pages)		Section 4.03.3 has been updated which caused a pagination shift.
16					No Change
15					No Change
16					No Change
17					No Change
18A					No Change

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

Mine Company Name: **Colowyo Coal Company**

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

Date: **June 20, 2022**

Revision Description: **MR-242 Jubb Creek Light-Use Roads**

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

4.03.2 Access Roads

In order to obtain access to the Section 26, Section 25, Section 36, and Middle sediment ponds, access roads will be constructed as shown in Volume 18B, Exhibit 7, Item 23.

Use of these access roads will be for routine environmental monitoring and maintenance activities. Typical road use would consist of several trips per week by a light use vehicle using one way travel and low speed. For design information of the access roads please see Exhibit 7-23 Figures D1 and D2. Any outslopes created from the construction of this access road will be seeded with the mix listed below, post construction.

Several temporary access roads will be constructed to allow access to construct the west side sediment control system and to temporarily haul topsoil to a stockpile. These temporary access roads will be constructed in accordinace with Volume 18B, Exhibit 7, Item 23, Part D. Any outslopes created from the construction of this access road will be seeded with the mix listed below, post construction.

At the entrance to Jubb Creek off Moffat County Road 32, an access road will be established from the temporary facities area to where it ties into the Collom haul road. This access road will allow equipment, supplies, and man power to access and egress during the development of the Collom haul road and Collom factilites area. The Jubb Creek access road will be constructed in accordance with Volume 18B, Exhibit 7, Item 23, Part D. Any outslopes created from the construction of this access road will be seeded with the mix listed below, post construction.

All access roads are designed to meet the standards of Rule 4.03.2 for Access Roads. They are specifically designed to meet the minimum design requirements while minimizing additional disturbed area and preventing environmental damage. Additional discussions of these access roads may be found under Section 2.05.3(3).

The access road cut/fill stabilization seed mix is as follows:

Western wheatgrass @	4 Lbs PLS/Acre
Mountain Brome @	4 Lbs PLS/Acre
Kentucky Bluegrass @	2 Lbs PLS/Acre
Sanfoin @	2 Lbs PLS/Acre
Total	12 Lbs PLS/Acre

Following construction, a report by a registered professional engineer shall be provided to the Division indicating that the roads have been built as designed. Following mining activities, the access roads may be request to remain in place as a private ranch road and therefore would not be reclaimed. Should the access roads be requested to remain post-mining, the applicable surface owner and Colowyo will provide the Division with a letter documenting this request at the appropriate time.

4.03.3 Light-Use Roads

Light roads may be used in portions of the Collom permit expansion area. Typically, these roads are existing ranch or two track roads that were exisiting prior to the development of the Collom operation. Construction and maintenance of these roads are discussed in the Volume 1, Section 4.03.3.

Several light-use road will be utilized to support construction and long-term access to the power line that will provide power to electrical powered equipment in the Collom Pit. The light use road located in the

southern portion of Section 36 (T4N, R93W) and the northern portion of Section 1 (T3N, R94W) follows the power line to where it intersects the eastern portion of the Collom Pit and the road will follow the power line out into the future mining areas of the Collom Pit. Other sections of the light use raod will be within the Collom Pit footprint adjacent to the power line itself. Once mining progess to this power line location, the power line will be moved to the south, and the only portion of the light use road that will reamin is in the southern portion of Section 36 and norther portion of Section 1.

Two light-use roads designated as JCR-1 and JCR-2, will be utilized to monitor and access small sediment sumps along the Collom Haul Road. The location of these two light-use roads are shown on Figure 4.03-1. For the most part, these light-use roads will utilize the footprints of pre-mining roads within the permit boundary. Topsoil will be removed from a portion of the JCR-2 along the toe of the Collom Haul Road until it intercipts a pre-mining road. No other topsoil removal will occur on JCR-1 and JCR-2 where the alignment falls within pre-mining roads that were disturbed prior to commencement of mining the Collom Pit.

In accordance with Rule 4.03.3 (3), a field-design method will be utilized to construct the light-use road. Topsoil will be removed and windrowed adjacent to the road. Sediment control for the portion of the road that is outside of the Section 25 Pond watershed is described in Volume 18B, Exihibit 7-25D.

4.04 SUPPORT FACILITIES

The original support facilities used at the mining operation, including the office, shop and warehouse complex, and the coal handling and loadout facilities may continue to serve as minor support facilities for this expansion and are shown within the original Colowyo Permit Map 21 and Map 22, Volume 8. Many of the support structures were constructed at the mine start-up in 1976-1977. The complete discussion on all the original support facilities is found under Sections 2.05.3 and 4.04 in Volume 1.

The Collom area facilities will include an administration building, shop and warehouse facility, coal crushing, explosives bunker, sedimentation ponds, utility lines, water lines, and haul roads that will be constructed near the Collom Pit area. These facilities are detailed in the Structure and Facilities Map 22B.

4.05 HYDROLOGIC BALANCE

4.05.1 General Requirements

Please see Section 4.05.1 in Volume 1.

In addition to the mining, reclamation, and treatment methods referenced in this section, further protection of the hydrologic balance will be established by an on-going plan for monitoring potential changes in surface water quality and quantity and valley fill groundwater quality. This monitoring plan is described under Section 4.05.13 and the monitoring locations are graphically shown on Map 10B.

4.05.2 Water Quality Standards and Effluent Limitations

Please see Section 4.05.2 in Volume 1.

4.05.3 Diversions and Conveyance of a Watershed Less than One Square Mile

The drainage and sediment control measures described under Section 2.05.6 and presented in the Erosion and Sedimentation Control Plan will provide for clean water diversion of surface drainages within the

Collom Pit area, as needed for mine operations (please see Exhibit 7, Item 23, Part A) . A system of clean water diversion ditches upslope from the mining activities will be constructed to divert surface runoff away from the disturbed areas (Collom Pit). These temporary diversions will be constructed to pass at a minimum the runoff from the precipitation event with a two-year recurrence interval.

Any topsoil stockpile areas that may be constructed outside the confines of engineered sediment control structures will be required to have a perimeter ditch and berm constructed around the entire footprint of the stockpile sufficient to capture and retain any rainwater/snowmelt that may be generated from the stockpile area to preclude loss and/or contamination of the topsoil resource. A demonstration of the effectiveness of sediment control structures to be constructed around several topsoil stockpiles planned outside of primary sediment control may be found under Exhibit 7, Item 23, Part D.

4.05.4 Stream Channel Diversions (Relocation of Streams)

The drainage and sediment control measures described under Section 2.05.6 and presented in the Erosion and Sedimentation Control Plan (Exhibit 7, Item 23) will provide for temporary diversion of surface drainages within the permit area, as needed for mine operations. A system of temporary ditches will be used to divert runoff from disturbed areas to sediment ponds. The natural drainage systems will be restored to historic drainage patterns once diversion ditches are removed; therefore, there will be no permanent diversions of these channels.

The only stream channel that will be impacted by the Collom Pit is the main stream of Little Collom Gulch, an ephemeral stream draining less than one square mile at the upstream pit boundary. Clean water diversions will be installed above the Collom Pit (Exhibit 7, Item 23, Part A) and will be removed as mining progresses. It will also be channelized further downstream, alongside the haul road leading from the Collom Pit to the spoil pile, where it drains greater than one square mile (Exhibit 7, Item 2, Part B).

4.05.5 Sediment Control Measures

Sediment control measures to be implemented are shown in Exhibit 7, Item 23 Erosion and Sedimentation Control Plan, and postmining channels are shown on Map 41B. These facilities, consisting primarily of diversion ditches and sedimentation ponds, will be located, constructed and maintained to avoid erosion and increased contribution of sediment load to runoff.

Facilities to control sediment are typically installed in areas above and/or below the planned sites of disturbance. “Upstream” facilities, such as clean water diversion ditches upslope from the mining activities, serve to divert runoff away from the disturbed areas. Temporary diversion ditches below the disturbed area of the pit will help collect runoff from disturbed areas and route it into the sedimentation ponds. During active mining, the mining areas will aid in retaining sediment within the disturbed areas by catching water in pits, small depressions and dozer basins, etc. Once reclaimed, the basins will drain as they did prior to mining activities (i.e., historic drainage patterns will be re-established).

All temporary diversions will be removed and reclaimed when no longer needed for sediment control in accordance with Rule 4.05.2(2)

Channel lining rock riprap and energy dissipaters will be used when necessary. As stated above, all temporary diversion structures will be seeded and revegetated after removal. Colowyo does not anticipate that there will be any significant excess material resulting from the construction of diversion ditches.

None of the diversions will drain into underground mines.

4.05.6 Sedimentation Ponds

The location, design parameters, and detailed sedimentation calculations of all planned sedimentation ponds are presented in Erosion and Sedimentation Control Plan (Exhibit 7, Item 23). The design plans and specifications for the sedimentation ponds are described in this section (Part C). All sedimentation ponds will be located as close as practical to the areas to be disturbed. Steep terrain in the upper basins precludes location of the ponds at the Collom Pit disturbance boundaries during the critical early phase of operations, necessitating down-valley locations downstream of the Collom Pit and temporary spoil pile footprint. Other methods of sediment control will be located on the reclaimed areas; these methods include the use of contour furrowing, contour drainage ditches, chisel plowing, and revegetation.

Colowyo has specificially provided information regarding Rule 4.05.9(7)(a-e) with respect to the construction of sediment ponds on the design drawings. Please see Exhibit 7-23C, Table 1 and Exh. 7-23 Figures C5 through C9.

Exhibit 7, Item 23, Part C contains calculations used to determine runoff volumes and flow rates for the theoretical 10-year, 25-year, and 100-year, 24-hour precipitation events, as well as annual sediment volumes. The precipitation data were obtained from the NOAA Atlas 2, Volume 3 for Colorado; soil types were obtained from the Soil Conservation Service, and are shown on the soils survey map (Map 5D).

The ongoing mining activities within each watershed of the permit area will create constantly changing hydrologic conditions. The design models are generally based on a static, theoretical scenario, utilizing SEDCAD 4. Please refer to Exhibit 7, Item 23 for a delineation of the areas used for these modeling purposes, the presentation of the assumed worse case scenario, as well as the maps associated with the SEDCAD runs.

The scenario used for the sedimentation ponds corresponds to an active, disturbed operation. In terms of groundwater, Colowyo's pits have remained essentially dry. Discharges from the ponds will remain in compliance with Colowyo's CDPS Discharge Permit. The use of flocculants in sedimentation ponds may also be used in accordance with the provisions of the CDPS Permit.

Sediment will be removed from all sedimentation ponds on an as needed basis or when the sediment level will not allow effective treatment of the runoff resulting from the 10-year, 24-hour precipitation event in accordance with Rule 4.05.2. Quarterly inspections will note the level of sediment in each pond. Ponds will typically be cleaned of sediment when water levels are lowest, and the least amount of precipitation is expected. The removed sediment may be used as topsoil or subsoil if it meets the suitability criteria discussed under Section 2.04.9 or placed in the backfill of the pits. The Division will be notified of this determination if the material is selected as overburden material that can be substituted for or as a supplement to topsoil.

All sedimentation ponds will be designed so that the minimum elevation at the top of the settled embankment is at least one foot above the elevation of the water surface in the pond with the emergency spillway flowing at design depth.

Colowyo will design, construct, and maintain the sedimentation ponds to prevent short-circuiting to the extent possible. As a general rule, the inflow to the ponds will be at the opposite end from the outflow area. The constructed height of the sedimentation pond embankment will be designed to allow for settling. During construction, a registered professional engineer will ensure that the appropriate embankment height is accomplished. For all sedimentation ponds, the entire embankment, including the surrounding areas disturbed by construction, will be seeded after the embankment is completed, using the

Topsoil Stockpile/Pond Embankment seed mix described below. The active upstream side of the embankment where water will be impounded will be stabilized, where necessary. Areas in which revegetation is not successful or, where rills and gullies develop, will be repaired and revegetated.

Colowyo will inspect the condition of each sediment pond, sediment trap, or future post-mining stock reservoir on a quarterly basis. All of these types of structures meet the requirements of an impoundment, and the inspection procedures will meet the requirements under Rule 4.05.9 (17). Previously, Colowyo has received a waiver from quarterly inspections for several existing stock reservoirs within the current permit area as described under Section 4.05.9. This waiver changed the inspection frequency to annual. Following construction of any future post-mining stock reservoir in the Collom permit expansion area, Colowyo may request a similar waiver but until that is approved, the quarterly frequency would apply. Results of all impoundment inspections will be submitted quarterly.

Topsoil Stockpile/Pond Embankment Seed Mix*

Western wheatgrass @ 4 Lbs PLS/Acre
Thickspike wheatgrass** @ 4 Lbs PLS/Acre
Yarrow*** @ 0.15 Lbs PLS/Acre

*mix may be modified as a result of an updated Reclamation Plan, currently under review.
**option to replace Thickspike wheatgrass with Beardless bluebunch wheatgrass or Sheep fescue
***option to replace Yarrow with Cicer milkvetch

4.05.7 Discharge Structures

Please see Section 4.05.7 in Volume 1.

The design requirements for sediment ponds for the existing operation can be found in Volumes 2D, 2E, or in Exhibit 7, Item 15, in Volume 13

Design requirements for all sediment ponds associate with the Collom Pit can be found in Exhibit 7, Item 23.

4.05.8 Acid-forming and Toxic-Forming Spoil

Acid forming materials do not exist in significant quantities within the overburden to be removed by the mining operations. A discussion on the overburden at the Colowyo operation has been conducted as set forth in Section 2.04.6. A discussion of the overburden monitoring plan is set forth in Section 2.05. Acid-Base Accounting shows that 19 feet out of 4,212 feet of analyzed over- and inter -burden has a net acid-generating potential, and the average acid-neutralizing potential to acid-generating potential ratio is strongly weighted toward acid-neutralizing in each borehole (Exhibit 6, Item 9).

4.05.9 Post-Mining Impoundments

Please see Section 4.05.9 in Volume 1.

4.05.10 Underground Mine Entry and Access Discharges

Colowyo currently conducts surface coal mining exclusively.

4.05.11 Groundwater Protection

Please see Section 4.05.11 in Volume 1.

4.05.12 Protection of Groundwater Recharge Capacity

Please see Section 4.05.11 in Volume 1.

4.05.13 Surface and Groundwater Monitoring

Colowyo will report discharges associated with its CDPS permit (sediment pond discharges) in accordance with the Clean Water Act of 1977 on a quarterly basis to the Colorado Department of Public Health and Environment. Surface water and groundwater monitoring data (monitoring locations listed in the tables below) is reported to the Division in an annual hydrology report. Annual hydrologic reports for the period of January 1st through December 31st will be submitted to the Division by April 1st of the following year.

Colowyo monitors the the following sites:

Sedimentation Ponds – Discharges associated with the sediment ponds will be monitored as required under Colowyo's CDPS Permit which is issued by the Colorado Department of Public Health and Environment. Colowyo will measure the quantity and quality of discharges from the permit area in compliance with the CDPS permit requirements. A copy of Colowyo's CDPS permit is available onsite for review as necessary.

At various times, Colowyo may obtain and discharge water under a CDPS minimal discharge permit. In the event that water is discharged under a minimal discharge permit, Colowyo will report as required by the CDPS permit.

Surface Water - Eleven surface water sites will be monitored because of mining activity at Colowyo. These points include five locations along Good Spring Creek, Taylor Creek, Jubb Creek, Little Collom Gulch, and Collom Gulch. Field parameters and laboratory anaylsis are gathered each quarter.

Monitoring Type	Monitoring Location	Monitoring Frequency	Quarterly Field Parameters	Quarterly Laboratory Parameters
Surface Water	Upper Collom Gulch (UCG)[1]	Quarterly	Flow from Parshall Flume. See List Below	See List Below.
Surface Water	Lower Collom Gulch (LCG)[2]	Quarterly	Flow from Parshall Flume. See List Below.	See List Below.
Surface Water	Lower Little Collom Gulch (LLCG)[3]	Quarterly	Flow from Parshall Flume. See List Below.	See List Below.
Surface Water	West Fork of Jubb Creek (WFJC)[4]	Quarterly	Flow from Parshall Flume. See List Below	See List Below.
Surface Water	Confluence of Jubb Creek (CJC)[5]	Quarterly	Flow from Parshall Flume. See List Below	See List Below.
Surface Water	Lower Taylor Creek (LTC)[6]	Quarterly	Flow from Parshall Flume. See List Below	Flow from Parshall Flume. See List Below
Surface Water	Lower West Fork Good Spring Creek (LWFGSC)[7]	Quarterly	Flow Only taken from Parshall Flume. Volume added to EFGSC measurement to apply to actual flow for NUGSC.	Flow Only taken from Parshall Flume. Volume added to EFGSC measurement to apply to actual flow for NUGSC.
Surface	East Fork	Quarterly	Flow Only taken from	Flow Only taken from

Water	Good Spring Creek (EFGSC)[8]		Parshall Flume. Volume added to LWFGSC measurement to apply to actual flow for NUGSC.	Parshall Flume. Volume added to LWFGSC measurement to apply to actual flow for NUGSC.
Surface Water	Upper West Fork Good Spring Creek (UWFGSC)[9]	Quarterly	Flow from Parshall Flume. See List Below	Flow from Parshall Flume. See List Below
Surface Water	New Upper Good Spring Creek (NUGSC)[10]	Quarterly	See List Below. Flow estimated by combining measurements taken from LWFGSC & EFGSC.	See List Below. Flow estimated by combining measurements taken from LWFGSC & EFGSC.
Surface Water	Lower Good Spring Creek (LGSC)[11]	Quarterly	Flow from Parshall Flume. See List Below	Flow from Parshall Flume. See List Below

1. Upper Collom Gulch (UCG) represents the water quality conditions in Collom Gulch upstream of the Collom Lite mining area. No impact on flow or water quality at UCG is anticipated.
2. Lower Collom Gulch (LCG) represents the conditions in Collom Gulch downstream of mining impacts. No impact on flow or water quality at UCG is anticipated.
3. Lower Little Collom Gulch (LLCG) represents the conditions in Little Collom Gulch downstream of all mining disturbances. Because Little Collom Gulch is ephemeral, and the mining area extends nearly to the headwaters, no upstream monitoring location can be established.
4. West Fork of Jubb Creek (WFJC) represents conditions in the Jubb Creek watershed adjacent to the mining disturbance.
5. Confluence of Jubb Creek (CJC) represents the aggregate water quality in the Jubb Creek basin, downstream of potential mining impact areas.
6. Lower Taylor Creek (LTC) represents the water quality conditions of Taylor Creek directly downstream of the South Taylor mining area and immediately prior to the confluence with Wilson Creek and immediately downstream of the Gossard Loadout.
7. Lower West Fork Good Spring Creek (LWFGSC) represents this tributary after potential impacts caused by South Taylor mining.
8. East Fork Good Spring Creek (EFGSC) represents the upstream, undisturbed background condition of the East Fork Good Spring Creek.
9. Upper West Fork Good Spring Creek (UWFGSC) represents the upstream, undisturbed background condition of the West Fork Good Spring Creek.
10. New Upper Good Spring Creek (NUGSC) represents the water quality of Good Spring Creek downstream of the confluence of the east and west forks of the creek and downstream of the South Taylor mining area.
11. Lower Good Spring Creek (LGSC) represents the water quality downstream of the South Taylor and existing mining areas.

Quarterly Surface Water Field Parameters

Temperature	Flow	pH	Conductivity

Quarterly Surface Water Laboratory Parameters

pH	Conductivity @ 25°C	Total Dissolved Solids	Total Suspended Solids
Calcium (Ca^{+2})^{D}	Magnesium (Mg^{+2})^{D}	Ammonia (NH_3)^{D}	Nitrate-Nitrite^{D}
Sodium (Na^{+})^{D}	Sulfate (SO_4^{-})^{D}	Arsenic (As)^{TR}	Iron - Total^{T}
Mercury (Hg)^{TR}	Manganese (Mn)^{TR}	Selenium (Se)^{TR}	Zinc (Zn)^{TR}
Phosphorus (P)^{T}	Lead (Pb)^{TR}	Bicarbonate (HCO_3)^{D}	
D = Dissolved T = Total			

TR = Total Recoverable

Prior to mining at Lower Wilson, the following three surface water monitoring sites will be added to the sampling schedule:

1. Upper Wilson Creek (UWC) represents water quality upstream of all mining impacts.
2. Upper Middle Wilson Creek (UMWC) represents water quality downstream of the proposed Lower Wilson mining area.
3. Lower Wilson Creek (LWC) represents water quality immediately upstream of the confluence with Taylor Creek.

Groundwater – Eleven valley fill groundwater sites and one deep groundwater well will be monitored as a result of mining activity at Colowyo. Please refer to Exhibit 26, Item 1 for additional details regarding the wells in the Collom Area. Field parameters and laboratory anaylsis are gathered each quarter.

Monitoring Type	Monitoring Location	Monitoring Frequency	Quarterly Field Parameters	Quarterly Parameters
Valley Fill Groundwater	MC-04-01[1]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	MC-04-02[2]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	MLC-04-01[3]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	MJ-95-01[4]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	MJ-95-03[5]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	Gossard Well[6]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	A-6 Well[7]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	North Good Spring Well[8]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	MT-95-02[9]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	A-7[10]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Valley Fill Groundwater	A-8[11]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Groundwater Well	Trout Creek Well[12]	Quarterly	Water level, Temperature, pH, Conductivity	See Below
Alluvial Well	LGSW-1	Quarterly	Water level, Temperature, pH, Conductivity	Please see Volume 2C Exhibit 7, Item 19, Table 16
Alluvial Well	LWCW-1	Quarterly	Water level, Temperature, pH, Conductivity	Please see Volume 2C Exhibit 7, Item 19, Table 16

1. MC-04-01 – Located in the Collom Gulch valley fill, this site represents the condition of the Collom Gulch valley-fill aquifer adjacent to the Collom Pit.
2. MC-04-02 – Located in the Collom Gulch valley fill, this site represents the condition of the Collom Gulch valley-fill aquifer downgradient of the Collom Pit. This location is additionally designated as a "Point of Compliance" well for valley fill groundwater monitoring purposes.
3. MLC-04-01 – Located in the Lower Collom Gulch valley fill, this site will be located north of the temporay spoils pile in Lower Collom Gulch. This location is additionally designated as a "Point of Compliance" well for valley fill groundwater monitoring purposes.

4. MJ-95-01 – Located in the West Fork Jubb Creek valley fill, this site represents the condition of the West Fork Jubb Creek valley fill aquifer adjacent to the northeast (downgradient) side of the Collom Pit. This location is additionally designated as a "Point of Compliance" well for valley fill groundwater monitoring purposes.
5. MJ-95-03 - Located in the Jubb Creek valley fill just downstream of the confluence of the West and East Forks of Jubb Creek, this site represents the condition of the valley-fill aquifer downgradient of the Collom Pit.
6. Gossard Well – Located within valley fill beneath the rail loop, this site represents the condition of the valley fill aquifer in the vicinity of the Gossard Coal Loadout Facility.
7. A-6 Well – Located in the Good Spring Creek valley fill, this site represents the condition up-gradient of and current mining activities.
8. North Good Spring Well – Located in the Good Spring Creek valley fill, this site represents the down-dip condition below existing and mining activities.
9. MT-95-02 – Located in the Taylor Creek valley fill, this site represents the down-dip condition below current and mining activities.
10. A-7 – Located in the West Fork of Good Spring Creek valley fill, this site represents a potential down-dip condition below South Taylor mining activities.
11. A-8 - Located in the West Fork of Good Spring Creek valley fill, this site represents the condition up-gradient of South Taylor mining activities.
12. Trout Creek Well – Located on the northeastern edge of the Collom Pit, this site respresents the regional aquifer condition of the Trout Creek Sandstone.
13. LGSW-1 – Located along Good Spring Creek, this site represents the down gradient condition below mining activities, and is designated as a "Point of Compliance" well for the alluvial aquifer on Good Spring Creek. The applicable standards are the Department of Public Health and Evnironment Water Quality Control Comission Regulation 41 - The Basic Standards for Ground Water, Interim Narrative Standard. How the Interim Narrative Standard will be implemented is described in Volume 2C, Exhibit 7, Item 19, Section 4 and the applicable standards are found in Volume 2C, Exhibit 7, Item 19, Table 16.
14. LWCW-1 – Located below the confluence of Wilson and Taylor Creeks, this site respresents the down gradient condition below mining activities and is designated as a "Point of Compliance" well for the alluvial aquifer on Wilson and Taylor Creeks. The applicable standards are the Department of Public Health and Evnironment Water Quality Control Comission Regulation 41 - The Basic Standards for Ground Water Interim Narrative Standard. How the Interim Narrative Standars will be implemented is described in Volume 2C, Exhibit 7, Item 19, Section 4 and the applicable standards are found in Volume 2C, Exhibit 7, Item 19, Table 16.

Groundwater Laboratory Parameters

pH	Conductivity at 25°C	Total Dissolved Solids	Bicarbonate (HCO_3^-)^D	Calcium (Ca^{+2})^D
Magnesium (Mg^{+2})^D	Ammonia (NH_3)^D	Nitrate^D	Phosphate (PO_4^{-3} as P)^D	Sodium (Na^+)^D
Sulfate (SO_4^{-2})^D	Arsenic (As)^D	Iron (Fe)^D	Lead (Pb)^D	Manganese (Mn)^D
Mercury (Hg)^D	Selenium (Se)^D	Zinc (Zn)^D		
D = Dissolved				

Prior to mining at Lower Wilson, the following three valley fill groundwater monitoring sites will be added:

1. MW-95-01 – Located in the Wilson Creek valley fill, this site represents the upstream, undisturbed background conditions of the valley fill aquifer.
2. MW-05-03 – Located in the Wilson Creek and unnamed drainage valley fill, this site represents valley fill groundwater quality immediately downgradient from Lower Wilson.
3. MW-95-02 – Located in the Wilson Creek valley fill, this site represents the downgradient conditions below Lower Wilson and the haul road.

It is reasonable to expect potential future monitoring activities for the Lower Wilson locations to mirror those for the existing operation as it pertains to frequency and specific parameters.

Groundwater Fill Piezometers - Monitoring of the West Pit fill piezometer and Section 16 Fill piezometer have been discontinued. The West Pit Fill and West Taylor Fill piezometers will be monitored quarterly for water levels. One additional piezometers will be installed into the toe of East Taylor Fill, once constructed, as described in Exhibit 21 Item 1.

A future spoil water monitoring well will be drilled (and water quality monitored) as identified on Map 41B in the reclaimed Collom Pit area to monitor and measure the potential development of a spoil aquifer. This location represents the lowest point in the Collom Pit.

4.05.14 Transfer of Wells

Please see Section 4.05.14 in Volume 1.

4.05.15 Water Rights and Replacment

Please see Section 4.05.14 in Volume 1 and Section 2.04.7(2) in Volume 15.

4.05.16 Dischrage of Water into an Underground Mine

This section is not applicable to the Collom Mine.

4.05.17 Postmining and Rehabilitation of Sediment Pond, Diversions, Impoundments, and Treatment Facilities

Please see Section 4.05.17 in Volume 1.

4.05.18 Stream Buffer Zones

Lands within 100 feet, or greater distance if required, of a perennial, an intermittent, or an ephemeral stream with a drainage area larger than one square mile are required to be protected under Rule 4.05.18, unless the Division specifically authorizes surface operations within the stream buffer zone. Stream buffer zones have been identified along Wilson Creek and Jubb Creek, as the drainage area reporting to these streams is larger than one square mile. Colowyo will be developing the Collom Haul Road which will be inside the stream buffer zone on both Wilson Creek and Jubb Creek.

The Collom Haul Road will cross Wilson Creek as shown on Map 25E Sheet 1. During construction Colowyo will install a round culvert, and will employ proper best management practices (BMPs) during the construction phase in accordance with Colowyo's approved stormwater management plan, Section 401 certification, and US Army Corps 404 permit..

The Collom Haul Road will also cross Jubb Creek as shown on Map 25E Sheet 1. The construction of the crossing will be similar to the Wilson Creek crossing and will utilize the same BMPs as will be installed at the Wilson Creek crossing.

As shown on Map 25E Sheet 1, the Collom Haul Road will parallel Jubb Creek. There will be one section of the haul road that will be slighty within 100 feet of the stream. As shown on Map 25E Sheet 1, at approximately Station 230+00 to 250+00 there will a slight amount of disturbance within the stream

buffer zone on Jubb Creek. Proper BMPs will be employed prior to any disturbance occurring within this area and once the road construction is complete any areas that can be reclaimed will be completed as soon as possible.

Much of Little Collom Gulch will be directly impacted by the Collom Pit, the temporary spoil pile, and the Section 25 Pond (see Map 23C). The Section 25 Pond will protect the lower reaches of Little Collom Gulch that will not be disturbed during mining and reclamation. It is expected that during mining the Collom Pit will intercept and hold surface water runoff thus providing less discharge through the Section 25 Pond. Clean water diversions will be constructed above the active operations (also potentially within Little Collom Gulch) to direct surface water runoff around the disturbed areas. Once mining is complete the entire Collom Pit will be backfilled with the material stored in the temporary spoil pile and the pre-mine profile and function of Little Collom Gulch will be restored.

It is not anticipated that any of the areas that are to be disturbed within the stream buffer zones will have any long term impacts to Wilson Creek, Jubb Creek, or Little Collom Gulch due to proper use of BMPs, sediment control structures, clean water diversions, and due the fact the disturbance will be offset by reclamation. The two road crossing will be stabilized immediately following construction, and Little Collom Gulch will be restored to the premine condition when mining and reclamation activies are complete.

No other areas within the Collom disturbance footprint will impact any stream buffer zones.

4.06 TOPSOIL

The topsoil removal, storage, and redistribution plan for the disturbed area associated with the Collom Pit mining areas will follow the procedures described Section 2.05.3 (5) and 2.05.4 (2) (d) in this volume. Additional information regarding the topsoil resource may be found in the Collom Soils baseline survey located in Exhibit 9, Volume 13. Before the disturbance of any area, topsoil is removed and segregated from other material. Upon removal, this material is either immediately redistributed on regraded areas or stockpiled in locations shown on the Topsoil Handling Map 28C

All topsoil, as classified in section 2.04.9, is removed from areas to be affected by the surface coal mining operations. The graphical representation of the topsoil removal is shown on the Topsoil Handling Map 28C. The average thicknesses for each soils series to be removed can be found on Table 2.04.9-16 as defined in Table 2.04.9-19. Removal techniques for topsoil are described in Section 2.05.3. Furthermore, please see Section 4.06 in Volume 1 for additional information regarding topsoil.

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.