17.24.308 - OPERATIONS PLAN

(1)(a) Mining Methods:

The Bull Mountains Mine No. 1 will be an underground mine. The underground mining methods will be continuous miner sections and longwall panels. The following text briefly summarizes these operations. It is intended to provide a basic understanding of how each system operates. The Bull Mountains Mine No. 1 underground and surface operations plan is presented following the description of the mining methods.

(1)(a)(i) Continuous Mining Operations

A continuous mining section employs a production machine (continuous miner), a haulage system (shuttle cars) and a roof support system (roof bolting machine). The major components of the continuous miner are the rotating cutting drum, gathering head and conveyor. The machine is electro-hydraulic powered and cat trac propelled. The cutting drum is equipped with carbide tip cutting tools (bits). Operation of the machine at the working face involves driving the rotating cutting drum into the coal bed and raking downward, thereby cutting coal from the coal face. Mined coal is transferred via the gathering head to the conveyor. The conveyor transports cut coal from the head (cutting drum) of the continuous miner to the tail of the machine which features a conveyor discharge section that is articulating. A continuous miner operates in a cyclic manner to provide coal for the haulage system. Elements of the mining cycle depend on mining conditions but generally include sump, shear, floor cut and raise-the-head. Each cycle advances the mining operation about 3 feet. Typical operations allow for 20 feet of total advancement, then the mined area is roof supported in order to assure that the miner operator never works directly under unsupported roof. Advancement can be much greater than 20 feet when using remote control continuous miners. Multiple entries are developed concurrently to allow for continuous mining (while roof bolts are installed in some entries, mining occurs in other entries). Multiple entries also provide working room for men and equipment (at least two entries are required to establish intake and return ventilation).

Currently, over 75 percent of all continuous miner sections use shuttle cars as the primary face haulage vehicles. They transport mined coal from the tail of the continuous miner to a conveyor belt transfer point, known as a feeder breaker. Conveyor belts transfer the coal from the feeder breaker to outside the mine portal. The typical shuttle car has a payload of 10 to 15 tons and may be electric or diesel powered, two-wheel or four-wheel drive, with a conveyor or push ram discharge design. The function of the shuttle cars is to receive a load of mined coal, tram to an unloading unit, discharge the loaded coal and return to the continuous miner for reloading. Each continuous miner typically requires two or three shuttle cars to allow for continued loading of one shuttle car while the others are in the tram/dump cycle.

Completion of the mining cycle is followed by roof support installation to ensure that a safe working environment is maintained. The most common roof support is installation of roof bolts which are an effective control for the immediate roof material.

(1)(a)(ii) Longwall Mining Operations

Longwall mining accomplishes the same objectives of production, haulage and roof support systems as continuous mining. However, longwall mining uses an electro-hydraulic powered shearer to mine the coal, and the major components of this machine are the drums and the tram system. The drums are located at each end of the machine, are limited to up-down movement, and are equipped with carbide cutting tools or bits. Operation of the shearer involves driving the rotating cutting drums into the coal seam and tramming along the face conveyor. The mined coal falls from the drums to the floor-supported face conveyor (reference Figure 308-1).

The longwall face conveyor transports mined coal from any location along the coal face to a belt conveyor transfer dump, known as the headgate. The end of the conveyor opposite the headgate is known as the tailgate. The major components of the face conveyor are the trac, pan, chain, and drives. The trac is the structure used by the shearer to advance back and forth along the face. The pan is a steel member which is designed to guide and house the conveyor chain and support the shearer. The pan has sections with normal lengths of 5 feet joined together to form a single, continuous unit from headgate to tailgate and sits on the floor of the coal seam. The chain is the conveyor instrument and is made up of steel chain and flight bars. The drives, located at each end of the conveyor, consist of sprockets coupled to electric motors which are used to power the conveyor chain.

The longwall roof support is accomplished by using hydraulic roof supports, referred to as shields (reference Figure 308-2). The major components of the shields are the canopy, hydraulic cylinder, hydraulic controls, and base. The canopy is a thick steel plate, structurally reinforced, which is pushed against the roof. The hydraulic cylinders are used to push the canopy against the roof and to support the weight of the roof. Western shields typically have a design load capacity of 500 tons or more per shield. The hydraulic cylinder diameter is approximately 12 inches and the hydraulic fluid pressure on the cylinders is approximately 5,000 pounds per square inch.

The shield base design varies with floor conditions; a competent floor base design would use a single plate, but a soft floor base design could use a two-piece base with hydraulic control to each base section. The overall size of the shield varies with the thickness of the coal seam. The shields used in the Bull Mountains Mine will probably have a maximum height of 14 feet, a minimum height of 7 feet and a typical width of 5 feet. The shields are installed one against the other along the pan line from headgate to tailgate and serve two functions in the mining cycle: to support the roof and to push the face conveyor forward. The canopy is designed long enough to allow the face conveyor and shearer to be located under it. The base length of the shield is relatively short, allowing the face conveyer to sit on the floor ahead of the base and under the canopy.

Elements of the longwall mining cycle generally include shearing the coal, advancing the pan conveyor, and then advancing the shields. Longwall mining is a totally integrated system as all equipment is physically connected: the shields are connected to the face conveyor, and the shearer trams along the face conveyor. The production scheme is to cut a section of the coal face, typically 30 to 42 inches deep, from the headgate to the tailgate.

Hydraulic rams then push the face conveyor up against the fresh cut coal seam. Finally, the shields are individually pulled forward by the hydraulic rams which are attached to the face conveyor. Roof support is provided in the work area only by the canopy. Roof material (rock) is allowed to fall to the floor behind the shields.

Installation of longwall equipment is accomplished by using continuous mining equipment to develop a set of parallel entries. The distance between the entries is equal to the longwall face length. The continuous miner is used to establish a mineable block of coal; the longwall equipment is used to extract the block of coal between development entries (reference Typical Longwall Installation, Figure 308-3).

(1)(a)(iii) Rock Quarry

The permittee currently does not have any intentions to develop the Rock Quarry at this time. If rock is needed for the Waste Disposal Area (WDA) underdrain, the rock will be hauled from off-site.

(1)(a)(iv) Mine Plan

The continuous mining method will be used for portal development, main entry development, longwall panel development, and sump or other underground facility development. Longwall equipment will then mine the coal in panels. This is the most efficient mining method currently utilized in the underground coal mining industry. It results in the highest coal recovery with the lowest costs, while providing a safe working place for mine personnel.

The existing highwall at the P.M. surface coal mine (located in Section 13, Township 6 North, Range 26 East) was used to develop five portals for access to the underground mine. Site preparation work began with surface water control and access road construction. The facility site preparation began with removal of topsoil and subsoil to storage piles. Construction work for all surface facilities was then programmed.

Expansion of the area adjacent to the existing P.M. mine highwall was needed to provide the necessary surface operating area near the mine portals. The highwall was reduced to a double catch-bench design that is compatible with portal development (reference Figure 308-4 for Typical Portal Design).

Beginning with a single continuous miner section and its accompanying crew and equipment, mine development proceeded with excavation of the portal entries (reference Table 308-1), installation of protective tunnel liners, and placement of bulkheads to protect and stabilize the portal area (reference Figure 308-4 through 6). Main entry development follows portal development. Initially, the mainlines had a heading of North 69° East, and advanced toward the northeast corner of Section 13, Township 6 North, Range 26 East. Expansion of the five portal entries to multiple mainline underground entries provides travelways for men, materials and ventilating air. Mainline development includes roof support installations that protect these areas over the life of the mine.

With portal development, mainline development has turned approximately 15 degrees advancing on a heading of North 54° East. Mainline design plans are for multiple entries on centers ranging from 60 of 160 feet with connecting cross-cuts. (Geo-technical evaluations and mine design recommendations concerning orientation and pillar size were done by J.F.T. Agapito & Associates, Inc., mining consultants). The entry configuration is normally 18 to 20 feet wide and an average of about 9 feet in height, with a 1 foot coal roof (where applicable). Mining height normally does not exceed 10 feet in development entries so as to assure stable rib conditions. Thick coal found on the eastern portion of the property may provide top coal and bottom coal boundaries on the roof and floor. The multiple entry system will be comprised of return entries, intake entries, and an isolated belt entry located between the intakes and returns.

Initial development of the mainline entries were followed by development of the continuous miner panel in the northern half of Section 13 known as 1 ½ North. The continuous miner section located in 1 ½ North was planned to serve as a test area for equipment performance and provide verification of geotechnical responses to mining operations. Development of this section provided the miners with experience in panel development technique and proved equipment performance standards. Observations of the pillars provided first hand experience to the crews of

geotechnical behavior. Additionally, some geotechnical evaluation instrumentation was planned to increase pillar behavior knowledge. This area is currently sealed off.

The continuous miner section equipment is also utilized to develop headgates, tailgates and starting rooms for longwall panels. The longwall panel design plans are for three entries. The two pillars between the three entries are typically 60 feet with a cross-cut at 120 feet, and 80 feet with a cross-cut at 120 feet (center to center measurements). These cross-cuts may be staggered (reference Figure 308-7). The three entries are for the intake air and vehicle traffic (haulage), belt, and return entry. (Geo-technical evaluations and mine design recommendations concerning orientation and pillar size were also done by J.F.T. Agapito & Associates, Inc.). Mining heights and widths are consistent with the mainline design. The longwall panel development will be maintained in advance of longwall mining activity as required by production schedules.

After development of the mainline entries and longwall panel headgate and tailgate, longwall equipment will be installed and final crew additions will be made. The longwall mining plans will mine the full seam up to 14 feet. The panel development widths are planned to be 1250 feet.

The general mine production scheme features one continuous miner "super section" advancing the mainline entries and one regular continuous miner section advancing the longwall panels (reference Table 308-3 for typical equipment listings, by section type).

The transfer of coal from the mining section to the outside portal is accomplished by using multiple conveyor belt installations which form a network that extend throughout the mine. Individual conveyors consist of the discharge head, drive, tailpiece, take-up, conveyor structure and belting. The general schedule for belt conveyor recovery begins with recovery of sections of belt no longer necessary for operation, progressing towards active mining areas.

(1)(a)(v) Annual Operating Statistics

Coal production will build steadily from year 1 to year 5, when full production capacity is attained. At full production, the permittee anticipates mining about 12 million tons of raw coal per year. Annual production, assuming operations with four crews working seven days per week, could reach 12,000,000 tons of raw coal or more. Early years raw coal processing uses the existing 100 ton per hour coal preparation facility. Clean coal recovery from the raw coal production using the existing coal preparation facility is 80%. Construction of a new 2000 ton per hour coal processing facility is projected to increase the clean coal recovery to 85%. At full production with the new coal processing facility the mine is anticipating production of more than 10,000,000 tons of clean coal annually. The estimated mineable tons in the 5 year permit area are 34,000,000 tons of raw coal or 27,000,000 tons of clean coal. The estimated production in the life of mine plan area is 167,000,000 tons of raw coal or 144,000,000 tons of clean coal. The annual operating statistics are listed in Table 308-2. Map 308-1 shows the long-term underground mining plan and the sequence of mining by years. Map 308-1A shows the mine plan timing and sequence within the 5-year permit boundary.

(1)(a)(vi) Mining Equipment

The major pieces of equipment for both the continuous miner section and the longwall section are listed in Table 308-3. A minor revision to the permit will be submitted to the department if more underground equipment is needed that is not shown in Table 308-3.

(1)(b) Mine Facilities:

(1)(b)(i) Dams, Embankments, and other Impoundments:

Mine water will be collected throughout the mine and stored underground to maintain good mining conditions and a safe working place. Sumps within the mine will collect the water where it will sit and clarify. This water will be used for dust control and machine cooling. No discharge is planned. Any discharges of water from disturbed areas will be in compliance with all federal and state laws and regulations, and with the effluent limitations prescribed by Rule 17.24.633 and according to the MPDES discharge permit.

Dams, embankments, or other impoundments will be constructed as follows. First, topsoil will be removed from the area influenced and will be spread on the downstream slopes or stockpiled in the areas shown on the Surface Facilities Maps (308-2 and 2A). A key-way will be cut for the core of the dam. The key will be cut to bedrock or impermeable material and then backfilled with the best available material from the immediate site to prevent as much seepage as possible. The core will be constructed to the top of the dam and then covered with material that will support vegetation. Drain pipes will be installed in the dams in accordance with the design as outlined in the Surface Water Control Plan (Section 17.24.314).

Material will be placed and compacted on the both sides of the impervious core. The material will be compacted in lifts, and additional wheel rolling will be done as needed to assure adequate compaction. Both the upstream and downstream slopes will be graded, and topsoil will be placed on the downstream slope so that the slope supports revegetation. Ponds will remain in place until the area has been stabilized and the permittee receives approval from the Department for the removal of the ponds.

(1)(b)(ii) Overburden and Soil Storage Areas:

Spoil, topsoil, and subsoil will be placed on material of similar makeup (i.e. topsoil on topsoil, subsoil on subsoil after the topsoil has been removed, and overburden on overburden material after both topsoil and subsoil have been removed).

All topsoil and subsoil piles will be stabilized to prevent erosion by either wind or water. The piles will be graded and the side slopes will be tracked with a dozer to create small impressions to hold moisture and to prevent rills on the slopes. Seeding and mulching will be done during the appropriate time frames as outlined in Section 17.24.313.

(1)(b)(iii) Mineral Removal, Handling, Cleaning and Storage:

Coal Storage Facilities

ROM (raw) coal is crushed underground to minus 6-inch. ROM (raw) is transferred from the underground conveyance system and discharges onto a belt conveyor connected to Stockpile #1 at a nominal rate of 7,500 tons per hour. A portion of Stockpile #1 feed conveyor is partially located in a Conveyor Tunnel (in the portal area) to allow for vehicular access over this conveyor (*reference Primary Coal Handling Flow Diagram Drawing 308-1*). Excavation for the portion of the Conveyor Tunnel that is below grade will incorporate construction of a tunnel approximately 6-feet wider than the width of the conveyor. Reinforced concrete will be used to enclose the top of this conveyor and allow surface traffic to pass over the conveyor. Construction will be accomplished using mobile equipment *(see map 308-2A).* This conveyor discharges into Stockpile #1, which includes a stacker tube and storage for a nominal 200,000 tons of coal. A

collection ditch will be constructed and maintained around the perimeter of this stockpile to keep coal sediment from washing onto the adjacent native ground (*reference map 314-2 for details*). Coal from this stockpile area will be stored ahead of sizing, crushing and further processing. ROM (raw) coal from Stockpile #1 is reclaimed using feeder(s), reclaim tunnel and conveyor delivering coal to the screen and crusher building at a nominal rate of 7,500 tons per hour (*reference Detailed Surface Facilities Map 308-2A*).

Coal Stockpile 1A

- Coal Stockpile 1A Perimeter is located east of the Office & Bath House Building, north of Fattig Creek County Road. See Map 308-2.

  Scenario 1

  - The designated stockpile perimeter may store (1) raw coal or (2) crushed coal in extreme situations. Extreme situations may include the following circumstances:

    (1) Train shipments are delayed
    (2) Anticipation of extended plant or mine shutdown
    (3) Need to keep longwall advancing for safety purposes
    (4) Conveyor or stacking tube repair

    The need to utilize Stockpile 1A for raw or crushed coal will be infrequent, and when it is utilized, coal will not be stored for extended periods of time. Maximum storage of raw coal, crushed coal or combination of the two coal types is limited to amount included in bond calculation. See Volume 2 Appendix 313-1 Bond Calculations.

  Scenario 2

  - Coal Stockpile 1A Perimeter may periodically store (3) clean coal as part of normal operations. Generally, this stockpile volume will *increase prior* to longwall shutdowns and this stockpile volume will *deplete during* longwall shutdowns; meeting train shipment demands during a period of low coal recovery. It is anticipated that this process will occur approximately annually as each panel move occurs. Stockpile 1A shall not exceed the approved perimeter. See Map 308-2. No reclamation bond is included for clean coal in Stockpile 1A because it is an asset in a bond forfeiture situation.

Coal Crushing and Cleaning Facilities

Raw Coal Screen and Crusher Station

The raw coal from Stockpile #1 is conveyed to the screening and crusher building which contains two sizing screens and crushers. Any runoff from this area is controlled and diverted to a sediment control ditch and the Sedimentation Pond D (*reference map 314-2*). The minus 6-inch raw coal is discharged onto the sizing screens which will size the coal at 2-inch. The plus 2-inch (screen oversize) is delivered into the crushers for reduction to a minus 2-inch product size. Both the screen and crusher units are located inside a building which may be heated and insulated. The minus 2-inch crusher product discharges onto a conveyor which connects to Stockpile #2. The minus 2-inch (undersize from the screens) also discharges onto this same Stockpile #2 conveyor. An elemental analyzer, capable of determining coal quality may be installed on this conveyor. Depending upon analysis of the raw coal, the sized and crushed raw coal will flow either into Stockpile #2 or into Stockpile #3. Quality analysis will determine the flow of the raw coal. Raw coal destined for the preparation plant will flow to Stockpile 2 and raw coal determined

by analysis acceptable for direct shipment and meeting contract specifications will flow to Stockpile 3. An elevated transfer conveyor connects Stockpile #2 with Stockpile #3 (*reference Detailed Surface Facilities Map 308-2A*).

Coal Storage Area

The coal storage area has three concrete stacking tubes (Stockpiles #2, #3 and #4). Total coal storage for Stockpiles #2 and #3 is a nominal 400,000 tons of storage (*reference Map 308-2A)*. A collection ditch will be constructed and maintained around the perimeter of these stockpiles to keep coal sediment from washing onto the adjacent native ground. Any runoff from this area is controlled and diverted to a sediment control ditch and the Sedimentation Pond D (*reference Map 314-2*). An elevated conveyor, designed for a nominal 7,500 TPH, connects Stockpile #2 with Stockpile #3. Depending upon the coal quality, this conveyor connects the stacking tubes and provides a method to transfer coal between Stockpile #2 and #3 for segregation, storage, blending and production purposes. Concrete reclaim tunnels, fitted with reclaim feeders are below each stockpile. Included with each reclaim tunnel is an escape tube. The reclaim tunnel from the Stockpile #2 discharges onto a conveyor to the preparation plant. This conveyor is designed for a nominal 2,000 TPH rate (*reference Detailed Surface Facilities Map 308-2A*).

Preparation Plant

The proposed preparation plant will have a nominal production capacity of 2,000 tons per hour (TPH), with a maximum annual capacity of 15,000,000 tons per year (TPY). Make-up water will be provided from the Madison wells. A nominal 375 gallons per minute of make-up water will be required when the plant is operating at full capacity.

The preparation plant has been designed to process ROM (raw) coal into a product coal. The preparation plant will process coal at a nominal 2,000 TPH rate. Any runoff from the plant area is controlled and diverted to a sediment control ditch(s) and Sedimentation Pond D and/or Sedimentation Pond A (*reference Map 314-2*). Sedimentation Pond T2 is designed to handle the full capacity discharge of the thickener tank.

The process circuits within the plant are heavy-media and water based. This section provides a detailed process description of each of the following circuits:

Size Processed	Circuit
2-in x 1.0 mm	Heavy-media cyclone (coarse coal)
1.0mm x 0.15 mm	Spiral circuit (intermediate coal)
0.15mm x 0.074 mm	Ultra-fine spiral circuit (fine coal)
0.074mm x 0	Discard (no processing – ultra fines)

Heavy Media Cyclone Circuit (2-in. x 1.0mm)

The preparation plant coarse coal processing is configured with a heavy-media cyclone (HMC) circuit. ROM (raw) coarse coal, sized at 2 inch x 1.0 mm size, reports to the HMC circuit. This coal, along with media, is pumped into heavy media cyclones. HM overflow (product) is drained of media using drain and rinse screens. Media adhering to the product coal is rinsed with water sprays. The 2 inch x 1.0 mm drained and rinsed product coal is further dewatered using centrifuges. HMC underflow (refuse) is drained of media using drain and rinse screens. Media adhering to the refuse is rinsed with sprays on the rinse section. The 2 inch x 1.0 mm refuse, drained and rinsed, then discharges onto a conveyor connected to the plant refuse bin.

Two-stage, Spiral Circuit (1.0 mm x 0.15 mm)

A two-stage, spiral circuit processes the 1.0 x 0.15 mm size fraction (intermediate coal). The 1.0 mm x 0 raw coal (slurry) is pumped to classifying cyclones. Classifying cyclone overflow will report to the fine coal classifying cyclones for sizing and dewatering. The classifying cyclone underflow reports to the spiral circuit for processing. Spiral clean coal sized at 1.0 x 0.15 mm is final dewatered using centrifuges. The dewatered product reports to the plant product conveyor. Spiral refuse product reports to dewatering screens. The 1.0 x 0.15 mm dewatered refuse reports to the refuse collecting conveyor. Overflow from the fine coal classifying cyclones reports to the thickener. Thickener underflow, sized at 0.15 mm x 0 is dewatered using belt filter presses. The belt filter press product reports to the refuse conveyor. Overflow from the static thickener is recycled as make-up clarified plant water. This water plus a water make-up quantity will be used for the plant process water requirements. The preparation plant is a closed loop water circuit configuration. All plant process water is re-circulated and re-used.

Refuse Handling and Disposal Circuit

An overland conveyor transfers plant refuse directly to the Waste Disposal Area (WDA) (*reference 17.24.924 Disposal of Underground Waste General Requirements).*
The plant refuse material contains refuse from the following circuits:
2 inch x 1.0 mm coarse (HMC) refuse
1.0 x 0.15 mm intermediate (two-stage spiral) refuse
0.15 mm x 0.074 fine (spiral) refuse
0.74mm x 0 belt press product

Powdered lime or Fly Ash will be added to the CPW to accelerate the CPW drying process and facilitate grading and compacting the CPW when it is placed in the Waste Disposal Area (WDA). The permittee may add up to 4 percent fly ash to the CPW to accelerate the CPW drying process and facilitate grading and compaction of the CPW when it is placed in the WDA. The source of the fly ash will be approved by the DEQ Solid Waste Program (SWP) and identified in the permittee's Beneficial Use Permit(s) from the DEQ, Solid Waste Program (SWP). Rule 17.24.510 for placement of fly ash in the WDA is addressed through the submittal of chemical and leaching analyses of fly ash from each source used at the mine and is submitted to both the DEQ Coal and Uranium Program, and the DEQ Solid Waste Program (SWP). After testing and approval for use, the fly ash additive is considered a non-hazardous and non-toxic material by the DEQ-SWP, and hence an appropriate additive to the CPW.

A sample of the delivered fly ash will be collected during the first month of each calendar quarter. The fly ash sample will be delivered to a certified laboratory in Billings, Montana, and a chemical analysis will be preformed to assure that the composition of the fly ash from each source has not changed during the previous quarter. If more than one approved source of fly ash is used at the mine during any calendar quarter, a sample will be drawn from load obtained from an alternate approved fly ash source, and a chemical analysis will be preformed on the alternate fly ash source, to assure that the composition of the fly ash has not changed since the fly ash was last sampled and tested.

Additionally, Signal Peak Energy will employ fly ash from the approved sources to mix with crushed limestone, and placed in low, wet spots along the underground mine entry tunnels. This road base material will remain in place after the entries are abandoned.

It is anticipated that approximately 15% (by weight) of the ROM (raw) coal that is processed through the preparation plant will report to the refuse bin with the remainder (85%) of the coal sold.

Waste Disposal

Mine development and coal processing wastes will be permanently disposed of in the Waste Disposal Area (WDA) as discussed in Section 17.24.920 – 17.24.932 and shown on Maps 901-1, and 901-2. These wastes will be transported to the WDA via an overland conveyor system.

The Permittee shall submit a design and operations plan for a second Waste Disposal Area (WDA2) no later than three years pror to its planned use. Additionally, the minor revision shall include an updated PHC and an updated bond calculation with the submitted reclamation plan.

Coal Load-Out Facility

Clean Coal Handling, Storage and Loadout

The preparation plant product conveyor delivers minus 2-inch plant product coal into either Stockpile #3 or Stockpile #4. A collection ditch will be constructed and maintained around the perimeter of these stockpiles to keep coal sediment from washing onto the adjacent native ground (*reference Map 314-2 for details*). Any runoff from refuse bin area is controlled and diverted into a sediment control ditch(s) and sediment ponds (*reference Map 314-2*).

An elevated conveyor connects Stockpile #4 with Stockpile #3. Located under Stockpiles #3 and #4 is a reclaim tunnel, feeders and conveyor. This conveyor transfers coal into either of one of two coal storage silos. Life of mine design includes the construction of up to two additional silos. For additional product storage, a dozer will be used to extend this stockpile area. Any runoff from the silo loadout area is controlled and diverted to a sediment control ditch(s) and Sedimentation Pond A (*reference Map 314-2*). Product coal will be reclaimed using a dozer pushing to the reclaim tunnel. Product coal will be transferred using feeders onto a conveyor or connected to the batch-weigh loadout bin. This conveyor is fitted with a scale, analyzer and a sampling system. The batch-weigh loadout system is located over the rail loop track. The batch weigh system will be in a heated and insulated building. The batch weigh system will consist of a surge bin and a batch weigh installed on a single track loop (reference Detailed Surface Facilities Map 308-2A). Any runoff from the batch-weigh loadout area is controlled and diverted to a sediment control ditch(s) and sedimentation ponds (*reference Map 314-2*).

Railroad Loop Track

A railroad loop track will be within the mine permit boundary (reference General Surface Facilities Map 308-2). This loop track will be constructed in a figure eight arrangement. The loop track and spur line within the mine permit area is approximately 5.7 miles in length (includes the double track sections) and is capable of handling two-150 car length unit trains with up to four locomotives per train. The railroad loop track will be a double track arrangement to accommodate the two 150 car length unit trains. Based upon a nominal 7,500 ton/hour loadout rate, the travel speed of the unit train while loading will be approximately one mile per hour.

Railroad Spur Track from BNSF Mainline

A new rail line will be constructed connecting to the BNSF Mainline track near Broadview, Montana. This will be a private rail line operation with 35 miles of track. The rail line will be constructed at a 1% ruling grade capable of handling unit trains of 150 car length.

Facilities Removal

Ultimate closing of the underground portion of the mine would involve installation of permanent seals at the mine portals (reference Section 17.24.901), followed by surface area reclamation. Surface reclamation work will commence with the placement of spoil against the portals. After the surface facilities are removed, the subsoil (B zone) will be spread according to the reclamation plan over the area to be reclaimed and then topsoil will be spread according to the reclamation plan and with as little compaction as possible. Planting on the reclaimed ground will be done in accordance with MDEQ guidelines. (reference Section 17.24.313 for a detailed description of the Reclamation Plan).

Final reclamation of all surface facilities will occur at the close of mining operations. Currently, the permittee does not have plans to leave any surface facilities in place upon final reclamation of the mine. In the event the permit recognizes a beneficial use for any of the mine facilities at the time of final reclamation, the permittee will, in accordance with the provisions of Rule 17.24.762, submit a Minor Revision to the mine permit, requesting Department approval for leaving certain facilities in place.

(1)(b)(iv) Waste Disposal:

Garbage and non-mineral waste will be accumulated in commercial dumpsters located in convenient locations around the site. It is anticipated that trash from these dumpsters will be picked up regularly by a licensed commercial trash service for disposal off site.

A septic tank/drainfield will be constructed in the mine facilities area (reference Map 308-2A) to treat sewage and other waste water from potable systems. This system will be designed to comply with state and federal regulations. System design capacity will comply with state regulations, considering the number of men working and the number of shower and restroom facilities provided.

(1)(b)(v) Mine Facilities

The proposed Bull Mountains mine facilities and disturbed areas are shown on the Surface Facilities Map, 308-2 and 308-2A. The proposed facilities include the following:

Buildings

The following buildings are concrete foundations to be constructed, See Maps 308-2 and 308-2A for locations:

Office/Bath House
Shop/Warehouse
Parking Facility
Fan
Storage Area
Preparation Plant/Thickener
Screen/Crusher Building
Batch-weigh train loadout
Fly Ash Building

Service Facilities

Various service facilities will be required to provide water, air and sewage treatment for the mine. Three deep water wells completed in the Madison Formation are planned for installation. The existing mine operations include one of the Madison wells and the other two wells are to be installed during construction of future facilities (reference Map 308-2). Plans are to install the three wells as a measure to ensure reliable water supply and to provide redundant well/pump installation to protect against pump malfunction. The three wells will be utilized as required for supply. Each well is capable of supplying up to 350 gallons per minute. In accordance with the Plan for Protection of the Hydrologic Balance (reference page 314-8) a maximum annual supply of 6033 acre feet (500 gallons per minute) will be pumped from the three wells and stored in the Madison Well Pond located near the portals (reference Map 308-2A). Storage will include the necessary volume of water to ensure a steady mine supply and water capacity for emergency fire fighting.

Planning Guide for Water Use.

The projected water requirements for the mine are:

	Volume	Source	Water Rts	Storage
Mining	100 GPM	Madison	40A-30022892*	Pond
Processing	375 GPM	Madison	40A-30022892*	Pond
Dust Control	20 GPM	Madison	40A-30022892*	Pond
Facilities	5 GPM	Madison	40A-30022892*	Pond
Total	***500 GPM***			
Fire Control	5,000,000 Gal	Madison	40A-30022892*	Pond

* DNRC PERMIT NUMBER

Fresh air will be provided to the mine using ventilation fans located at the portals. Adequate quantity of air to meet MSHA requirements will be supplied to the working places and throughout the mine.

Electrical power will be extended to the mine with new additions and upgrades of the existing facilities. New additions include a 100 kilovolt service line connected to the Northwest Energy Broadview substation. The new electrical power line will be installed adjacent to the rail road spur and is connected to the mine substation. The existing Fergus Electric Cooperative electrical power line will provide standby power for the mine (reference Detailed Surface Facilities Map

308-2A for powerline and substation locations). Electrical power will be delivered from the substation into the mine with special Mine Safety and Health Administration (MSHA) approved underground cable. Transformers at the working sections will reduce the voltage as required for certain underground equipment.

Other Support Facilities

Support Facilities are subject/contingent to access agreement(s) with surface owner(s). In a concerted effort to plan for worst case scenarios Permittee has included "planned" locations of planned support facilities throughout the LOM area. It is very possible that many of these locations that have been bonded and "planned" will not be necessary. If access agreements cannot be obtained or amended prior to need then these "planned" support facilities will not be constructed or relocated accordingly.

It is also important to note that planned secondary roads and large pads are still subject to the minor revision process. Just because they are "planned" on the map, doesn't mean MDEQ has approved the construction. The intent is to provide early notification of "planned" locations while providing a process for future detailed design. See Maps 321-2A and 308-4.

The Crushing Facility will be located in an area that has been constructed to prevent or control erosion and siltation, water pollution, and damage to public or private property. The facility will be maintained to the extent possible using the best technology currently available (BTCA). The facility will not be used in an area that can harm or damage fish, wildlife, and related environmental values nor will the facility contribute suspended solids to stream flow or runoff outside the permit area.

Three Types of Boreholes will be necessary at various surface locations to support the underground workings; **(1) Emergency Breathable Air Boreholes, (2) Utility Boreholes, and (3) Mitigation Boreholes**. All boreholes will be installed with casing as required to control surface water and groundwater inflow. All boreholes will include caps when not actively injecting or supplying materials into underground workings. Operator will provide the Department with the necessary archeological clearance prior to installation of boreholes. Operator will abandon all boreholes according to all applicable regulations and procedures. See Map 308-4 for locations of all boreholes, borehole associated pads and borehole associated roads. See Map 321-2A for all borehole access road types. See Table 308-4 for borehole details and reclamation schedules. See 321 text for description of access to boreholes.

(1) Emergency Breathable Air Boreholes will be constructed to provide breathable air to underground workings. Currently, Breathable Air Boreholes are no longer typically required by MSHA when other rescue equipment such as Rescue Chambers are provided at specific underground locations. Any existing or future Emergency Breathable Air Boreholes will be reclaimed when they are no longer required. Permittee may still install additional Emergency Breathable Air Boreholes if so directed by MSHA.

Permittee will permit any additional Emergency Breathable Air Boreholes through the minor revision process. Minor Revision application will include updated Map 308-4, updated Map 321-2A and updated Table 308-4. Permittee will obtain minor revision approval prior to construction of any additional Emergency Breathable Air Boreholes, associated pads and associated roads. Emergency Breathable Air Boreholes, associated pads and associated roads that are on lands not controlled by the permittee will have landowner permission prior to construction.

(2) Utility Boreholes will be constructed to provide operational surface support to the underground workings. This operational support may include injection or supply of pumpable cribbing material, rock dust, communications, electricity, neet oil, concrete, compressed air, or other material or equipment vital to on-going operation. Utility Boreholes will be reclaimed when they are no longer needed for operational surface support to the underground workings. Also see additional discussion of Supplemental Service Terminals or Large Borehole Pads in this section.

Permittee will permit Utility Boreholes through the minor revision process. Typically, Utility Boreholes will be approved as part of the entire construction of the Supplemental Service Terminal or Large Borehole Pad that the borehole(s) will be constructed on. Minor Revision application will include updated Map 308-4, updated Map 321-2A, updated Table 308-4, and additional design mapping of the specified Supplemental Service Terminal or Large Borehole Pad that the Utility Borehole(s) will be constructed on. Permittee will obtain minor revision approval prior to construction of Utility Boreholes, associated pads and associated roads. Utility Boreholes, associated pads and associated roads that are lands not controlled by the permittee will have landowner permission prior to construction.

(3) Mitigation Boreholes will be constructed to maintain compliance with MSHA ventilation or roof control plans or site specific MSHA plans or in response to underground roof falls. Mitigation Boreholes may be constructed for injection or supply of nitrogen or other inert gas, breathable air (if immediate injection is required), concrete (to consolidate roof as part of roof fall mitigation). Mitigation Boreholes may also include MSHA directed boreholes for monitoring underground conditions with testing equipment such as air sampling equipment or thermal cameras. These boreholes will typically require a developed pad as illustrated on Figure 308-8. Mitigation Boreholes will be reclaimed when they are no longer required.

Permittee will permit Mitigation Boreholes through the minor revision process. To the extent possible (see following paragraphs) the Permittee will obtain approval of minor revisions prior to construction of Mitigation Boreholes, associated pads and associated roads. To the extent possible (see following paragraphs) the Permittee will obtain landowner permission prior to construction of Mitigation Boreholes, associated pads and associated roads.

Minor Revision application will include updated Map 308-4, updated Map 321-2A, updated Table 308-4, and updated Figure 308-8 or other design mapping if not a typical installation.

In the event of an immediate emergency, where Department prior approval is not practical, notification will be provided at the earliest opportunity. An immediate emergency condition would generally be regarded as an immediate risk to health and safety and/or an immediate need to protect facilities. In the event of an immediate emergency, affected Landowner will also be provided notification at the earliest opportunity.

In the event of an immediate emergency, if not already submitted, the Permittee will provide the Department with a minor revision application as soon as reasonably possible given the situation. The minor revision application will include updated Map 308-4,

updated Map 321-2A, updated Table 308-4, updated Figure 308-8 or other design mapping if not a typical installation.

Supplemental Service Terminals or Large Borehole Pads will be necessary at various locations above the mine entries to provide surface support to underground operations. These Supplemental Service Terminals or Large Borehole Pads will consist of one or multiple boreholes (types described in preceding paragraphs) from the surface into mine entries. Construction of these terminals or pads will provide adequate space or laydown area for equipment and material required in the specified borehole operation. Typical equipment may include, mine pickups, forklift, pumps, trash bins, port-a-potties, high pressure air compressors, electricity and related equipment, generators, bulk rock dust bins, pallets of bagged materials, other necessary support material(s) The surface installations may include either semi-permanent(concrete foundations) for high capacity air compressors, electrical sub-stations, storage hoppers and batch systems, fuel storage, or other necessary equipment. All of these terminals or pads are illustrated on Map 308-4 and listed on Table 308-4. All planned road classifications are illustrated on Map 321-2A and described in 321 Text. All large borehole pads that will be in use for extended time periods will have detailed designs and mapping submitted prior to construction through the minor revision process. Quantities of materials will be on an as needed- bases according to the operational or mitigation requirements. These terminals or pads will be reclaimed when no longer needed. See Figure 308-8 for typical borehole pad designs, sediment control plan and reclamation plan. See other 308 maps for individual pad designs currently permitted.

Due to its proximity to the Fattig Creek County Road, Supplemental Service Terminal 1 will have a barbed-wire fence, and a lock will be placed on the entrance to the fenced area.

Moving or Adding Boreholes within Previously Approved Borehole Pad Locations.

In only the specific circumstances where either Permittee desires to construct an additional borehole(s) on a previously approved borehole pad location or Permitee desires to relocate a borehole(s) on a previously approved borehole pad location it shall be deemed permissible without additional revision application or approval from the Department if all the following conditions exist:

(1) No additional disturbance or facilities to that which is already permitted will result
(2) No change to design of pad to that which is already permitted will result
(3) Borehole is of type already permissible and described in this operations plan text
(4) No adverse affects to environment will result from activity

If all four conditions above are met, and prior to construction, Permittee shall submit a formal notification cover letter to the Department describing the additional or relocated borehole(s). Formal notification shall include an updated Map 308-4 and an updated Table 308-4 (if additional borehole(s)). This formal notification will ***not*** require a response from the Department or additional approval of this activity.

The Intake Air Portal is illustrated on Map 308-5. This supplemental support facility consists of a highwall, large pad and a single mine entry portal. The entry will be utilized to aid in critical ventilation to underground workings. A fan is also planned to be installed at the location. Additionally, the Intake Air Portal may be used for infrequent access to the underground mine from the surface. The Intake Air Portal may be used for delivery of equipment and supplies. Equipment items may include longwall electrical/hydraulic components and pan sections. Supply items may include cribbing, bolts, screen, rock dust, and other materials vital to

the safe operation of the mine. The Intake Portal is not a primary entry to the underground mine. Delivery of equipment and supplies through the Intake Portal will be limited to certain occasions when the primary access to the underground mine is adverse. Use of the Intake Portal for entry into the underground mine is anticipated to be infrequent except for cases when the safety of miners would be improved. After Longwall Panel 6 is mined out, it is anticipated that the Intake Air Portal and its associated facilities will no longer be needed. At this time the portal and associated pad will be properly reclaimed. All planned road classifications are illustrated on Map 321-2A and described in 321 Text.

Upgrade of the ventilation system is planned for later panels that are further removed from the existing portals. The existing 900 HP fan will be replaced with a two new 1750 HP fans. Fans and ventilation boreholes will be installed from the surface into the East Mains a Longwall Panel 3 and Longwall Panel 8. Installation of the new high capacity fans eliminates the need to develop additional ventilation "Intake" portals. These additional ventilation system upgrades will be permitted through the minor revision process.

Storage Yards and Parking Areas

The area near the portals will be used as a storage yard for the staging of underground mine supplies. The parking in the area is identified on Map 308-2A.

Roads

Reference Section 17.24.321 for a complete discussion of the mine roads.

Diesel Fuel Storage Facilities

Elevated diesel and gasoline fuel tanks will be located for use at the surface facilities area. These fuel tanks will be installed with a concrete structure or berm that is made of impermeable material and that is capable of containing the entire volume, plus 10 percent of each tank should a leak or spill occur. A horizontal clearance standard will also apply to these designs.

Diesel fuel storage and gasoline storage tanks may be located on boreholes pads. These storage tanks will be located within a fuel containment area that includes an impermeable liner. The fuel containment area will be capable of containing the entire volume, plus 10 percent of each tank. The required volume for the fuel containment area will be achieved with an incised excavation, berm construction, or combination of both. The fuel containment area will not be constructed out of topsoil.

(1)(b)(vi) Water and Air Pollution Control Facilities:

A comprehensive description of the construction and maintenance of the surface water control facilities (sediment ponds, embankment, and diversion ditches) is presented in Section 17.24.314 (Surface Water Control Plan). The removal of these facilities is described in Section 17.24.313 (Reclamation Plan).

All disturbed areas will have appropriate diversion/collection ditches and sedimentation ponds to control surface water runoff. Appropriate control and monitoring of discharges will continue until revegetation success criteria has been achieved, as described in Section 17.24.313.Storage will be provided for all petroleum products, industrial chemicals and other substances under conditions designed to prevent release into stream channels or ground water. Permanent or portable waste sanitation facilities will be provided and maintained during all construction and operations activities.

The operator will maintain mine facilities to prevent spillage of contaminates to the mine-site soils. Should an accidental spill occur, then the contaminated soil will be handled by placing the affected soils in a leak proof container for processing by a licensed facility. The Department will be notified of the accidental spill and clean up will commence as soon as practical to prevent further soil contamination. Temporary storage of contaminated soils at the mine site will be minimized to include a reasonable time for concluding offsite disposal arrangements. Records of contaminated soil disposal will be kept for a minimum of one (1) year to include amounts of soil, the disposal facility name, results of all testing which is completed, and dates of clean-up and transportation.

Air quality protection will be provided by the following measures:

Conveyor Systems

All permanent conveyors outside the mine portal will be designed to prevent particulate dispersion by wind. These conveyors will be partially enclosed. If necessary, water sprays will be mounted and used as necessary to minimize dust generation from the conveyors at transfer points.

Load-out

The unit train load-out will use a telescoping chute which will help control dust and spillage.

Transfer Points

All transfer points between conveyors will be designed to control dust.

Fugitive Dust

Water or other dust suppressants will be applied to any active roadway, parking area, and waste disposal area (WDA) to control dust emission as necessary.

Boilers

Coal fired boilers may be used to supply space heating and hot water for the office/bathhouse, shop/warehouse and preparation plant buildings. The thermal output and amount of coal burned in these boilers will have a negligible impact on air quality.

Open Coal Stockpiles

The stockpiles will be sprayed with water to control dust emissions as necessary.

(1)(b)(vii) Wells and Underground Openings-Safety:

Each exploration well, other well, and all other exposed underground openings in the permit area will be temporarily sealed before use and temporarily protected during use by barricades, fences, or other protective devices approved by the Department. The permittee will periodically inspect these devices and maintain them in good operating condition.

(1)(b)(viii) Additional Information the Department Deems Useful:

The permittee recognizes this rule.

(1)(c) Measures Against Acid/Toxic Materials:

Storage and final disposal of grease, lubricants, paints, and flammable liquids will be in compliance with Rule 17.24.507. Grease, lubricants, paints, and flammable liquids will be stored in steel drums and periodically picked up by, or delivered to, an appropriately licensed and bonded liquid waste disposal company.

Lumber, garbage, and other debris will be disposed of in compliance with Rule 17.24.507. Lumber, garbage, and other debris will be placed in storage containers which will be regularly picked up by an appropriately licensed commercial wasted disposal company.

All coal waste will be disposed of as required by Rule 17.24.505. As a precautionary measure, no coal fragments or very dark gray, carbonaceous shale will be placed within four (4) feet of the surface area or in the process of reducing/grading the face-up area . No other material will be encountered during normal mining procedures that have the potential for being acid-forming or toxic-forming.

All "hazardous" waste material will be handled in accordance with Section 3001 of P.L. 94-580.

(1)(d) Fire Control:

The permittee intends to eliminate recognized fire sources by conducting its operations in a safe manner; and to instruct its employees, contractors and subcontractors concerning safety policies. Every effort will be made to prevent fires at all times. Fuels, lubricants and other potentially flammable items will be stored in a manner to prevent fire during construction activities and mine operations. Only those persons authorized by the operator and who have an understanding of proper procedures shall be involved in any fire extinguishing operations.
The availability of mobile equipment, proximity of a water source and 24/7 work schedule enhance SPE's ability to provide an effective means of fire prevention, discovery and control. Coal fires will be extinguished when observed. Surface fire protection will meet MSHA regulations. Fire control will be conducted with mobile equipment for isolation, wetting, or smothering of fires. Equipment used for fire control are a dozer, motor grader, front end loader, water truck, backhoe loader, skid-steer and an off highway truck. Emergency fire fighting water supply includes a 2,000,000 gallon thickener tank at the preparation plant and the Madison Well Pond which has a capacity of 5,000,000 gallons of storage.

SPE will establish the following:
Coal Stockpiles – must contain a buffer between the toe of the pile and the outside containment berm(where appropriate) for fire-fighting access.
Buildings - constructed to meet the National Fire Protection Code, National Electrical Code and other construction codes. The materials used in construction will be fire resistant where feasible.
Bins/Silos – perimeter will be kept free of debris and combustible material. Mobile equipment access will be maintained.
WDA – will be constructed in a manner that does not inhibit mobile equipment access to locations throughout the fill. A buffer zone will be established between the toe of the fill and the outside containment berm (where appropriate) for fire-fighting access.

Underground fire protection will also meet MSHA requirements. These requirements include rock dusting, water supply, fire-fighting equipment, fire drill schedules, machine fire suppression, reporting and training. Trained teams drawn from personnel in the work force will be prepared to operate the fire-fighting equipment.

(1)(e) Compliance with Clean Air Act; Clean Water Act; and Resource Conservation and Recovery Act:

Air Quality Permit No. 3179-01 is active and in effect for the Bull Mountains Mine No. 1. The permit will be maintained according to the terms of the permit.

The permittee currently holds MPDES permits for sediment ponds and storm water outfalls in the Facilities and WDA areas (reference Map 308-2A). The permittee will maintain MPDES permits. All discharge from the sedimentation ponds, etc., will be in compliance with the conditions and parameters set forth in the permits.

The permittee has no plans to generate any hazardous waste at the mine operations that would require handling according to the Resource Conservation and Recovery Act. If the permittee handles any such waste materials that are listed as hazardous, these materials will be picked up at the mine site by licenses agent and transported to a licensed disposal site.

(1)(f) Noxious Weed Control

The permittee will spray any noxious weeds on disturbed lands within the proposed permit area as required. The noxious weeds will be sprayed with an approved weed-killing chemical at the application rate approved by the Yellowstone and Musselshell County Weed Control Boards. Each weed type will be sprayed with the killing chemical specifically designed for that particular noxious weed. The weeds will be sprayed according to the approved weed control plan. When the weed problem is under control, the area will be checked and sprayed on an "as needed" basis for each of the subsequent years until the weeds are eradicated or until the phase IV bond release is complete (in accordance with the Noxious Weed Management Act, 7-22-2192 through 7-22-2153, as amended). To protect against the introduction of noxious weeds at the Bull Mountains Mine No. 1 the permittee will steam clean all used equipment to be operated at the mine site.