STATE OF COLORADO

Zuber - DNR, Rob <rob.zuber@state.co.us>

Findings for Bowie No. 2 midterm (MT-05)

1 message

Zuber - DNR, Rob <rob.zuber@state.co.us> Thu, Oct 3, 2019 at 1:57 PM
To: Tamme Bishop <tamme.jestover@bresnan.net>, Basil Bear <basilbear@wolverinefuels.com>

Hello -

Please see the attached findings.

Rob

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1302K

MIDTERM PERMIT REVIEW (MT-05)
for
Bowie Resources, LLC

Bowie No. 2 Mine

C-1996-083

Photo by Harry Ranney, 10 September 2019

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Virginia Brannon, Director

Prepared by
Robert D. Zuber, P.E.
Environmental Protection Specialist

October 3, 2019

In Fulfillment of C.R.S. 34-33-115 and the following
Regulations of the Colorado Mined Land Reclamation Board for Coal Mining:
Rules 2.08.3, 2.06.2, 2.06.3, 2.06.5, 2.06.7 and 3.02.2

Introduction

This document presents the results of the Midterm Review of the Bowie No. 2 Mine, conducted by the Colorado Division of Reclamation, Mining and Safety (the Division). The Bowie No. 2 Mine is owned and operated by Bowie Resources, LLC (BRL). This Midterm Review was conducted to fulfill the requirements of the Colorado Surface Coal Mining Reclamation Act (Act), and Rules 2.08.3, 2.06.2(9), 2.06.3(4), 2.06.5(3), 2.06.7(5), and 3.02.2(4) of the Rules and Regulations of the Colorado Mined Land Reclamation Board for Coal Mining (Rules), which were promulgated to implement the Act.

Rule 2.08.3 requires that the Division conduct a review of each permit issued not later than the middle of the permit term. Based on this review, for good cause shown, the Division may require reasonable revisions to, or modifications of, the permit provisions to ensure compliance with the Act and Regulations.

Rules 2.06.2, 2.06.3, 2.06.5, and 2.06.7 require that during the midterm review, where applicable, experimental practices, mountaintop removal variances, variances from approximate original contour (AOC), and variances from contemporaneous reclamation, respectively, be reviewed by the Division.

Rule 3.02.2(4) requires that the Division review the amount of performance bond liability and the terms of acceptance of the bond every 2½ years.

This Midterm Review consisted of a detailed review of the Bowie No. 2 Mine permit application package (PAP) and previous Division findings of compliance to ensure that the proposed operation is in compliance with the Rules and Act. The Division also reviewed all subsequent revisions and stipulation responses to ensure that all permit commitments and conditions were being followed. Problems and observations from past Division inspection reports were also considered.

The document has seven sections.

- Section I contains a brief description of the mine history and the surrounding environment.
- Section II contains a summary of permit actions since the last Permit Renewal.
- Section III is a summary of the Division's review of the active stipulations attached to the permit.
- Section IV is a summary of the review of any previously approved experimental practices, mountaintop removal variances, variances from approximate original contour (AOC), and variances from contemporaneous reclamation.
- Section V summarizes any enforcement actions issued since the permit was last renewed, and the current status of any actions that were issued.
- Section VI is a summary of the review and a discussion of any problems identified as a result of this review that are required to be resolved.
- Section VII is a summary of the review of the reclamation cost estimate and the

performance bond(s) held by the Division.

Section I - Mine History and Descriptions of the Environment, Operation Plan, and Reclamation Plan

Mine Status and History

The original Bowie No. 2 Mine permit application was submitted by BRL on February 13, 1996. The permit was issued on April 4, 1997, with an expiration date of April 4, 2002, and has been renewed four times with a current expiration date of April 4, 2022. The mine is currently active. It was returned to this status (from Temporary Cessation) on September 5, 2019, per request by BRL.

The coal and the surface lands within the present permit area are both federally and privately owned. Of the 10,987 acres of permit area, a total of 404 acres are approved for surface disturbance. Surface disturbance includes facilities areas, roads, six sedimentation ponds, four gob piles, numerous gob vent boreholes, three ventilation shafts, and a unit train loadout.

The original Bowie No. 2 Mine permit application indicated that mining would be conducted in the D Seam using the room and pillar mining method. BRL later changed the mining method to longwall mining in the D seam, followed by the construction of portals and facilities to longwall mine the B-2 coal seam. Subsequent permit revisions have increased the permit and affected areas to continue mining in the B seam. Detailed information regarding the Bowie No. 2 Mine operation is located in the eleven volumes that comprise the Bowie No. 2 Mine PAP.

Description of the Environment

The Bowie No. 2 Mine is located on federal and private lands within Delta County, approximately five miles northeast of Paonia, Colorado. The mine permit area is located on lands depicted on the U.S. Geological Survey 7.5 minute Bowie Quadrangle Map, and the Bowie No. 2 mine portals are located northwest of the Old King Mine portals (also known as the Bowie Mine). The surface facilities are located north and south of Old State Highway 133 near the old town site of Bowie. The mine lies between Hubbard Creek and Stevens Gulch, to the east and west, respectively.

The Bowie No. 2 Mine permit area and adjacent area include a mix of land uses. The lower elevation areas are used for pasture, cropland, orchards, residential and industrial uses. Agricultural uses are served by irrigation water. The higher elevations within and adjacent to the permit area support some rangeland use, and the areas offer abundant wildlife habitat. The lands also support various recreational uses.

Historic and current mining operations also exist in the general area. The Bowie No. 1 Mine is located west of the Bowie No. 2 Mine permit area. The Terror Creek Loadout is located to the south of the Bowie No. 2 Mine permit area, adjacent to the Unit Train Loadout. The reclaimed Blue Ribbon Mine is also located nearby along Hubbard Creek, as are outlying facilities associated with the Sanborn Creek/Elk Creek Mines. Historic coal mines located within and adjacent to the Bowie No. 2 permit boundary include the King Mine, the Gelwick Mine, the Blue Ribbon Mine and the Farmers' Mine. The former town site of Bowie is located within the Bowie No. 2 permit area.

Geology

The Bowie No. 2 Mine permit area is located in the North Fork Valley of the Gunnison River, near the western margin of the Colorado portion of the Central Rocky Mountains. The elevation of the permit area ranges from about 6,000 feet above sea level to over 8,000 feet above sea level. The general area is situated along the southern flank of the Piceance Creek structural and sedimentary basin. The area is bounded by Larimide structural and physiographic features on the following sides: West Elk and Elk Mountains on the east; the Gunnison Uplift on the south; the Uncompahgre Uplift on the west-southwest; and the Grand Mesa-Piceance Basin on the north.

The coal in the area is situated within Mesaverde formation which contains interbedded sandstones, mudstones, shales, siltstones and coal beds. The Mesaverde formation lies upon the Rollins Sandstone Member of the Iles formation and below the Wasatch formation. The coal bearing member of the Mesaverde formation locally contains up to nine coal seams. These seams are located within a stratigraphic interval of approximately 500 to 600 feet above the Rollins Sandstone. These coal seams are, in ascending order, the A-Seam, the B-1 Seam, the B-2 Seam, the C-Seam, the D-1 Seam, the D-2 Seam, the E-1 Seam, the E-2 Seam and the F-Seam. The B-2 and D-2 Seams are mineable within the permit area.

Hydrology

The permit and adjacent areas are roughly bounded by three perennial streams: Stevens Gulch, Hubbard Creek and the North Fork of the Gunnison River, which are located in the west, east and south areas of the permit area, respectively. Terror Creek and West Terror Creek, also perennial streams, run roughly north to south through the central permit area. Tributary to the perennial streams are the following intermittent and ephemeral streams: Stevens Draw, Freeman Gulch, A-Gulch, B-Gulch, C-Gulch, D-Gulch, Iron Point Gulch, Dove Gulch and Sheep Corral Gulch.

There are numerous stock ponds located in the permit and adjacent areas. All of the ponds are manmade and store less than 20 acre-feet of water, which is generally intended for domestic livestock use. The ponds collect spring season runoff and any available seep water.

Groundwater in the area is located within the alluvial deposits along the North Fork of the Gunnison River and Hubbard and Terror Creeks, within the steep sloped colluvial deposits found within some of the drainages, in perched water zones located within the lenticular sandstones of

the Mesaverde formation and in the Rollins Sandstone. The Rollins Sandstone is a recognized aquifer in the area.

The groundwater associated with the alluvial deposits of the North Fork of the Gunnison River has been developed for domestic and agricultural uses. The localized groundwater resources associated with the alluvial deposits of Hubbard and Terror Creeks are not significantly developed. The groundwater associated with local colluvial deposits is recharged by snowmelt, and the water discharges through local intermittent springs and seeps. Most of this colluvial water is lost due to evaporation.

Bedrock groundwater is not abundant in the permit area. The groundwater of the locally perched bedrock water zones and of the Rollins Sandstone are not significantly developed in the permit and surrounding area, due to relatively poor water quality and low potential quantity yields. The general bedrock groundwater flow direction in the sandstone strata of the Mesaverde formation is from the recharge area near the outcrop of these strata and to the north.

Climatological Information
The average minimum temperature in the area is about 36 degrees (Fahrenheit), with the lowest temperature of -28 degrees recorded in Paonia during 1913. The average high temperature in the area is about 64 degrees (Fahrenheit), with the highest recorded temperature in Paonia of 100 degrees during 1927 and 1934. The average annual precipitation is 18.50 inches.

Soils Information
Generally, the soils within the disturbed areas are shallow to deep, moderately steep to very steep, well drained stony soils that formed in residuum, colluvium, and alluvium derived from sedimentary rock and rock outcrop. The soils in the upper elevations in the northern portion of the permit area are deep, nearly level to steep, well drained loam and stony loam that formed in outwash from igneous rock.

The areas within the permit area mapped by BRL exhibit the following soils: the Absarokee (Beenon-Absarokee Association), the Persayo, the Torriorthents, Fughes loam, Cochetopa stony loam, Delson loam, Work loam, Progresso loam, Potts loam, Glenton fine sandy loam, Kech-Rock Outcrop, Saraton-Agua-Fria complex, Haplaquolls, and fluvents.

Vegetation Information
Major plant communities within the permit area are:

- Juniper Woodland, Mixed Shrub and Disturbed Meadow in the vicinity of the mine haul road, benches and facilities, and Gob Piles #1, #2, and #4. The Juniper Woodland and Mixed Shrub communities exhibit such plant species as Snowberry, Gambel oak and Serviceberry. The meadow community is dominated by annual and noxious plant species, such as bindweed, cheatgrass and Japanese brome, but Alfalfa and Kentucky Bluegrass are also present;

- Pasture, Irrigated Hayfield, and Orchard in the area affected by the unit train loadout and Gob Pile #3;
- Mountain Shrub, Aspen, and Spruce-Fir in the areas to be affected by gob vent boreholes.

Fish and Wildlife Information
Detailed fish and wildlife information is presented within Section 2.04.11 of the Bowie No. 2 Mine PAP. This summary is derived from the referenced permit document section.

A detailed list of wildlife species known to occur within the Bowie No. 2 Mine permit area is presented in Volume III, Exhibit 9 of the PAP. The Bowie No. 2 Mine area is located in an area designated as critical range for deer and elk. The surrounding cliffs are possible nesting and/or roosting sites for many species of raptors. The Colorado Division of Wildlife and the United States Fish and Wildlife Service were both involved with the Bowie No. 2 Mine permit application review. Correspondence from both agencies regarding the proposed Bowie No. 2 Mine is contained within Volume III, Exhibit 9 of the Bowie No. 2 PAP.

Description of the Operation and Reclamation Plans
The following summary is derived from the information presented in Section 2.05 of the Bowie No. 2 Mine PAP.

The D-2 coal seam was accessed from three entries, which were constructed at an elevation of approximately 6,880' above sea level. This is the elevation where the D-2 coal seam generally outcrops within the Bowie No. 2 permit area, and this elevation is approximately 800' above the old State Highway 133. The main entries were driven down-dip to the north, with the sub-mains being driven east and west from the mains.

The B-2 coal seam was accessed through three mine entries. The B-2 coal seam portals are located below and just to the east of the D-2 coal seam portals, at an approximate elevation of 6,630'. The development mining and longwall mining of the B-2 coal seam were approved in Permit Revision No. 8. The B-2 coal seam mine plan was amended in Permit Revision No. 9. Mining of the B-2 seam was subsequently expanded with Permit Revisions 10, 11, 12, 13, and 14.

In the past, total annual coal production was capped at six million tons per year. Production data from the Colorado Mine Safety and Training Program shows an average production rate of 3.5 million tons over the 2001-2013 period. Currently, the mine is not producing coal.

The mine facilities have been constructed near the old Bowie town site. Facilities include:
- haul and access roads
- conveyor belt system
- vent shafts
- truck loadout
- unit train loadout
- coal stockpiles

- refuse piles
- drainage and sediment control facilities, and
- portable methane pumps used at gob vent boreholes.

For the currently approved operations, all available topsoil has been salvaged and stored prior to facility construction. Salvaged topsoil from the facilities and refuse areas was placed in stockpiles A, D, E, and F.

The Bowie No. 2 Mine will be reclaimed to the post-mining land uses of rangeland, wildlife habitat and industrial. The approval of Permit Revision No. 6 added cropland and pastureland to the post-mining land uses. All facilities areas and some roads will be reclaimed to reestablish the approximate original contour of the land. All portals, shafts and monitoring wells will be backfilled, in accordance with the applicable rules and with the reclamation details provided within the PAP. Some of the roads which existed prior to mining will be retained to serve the postmining land use.

Topsoil will be redistributed on all disturbed areas. The soils will be tested for nutrient deficiencies, and fertilizers will be applied as needed.

Revegetation will be implemented using the seed mixes approved. Seven permanent seed mixes are approved for use in reclamation, and one seed mix has been approved for temporary stabilization during the operational phase. The seven permanent seed mixes will be applied to the following areas: Meadow, Upland (non-USDAFS lands), Mountain Shrub (USDAFS), Aspen (USDAFS), Irrigated Hayland, Pasture, and Concentrated Shrub Clumps. Mulch will be applied at an approximate rate of 4,000 pounds per acre.

Hydrologic monitoring and subsidence monitoring will occur throughout the operational and reclamation phases of the Bowie No. 2 Mine project. While deleterious hydrologic or subsidence related impacts are not anticipated, the Bowie No. 2 Mine PAP contains mitigation plans to be implemented if negative impacts are detected.

Section II - Revisions to the Permit

The following revisions have been reviewed by the Division since a decision was proposed to approve the previous permit renewal (RN-04) on November 20, 2017:

Revision Type and Sequence	Description	Status	Decision Date
MR-195	Inlet protection for culvert T-F1	Approved	3/7/2018
MR-196	Erosion control protection in ditch D-D7	Approved	3/30/2018
MR-197	Use of topsoil from the Hubbard Creek Shaft area for reclamation at the Bowie No. 1 Mine	Approved	8/16/2018

Revision Type and Sequence	Description	Status	Decision Date
MR-198	Updates to ownership and officer information	Approved	11/6/2018
MR-199	Temporary coverfill storage at Gob Pile #3	Approved	11/20/2018
MR-200	Installation of methane flare unit at mine vent fan area	Approved	5/8/2019
TR-115	Riprap in East Collection and F-8 ditches	Approved	5/21/2018
TR-116	Termination of subsidence monitoring	Approved	5/21/2018
TR-117	Reduction of hydrologic monitoring	Approved	1/17/2019
TR-118	Revision of design of Gob Pile #3	Approved	5/7/2019
TR-119	Addition of culvert C-27 under haul road and plugging of culvert C-2	Approved	9/17/2019

Section III - Status of Stipulations

The stipulation history for the Bowie No. 2 Mine was reviewed as part of the midterm review. No stipulations have been placed on the permit since the last renewal. The majority of stipulations issued over the life of this operation have been complied with, terminated, or have a status of "future."

Stipulation 35 commenced with the issuance of TR-77. It requires BRL to conduct quarterly surveys to determine the volume of coverfill material in the stockpiles associated with Gob Piles #1, #2, #3, and #4. A summary report must be submitted within 30 days of the survey, and must include a statement indicating if the volume of available material is sufficient to meet the requirements of Rule 4.10.4(5) and the material balance in the currently approved PAP. Since the approval of RN-04, BRL has generally complied with this requirement. **However, the Division has determined that future reports should provide additional detail (namely survey data) on the volumes of available coverfill material in order to support any assertion that the volume is sufficient.**

Section IV – Permit Variances and Specific Approvals

The Division has not approved experimental practices, mountaintop removal variances, variances from approximate original contour (AOC), or variances from contemporaneous reclamation at the Bowie No. 2 Mine.

Section V - Enforcement Actions

There have been no enforcement actions issued at the Bowie No. 2 Mine in the last two years since approval of the last permit renewal (RN-04).

Section VI - Identified Issues and Required Revisions

The following issues were identified as a result of this midterm review.

1. **If there have been any changes to the ownership and control information for BRL since RN-04, BRL needs to provide updated identification of interests information as required by Rule 2.03.4**.
2. **BRL's current use of ½ culverts for erosion control should be included in the PAP.** One potential location for this discussion is on page 2.05-114, and this practice could be described as an additional measure for sedimentation control for surface water runoff (in addition to the use of sedimentation ponds). It could also be discussed in Exhibit 8 of Volume III and in the sediment control sections in Volumes IX and XI. The particular use of these structures on gob piles (for example, on Gob Pile #3) should be discussed in the applicable volumes (for example, Volume IX). The discussion could be included in the section Water Control Measures.
3. **If there have been any changes to Maps 1 and 2 (Volume II) since RN-04, BRL needs to update these maps**. **Also, as necessary, please update any access agreements (Volume III).**
4. **On the facilities maps (e.g., Map 15-3), please clarify the material in the piles labeled as "dirt."** Is this subsoil, topsoil, or something else? Examples are next to Pond J, on either side of this pond.
5. Rule 4.05.9(2)(b) requires that impoundments, including sedimentation ponds, are large enough to contain the 10-year 24-hour precipitation event. It appears that Pond D may not be large enough to contain the 10-year event. Per the 2019 Impoundment Yearly Inspection, the capacity in the pond (when it is empty of sediment) is 0.58 acre feet. Per Exh. 8-18 in the PAP (Volume VIII), the required capacity is 0.81 acre feet. An update to the model for this pond has been submitted by BRL as TR-120 and is under review.
6. **In Volume XI, some text requires editing to improve the plan for Gob Pile #3.** On page 4 the topsoil depth is listed as 1.5 feet, but listed as 1.1 feet on page 11 and in Appendix A. On page 11 the coverfill requirement is listed as 72,300 cubic yards but as 71,116 cubic yards in Appendix A.

Section VII – Reclamation Liability and Performance Bonding

The Division estimates the current reclamation liability for mining operations to be $10,149,223.00. The reclamation cost estimate summary is attached to this document. The detailed reclamation cost estimate will be forwarded to BRL and is also available for review at the Division office.

The reclamation cost estimate has increased due to the following:

- Truck/Haul tasks increased approximately 8 percent.
- Dozer tasks increased approximately 15 percent.
- Scraper tasks increased approximately 23 percent.
- Ripper tasks increased approximately 16 percent.
- Costs from MR-199 were included (new task #047).
- Costs from MR-200 were included (task #165).

The Division currently holds corporate sureties with a total amount of $10,971,057.58 for the Bowie No. 2 Mine, which is sufficient to cover the current liability.

This concludes the 2019 Midterm Review of the Bowie No. 2 Mine. ***Please submit any required revision applications responding to the issues outlined in Section VI of this document on or before December 3, 2019.***

COST SUMMARY WORK

Task description: **Midterm Review Cost Summary**

Site: **Bowie No. 2 Mine** Permit Action: MT5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 9/30/2019 County: Delta Filename: C083-000
User: ZTT

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Pull back and Haul Portal Bench Fill Material to Cut Slope	TRUCK1	1	609.56	$456,542
002	Regrade D-Portal Bench	DOZER	4	158.03	$200,513
005	Rip and Regrade Material Storage Area at Gob Pile	DOZER	4	1.73	$2,196
006	Pull Back Material @ Old Truck Loadout Material Storage Area	EXCAVATE	2	21.27	$12,072
007	Regrade Old Truck Loadout Material Storage Area	DOZER	4	8.21	$10,415
008	Pull Back Material at Truck Loadout/Coal Stockpile	EXCAVATE	2	147.57	$83,755
009	Regrade New Truck Loadout and Coal Stockpile	DOZER	4	32.38	$41,085
010	Pull Material Back onto Train L/O Facil. and Railbed Benches	EXCAVATE	2	431.74	$245,035
011	Regrade Train Loadout Facilities and Railbed Benches	DOZER	4	171.56	$217,672
012	Backfill and Regrade Train L/O Overland Conveyor Corridor	DOZER	4	5.62	$7,124
013	Haul Fill from Upper Mat'l Strge Area to B-Seam Portal Bench	SCRAPER1	1	60.63	$37,237
014	Haul Fill fr Adj. Mat'l Storage Area to B-Seam Portal Bench	TRUCK1	1	89.33	$61,925
015	Backfill and Regrade B-Seam Portal Bench	DOZER	4	38.70	$53,616
019	Regrade Drill Pads from MRs and TRs	DOZER	4	8.01	$10,165

020	Regrade Material Storage Area from TR-29	DOZER	4	0.48	$609
021	Backfill and Regrade New Prep Plant Bench	DOZER	4	36.99	$46,936
022	Replace Fill from Material Storage Area to Water Tank Bench	SCRAPER1	1	1.51	$928
023	Regrade Borrow Area	DOZER	4	19.14	$24,289
025	Regrade Upper Parking Lot Expansion Area	EXCAVATE	1	3.65	$1,038
027	Haul Rock to Vent Shafts for Disposal	TRUCK1	1	10.50	$3,842
036	Spread Uncompacted Refuse on Gob Pile #2	DOZER	4	89.54	$113,605
037	Spread Uncompacted Refuse at Gob Pile #3	DOZER	4	100.73	$127,806
038	Compact Material Hauled to Gob Pile #1	COMPACT	1	11.85	$2,697
039	Compact Refuse on Gob Pile #2	COMPACT	1	135.94	$30,927
040	Haul refuse out of Gob Pile #2/#3 drying areas for placement	TRUCK1	1	909.13	$299,539
041	Compact Refuse at Gob Pile #3	COMPACT	1	147.84	$33,633
042	Haul Topsoil from Stockpile Area to Gob Pile #1	SCRAPER1	1	2.18	$1,341
043	Place 3.5' of Coverfill on Gob Pile #1	SCRAPER1	1	15.80	$9,706
044	Place Coverfill from Stockpiles on Gob Pile #2	SCRAPER1	1	173.74	$106,704
045	Haul Cover Material from Gob Pile #3 to Gob Pile #2	TRUCK1	1	235.64	$86,227
046	Place 2.5' of Coverfill on Gob Pile #3, from stockpile	SCRAPER1	1	196.56	$120,714
047	Push temp coverfill mat. to face of Gob pile #3	DOZER	1	16.77	$4,505
050	Compact Backfilled D-Portal Bench,Roads, & Utility Corridor	COMPACT	1	511.43	$116,345
051	Compact Backfilled Material at Truck Loadout/Coal Stockpile	COMPACT	1	56.10	$12,764
052	Compact Backfilled Train Loadout	COMPACT	1	191.23	$43,503
053	Compact B-Seam Portal Bench	COMPACT	1	113.99	$25,933
060	Rip Utility Bench	RIPPER	4	0.30	$429
061	Rip D-Portal Bench	RIPPER	4	3.71	$5,146
062	Rip Truck Loadout/Coal Stockpile Area	RIPPER	4	2.06	$2,859
063	Rip Regraded Mine Area Prior to Topsoil Replacement	RIPPER	4	59.09	$81,865
064	Rip Train Loadout Facilities and Railbed Benches	RIPPER	4	7.69	$10,657
065	Rip B-Seam Portal Bench	RIPPER	4	3.71	$5,146
066	Rip Rock Laydown Pad Topsoil	RIPPER	1	0.43	$149
070	Rip Haul Roads (Portion Being Reclaimed) & Old Truck Loadout	RIPPER	4	116.47	$162,613
071	Remove Haul Road Subbase and Place on Gob Pile #1	SCRAPER1	1	30.54	$18,756

072	Rip Truck Loadout Road	RIPPER	4	2.14	$2,997
073	Haul Truck Loadout Subbase to Gob Pile #1	SCRAPER1	1	12.75	$7,828
074	Rip Upper Haul Road Asphalt Prior to Road Narrowing	RIPPER	4	2.95	$4,120
075	Pull Back/Haul Fill Mat'l from Upper Haul Rd Narrowing	TRUCK1	1	141.47	$105,958
076	Regrade Narrowed Section of Haul Road	DOZER	4	26.11	$33,127
077	Rip Gob Pile #1 Road	RIPPER	4	2.35	$3,294
078	Regrade Gob Pile #1 Road	DOZER	4	5.17	$6,156
079	Rip Access Road	RIPPER	4	0.73	$1,029
080	Haul Access Road Surface to Gob Pile #1	SCRAPER1	1	4.86	$2,984
081	Regrade Access Road	DOZER	4	1.79	$2,276
083	Backfill and Regrade Haul Road to Gob Pile #2	DOZER	4	0.44	$607
084	Rip Lower Haul Road	RIPPER	4	0.95	$1,322
085	Regrade Lower Haul Road	DOZER	4	36.46	$50,503
086	Regrade Light Use Roads from MRs and TRs	DOZER	4	60.96	$84,454
090	Finish Grade Disturbed Mine Area	GRADER	1	129.92	$19,907
091	Finish Grade Train Loadout	GRADER	1	16.91	$2,591
092	Finish Grade B-Seam Portal Bench	GRADER	1	6.91	$1,060
093	Finish Grade Gob Piles #1, #2, #3, and #4	GRADER	1	50.64	$7,760
095	Backfill and Regrade Pond B	DOZER	1	7.63	$2,641
096	Backfill and Regrade Pond C	DOZER	1	11.61	$3,896
097	Backfill and Regrade Gob Pile Pond D	DOZER	1	8.18	$2,746
098	Backfill and Regrade Pond F	DOZER	1	10.87	$3,647
099	Backfill and Regrade Pond J	DOZER	1	24.64	$8,269
100	Backfill and Regrade Pond K	DOZER	1	1.52	$511
101	Excavate for Post-mining Channel at B-Seam Portals	EXCAVATE	2	0.63	$358
102	Install Riprap, Gravel, and Geotextile in B-Seam Channel	POSTMININ G	1	43.66	$7,080
106ag	Plug and seal AW-15	BOREHOLE	1	6.00	$1,250
106ah	Plug and seal AW16	BOREHOLE	1	6.00	$1,244
106ai	Plug and seal AW-17	BOREHOLE	1	6.00	$1,237
106aj	Plug and seal BD-101	BOREHOLE	1	4.00	$816
106ak	Plug and seal BD-103	BOREHOLE	1	6.00	$1,216
106al	Plug and seal BD-105	BOREHOLE	1	7.00	$1,424
106am	Plug and seal BD-105A	BOREHOLE	1	6.00	$1,213
106an	Plug and seal BD-102	BOREHOLE	1	6.00	$1,210

106ao	Plug and seal BL-101A	BOREHOLE	1	6.00	$1,210
106ap	Plug and seal BL-102	BOREHOLE	1	6.00	$1,211
106aq	Plug and seal BL-102A	BOREHOLE	1	6.00	$1,210
106bb	Plug and seal GVB-6A	BOREHOLE	1	11.00	$4,784
106cn	Plug and seal MR133 Utility Hole #1	BOREHOLE	1	10.00	$5,320
106co	Plug and seal MR133 Utility Hole #2	BOREHOLE	1	10.00	$5,320
106cp	Plug and seal MR133 Utility Hole #3	BOREHOLE	1	10.00	$5,320
106cq	Plug and seal MR133 Utility Hole #4	BOREHOLE	1	10.00	$5,320
106cy	Plug and seal GVB-D-3A (aka GVB-D3-A)	BOREHOLE	1	12.00	$4,248
106db	Plug and seal GVB-D-7A (aka GVB-D7-A)	BOREHOLE	1	10.00	$2,916
106dd	Plug and seal GVB-D-5A	BOREHOLE	1	9.00	$2,472
106do	Plug and seal GVB-D-6A (aka GVB-D6-A)	BOREHOLE	1	10.00	$2,909
106dp	Plug and seal GVB-D-6B (aka GVB-D6-B)	BOREHOLE	1	6.00	$4,121
106dq	Plug and seal GVB-D-7B (aka GVB-D7-B)	BOREHOLE	1	11.00	$3,589
106du	Plug and seal GVB-D-8C (aka GVB-D8-C)	BOREHOLE	1	12.00	$4,308
106ed	Plug and seal P-TC-03-01 (aka TC-03-01)	BOREHOLE	1	10.00	$3,338
106ee	Plug and seal P-TC-03-02 (aka TC-03-02)	BOREHOLE	1	10.00	$3,338
106gb	Plug and seal GVB-17C (aka GVB-B17C)	BOREHOLE	1	12.00	$8,389
106gc	Plug and seal GVB-17D (aka GVB-B17D)	BOREHOLE	1	12.00	$9,566
106gd	Plug and seal GVB-17E (aka GVB-B17E)	BOREHOLE	1	12.00	$11,308
106gi	Plug and seal GVB-17F (aka GVB-B17F)	BOREHOLE	1	12.00	$11,526
106gn	Plug and seal AW-1	BOREHOLE	1	7.00	$1,518
106go	Plug and seal AW-2	BOREHOLE	1	6.00	$1,264
106gp	Plug and seal AW-3	BOREHOLE	1	7.00	$1,548
106gq	Plug and seal AW-4	BOREHOLE	1	6.00	$1,264
106gr	Plug and seal AW-5	BOREHOLE	1	6.00	$1,304
106g	Plug and seal AW-6	BOREHOLE	1	7.00	$1,511

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106gt	Plug and seal AW-7	BOREHOLE	1	8.00	$1,668
106gu	Plug and seal AW-8	BOREHOLE	1	6.00	$1,226
106gv	Plug and seal AW-9	BOREHOLE	1	6.00	$1,234
106gw	Plug and seal AW-11	BOREHOLE	1	6.00	$1,223
106gx	Plug and seal AW-12	BOREHOLE	1	6.00	$1,218
106gy	Plug and seal AW-13	BOREHOLE	1	6.00	$1,223
106gz	Plug and seal AW-14	BOREHOLE	1	6.00	$1,210
106hd	Plug and seal DH-13	BOREHOLE	1	12.00	$3,398
106he	Plug and seal DH-15	BOREHOLE	1	8.00	$1,808
106hf	Plug and seal DH-15	BOREHOLE	1	9.00	$2,213
106hg	Plug and seal DH-25	BOREHOLE	1	9.00	$2,152
106hq	Plug and seal DH-34C	BOREHOLE	1	7.00	$1,555
106hr	Plug and seal DH-38	BOREHOLE	1	10.00	$2,434
106hs	Plug and seal DH-39	BOREHOLE	1	8.00	$1,773
106hv	Plug and seal CWI-DH-47	BOREHOLE	1	12.00	$4,158
106hw	Plug and seal CWI-DH-48	BOREHOLE	1	12.00	$4,554
106hx	Plug and seal DH-49	BOREHOLE	1	9.00	$2,109
106if	Plug and seal DH-57B (aka 98-57B)	BOREHOLE	1	12.00	$3,248
106ii	Plug and seal DH-58B (aka DH-58A)	BOREHOLE	1	12.00	$3,316
106ij	Plug and seal CWI-DH-60 (aka Mon Well)	BOREHOLE	1	12.00	$2,638
106ip	Plug and seal DH-67B	BOREHOLE	1	10.00	$2,261
106iq	Plug and seal DH-67-D	BOREHOLE	1	9.00	$1,940
106ir	Plug and seal DH-67-Abv	BOREHOLE	1	8.00	$1,683
106is	Plug and seal DH-67-Blw	BOREHOLE	1	9.00	$1,927
106it	Plug and seal CWI-DH-69 (aka B-1 Mon Well)	BOREHOLE	1	12.00	$2,856
106iu	Plug and seal CWI-DH-70 (aka B-1 Mon Well)	BOREHOLE	1	11.00	$2,868

106iy	Plug and seal 2010-1B	BOREHOLE	1	12.00	$3,583
106iz	Plug and seal 2010-1SS	BOREHOLE	1	12.00	$3,504
110	Replace Topsoil from Stockpile A to Portal/Utility Bench	SCRAPER1	1	652.39	$400,661
111	Replace Topsoil from Stockpile A to Truck Loadout/Coal Stkpl	SCRAPER1	1	45.95	$28,218
112	Replace Topsoil from Stockpile F to Train Loadout	SCRAPER1	1	39.98	$24,553
113	Replace Topsoil from Stockpile A to B-Seam Portal Bench	SCRAPER1	1	87.66	$53,835
115	Replace Topsoil fm Stockpiles C/D to Pond C and Gob Pond D	SCRAPER1	1	13.12	$8,055
116	Replace topsoil from Stockpile to Pond F	DOZER	1	3.95	$1,370
117	Replace topsoil from Stockpile F to Pond J	SCRAPER1	1	2.85	$1,752
118	Replace topsoil from Stockpile F to Pond K	SCRAPER1	1	1.92	$1,178
119	Replace topsoil fm stockpile to MR/TR Light-Use Roads	DOZER	4	25.96	$35,960
120	Replace topsoil from stockpiles to MR/TR drill pads	DOZER	4	27.04	$36,297
121	Replace topsoil from Stockpile A to Prep Plant Bench	SCRAPER1	1	22.41	$13,763
122	Replace topsoil from stockpile to Material Storage Area	DOZER	4	0.18	$254
123	Replace topsoil from Stockpile E to Gob Pile #2	SCRAPER1	1	83.69	$51,400
124	Replace Topsoil from Stockpile D to Gob Pile #4	SCRAPER1	1	7.01	$4,306
125	Replace topsoil from stockpile to Gob Pile #3	SCRAPER1	1	85.33	$52,406
126	Replace topsoil from stockpile to Haul Road	DOZER	4	0.17	$232
127	Replace topsoil from stockpile to Water Tank Bench	SCRAPER1	1	1.71	$1,051
128	Replace topsoil from Stockpile G to TR35 road/pad	SCRAPER1	1	5.01	$3,079
129	Replace topsoil from stockpile to Borrow Area	DOZER	4	5.44	$7,539
130	Replace topsoil fm stockpile to Upper Parking Lot Expansion	DOZER	1	0.46	$147
140	Seal Portals and Shafts	MINESEAL	1	40.00	$229,819
150	Drill Seed Mix 3 on Disturbed Area	REVEGE	1	225.02	$505,123
151	Drill Seed Drill Pads	REVEGE	1	82.97	$114,100
152	Drill Seed Lt-Use Roads to Drill Pads and Terror Creek	REVEGE	1	62.01	$85,276
154	Broadcast Seed Mix 3 on Gob Pile #3	REVEGE	1	60.63	$112,160
155	Drill seed Hubbard Creek Vent Shaft Pad	REVEGE	1	1.20	$1,650

156	Drill Seed Rock Laydown Area	REVEGE	1	0.50	$275
157	Weed Control Over 10-Year Liability Period	REVEGE	1	400.00	$57,403
165	Demolish and Remove all Structures	DEMOLISH	1	160.00	$1,598,336
170	Proctor Testing of Backfill (5 tests)	SITEMAINTENANCE	1	0.00	$675
171	Nuclear Density Testing of Backfill	SITEMAINTENANCE	1	0.00	$128,709
172	Water Truck for Moisture Augmentation of Backfill Material	MISCTRUK	1	1,437.02	$127,148
173	Site Maintenance - Ten Years	SITEMAINTENANCE	1	292.00	$242,813
174	Support Equipment for Scraper Hauling	SITEMAINTENANCE	1	449.16	$108,805
180	Mobilize/Demobilize Equipment for First Construction Season	MOBILIZE	1	12.00	$52,331
181	Mobilize/Demobilize Equipment for Second Construction Season	MOBILIZE	1	12.00	$52,331
182	Mobilize/Demoblize Equipment for Pond Removal	MOBILIZE	1	6.50	$4,965
183	Mobilize/Demobilize Equipment for Yearly Site Maintenance	MOBILIZE	1	14.00	$28,469
241	Regrade Terror Creek Light-Use Road	DOZER	1	29.73	$7,985
242	Replace Topsoil from Stockpile to Terror Creek Lt-Use Road	DOZER	1	22.45	$6,029
261	Concrete Plug and Backfill Terror Creek Vent Shaft	MINESEAL	1	40.00	$105,205
301	Reseed Add'l Disturbance from Utility Boreholes at Fan Bench	REVEGE	1	1.00	$536
302	Regrade Fan Bench - Utility Borehole Mudpit Add'l Dist.	DOZER	1	4.06	$1,089
352	Re-topsoil Pitkin Mesa Pipeline corridor	DOZER	1	10.60	$2,848
353	Reseed Pitkin Mesa Pipeline Corridor	REVEGE	1	2.00	$2,750
369	Seal Well DH-67blw	BOREHOLE	1	12.00	$5,302
374	Seal CWI-DH-58A	BOREHOLE	1	12.00	$6,159
379	Regrade Section 5 Road	DOZER	1	12.88	$3,458
380	Re-topsoil Section 5 Road	DOZER	1	5.46	$1,467
381	Reseed Section 5 road	REVEGE	1	2.00	$1,678
45A	Distribute Gob Pile #2 cover hauled by T/L	DOZER	1	375.26	$119,033
45B	Haul Cover Material from Borrow Area #1 to Gob Pile #2	TRUCK1	1	50.03	$8,398
45C	Haul Cover Material from Borrow Area #2 to Gob Pile #2	TRUCK1	1	228.88	$38,420
45D	Haul Cover Material from Borrow Area #3 to Gob Pile #2	TRUCK1	1	41.55	$6,974
45E	Haul Cover Material from B Portal Storage to Gob Pile #2	TRUCK1	1	108.83	$39,824

SUBTOTALS:	**11479.3**	**$8,026,005**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$162,125
Performance bond:	1.05	Total =	$84,273
Job superintendent:	5,739.65	Total =	$398,274
Profit:	10.00	Total =	$802,600
		TOTAL O & P =	$1,447,273
	CONTRACT AMOUNT (direct + O & P) =		$9,473,278

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.00	Total =	$378,931
Reclamation management and/or administration:	3.13		$296,514
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$2,123,218
	TOTAL BOND AMOUNT (direct + indirect) =		**$10,149,223**