

CHAPTER 2.0 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

NEPA requires consideration and evaluation of reasonable alternatives that meet the project's purpose and need while minimizing or avoiding environmental impacts. NEPA also requires the evaluation of a No Action Alternative and a practical range of other "reasonable" action alternatives. "Reasonable" alternatives as defined by the CEQ are those that are technically or economically feasible using common sense. Reasonable alternatives are formulated to address issues and concerns raised by the public and agencies during scoping. Alternatives that were determined not to be technically and/or economically, or environmentally practical or feasible, are identified in this Final EIS (FEIS) but have been eliminated from detailed study.

In this FEIS, two alternatives, the Proposed Action and the No Action Alternative, are given detailed consideration. Four other alternatives were identified and found to be not reasonable. They are described and discussed in Section 2.4.

To determine if the maximum quantity of recoverable coal in the federal mineral estate was identified for mining, the BLM evaluated the original coal LBA submitted on March 24, 2004. Based on BLM's evaluation, additional coal was identified as being recoverable outside of the coal LBA tract on a federal surface and mineral estate lease already held by BBCC. The project area boundary was expanded to include this coal and was presented to BBCC as BLM's Preferred Alternative. The BBCC agreed to modify their proposal as suggested by the BLM to include the additional mineral estate and associated surface lands. The coal LBA tract acreage remained the same as originally applied for in the March 24, 2004, coal LBA tract submittal.

Under the Proposed Action, the LBA tract as applied for would be offered for lease at a competitive sale and would be subject to standard and special lease stipulations developed for the LBA tract. The Proposed Action assumes that BBCC would be the successful bidder on the LBA tract if it were offered for sale.

2.2 PROPOSED ACTION

This section describes BBCC's Proposed Action to lease and extract currently unleased federal coal reserves from the LBA tract. Implementation of the Proposed Action would likely result in the extraction of previously leased federal coal reserves, and private coal reserves within the project area in Sweetwater County, Wyoming, as identified in **Figure 2.1** and described in **Table 2.1**.

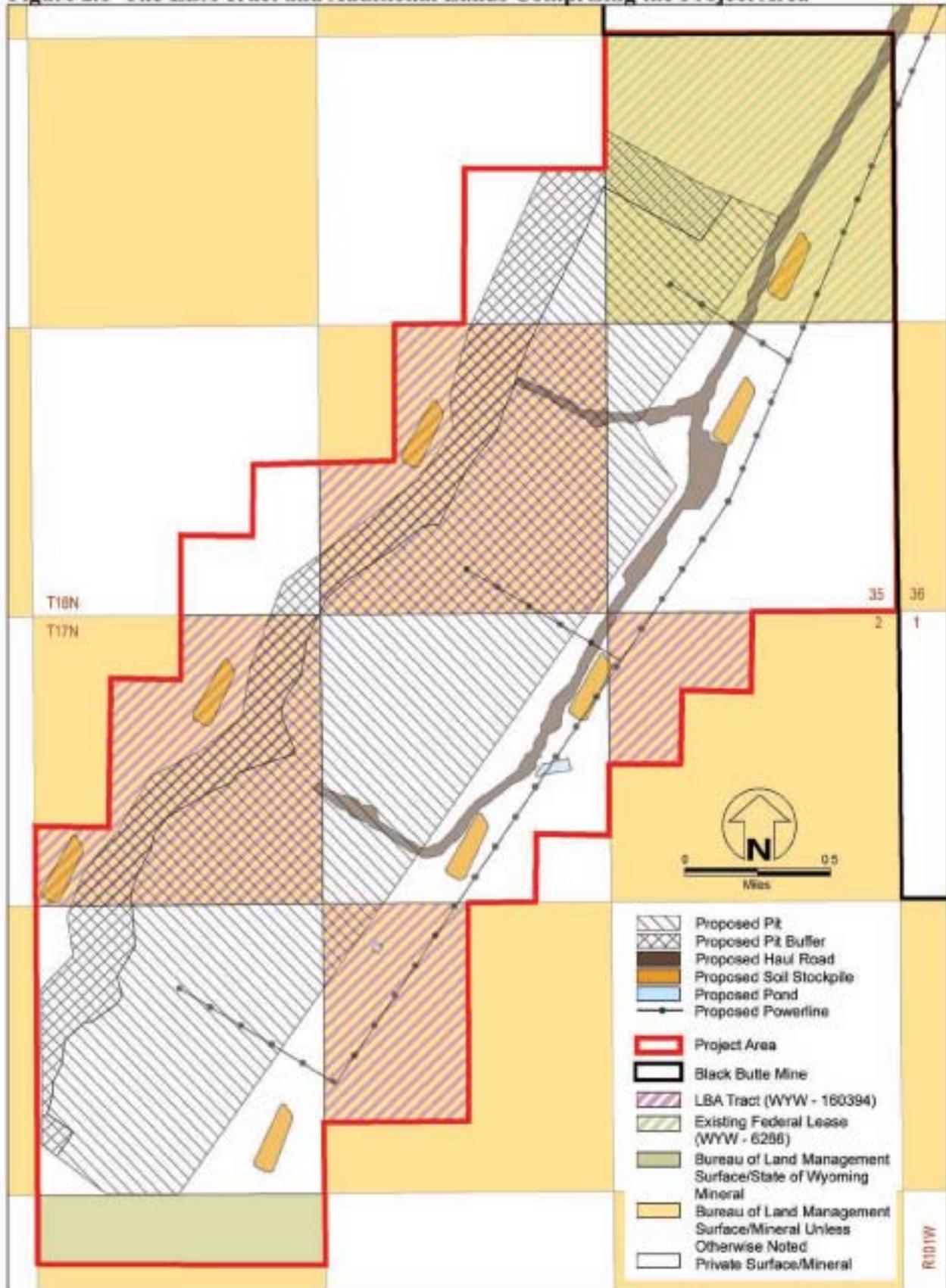
2.2.1 Location and Overview

The project area is located approximately 28 miles southeast of Rock Springs, Wyoming, and 14 miles south of Interstate 80. **Figure 1.2** presents a map of the project area in relation to surrounding facilities and highways. Access to the project area is via Interstate 80 and the Black Butte Mine access road. The project area encompasses 4,359 acres, of which 1,399 acres are federal surface and mineral estate (the LBA tract, WYW-160394), 640 acres are previously leased federal surface and mineral estate (WYW-6266), 160 acres are state mineral and federal surface estate, and 2,159 acres are private surface and mineral estate. **Figure 2.1** is a map of the LBA tract and additional lands comprising the project area and provides detail on potential mine project features. **Table 2.1** presents a description of the project area lands and a surface and mineral ownership summary.

BBCC estimates that approximately 34.6 million tons of in-place coal reserves are present in the Upper Cretaceous Almond Formation within the project area (see the Geology Section in Chapter 3 for a discussion of this formation) (Clawson 2005a). As part of the fair market value determination process, BLM would independently evaluate the volume and average quality of the portion of the federal coal

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

Figure 2.1 The LBA Tract and Additional Lands Comprising the Project Area



included in the LBA tract. BLM’s estimate of the in-place reserves and average quality of the coal included in the LBA tract will be published in the sale notice, if the LBA tract is offered for sale. Some preliminary information on the quality of coal from the Almond Formation is presented in the Geology Section of Chapter 3.

Table 2.1 Project Area Description and Ownership Summary

Tracts in the Project Area
LBA Tract Portion of Project Area (BLM surface and mineral estate)
T. 17 N., R. 101 W. 6th P.M., Wyoming Section 2: Lots 3, 4, SW1/4 NW1/4 Section 4: Lots 1, 2, S1/2 NE1/4, SE1/4 NW1/4, NE1/4 SW1/4, S1/2 SW1/4, SE1/4 Section 10: NW1/4, N1/2 SW1/4
T. 18 N., R. 101 W., 6th P.M., Wyoming Section 34: E1/2, E1/2 NW1/4, SW1/4
Additional Lands In the Project Area
T. 17 N., R. 101 W. 6th P.M., Wyoming Section 3: Lots 1-4, S1/2N1/2, SW1/4, N1/2SE1/4, SW1/4SE1/4 (private surface and mineral) Section 9: All (private surface and mineral) Section 16: N1/2 NW1/4, N1/2 NE1/4 (federal surface and state mineral)
T. 18 N., R. 101 W., 6th P.M., Wyoming Section 26: All (previously leased federal surface and mineral) Section 27: SE1/4 (private surface and mineral) Section 33: S1/2 SE1/4, NE1/4 SE1/4 (private surface and mineral) Section 35: All (private surface and mineral)

Recoverable portions of the in-place coal reserves would be mined over an approximate 20-year period using the same surface mining methods currently utilized at the Black Butte Mine. Approximately 1.5 to three million tons of coal per year would be mined once topsoil stockpiling and initial overburden removal has occurred in 2008. If BBCC were awarded the lease and granted an associated mine permit, pit construction could begin in 2008. The estimated 20-year mine life would be followed by a potential 20-year reclamation and revegetation monitoring period.

The Proposed Action would be considered a maintenance tract for the existing Black Butte Mine. BBCC plans to shift production from its active pits to the project area and continue at a similar production rate. Because the project area would be an extension of the existing Black Butte Mine, the majority of facilities and infrastructure would be the same as those identified in the WDEQ Mine Permit No. 467-T5 and the BBCC’s Resource Recovery and Protection Plan for the Black Butte Mine. A detailed mine and reclamation plan revision for the project area would be performed in coordination with the WDEQ/LQD using the existing WDEQ Mine Permit No. 467-T5 as the basis for the revision. In addition to resource protection measures contained in the mine permit, BLM special lease stipulations would apply to the LBA tract. The special lease stipulations are presented in **Appendix D**.

2.2.2 Mine Permit and Other Required Permits and Approvals

2.2.2.1 Mine Permit and License

BBCB would revise its existing mine and reclamation plan and seek to receive a revised permit and license based on the revised plan through the WDEQ/LQD for the proposed mining of the project area. The mine and reclamation plan would provide a comprehensive and detailed description of proposed mining activities including resource protection and mitigation measures developed in coordination with the WDEQ/LQD and other state and federal agencies. The mine and reclamation plan serves as a platform for the development of air quality, water quality and appropriation, and wetland and stream alteration permits potentially required from state and federal agencies.

In June 1976, BBCB submitted its application for permit and license to mine to the U.S. Geological Survey, BLM, and the WDEQ/LQD. The application contained a detailed mine and reclamation plan for the first five years of mining with a more general plan for the remaining years of operation. Following publication of the application and a period for public comment, BBCB received approval of its permit and license to mine from WDEQ/LQD on December 27, 1977. Approval of the Mine and Reclamation Plan was granted by the Department of the Interior on December 7, 1978, under SMCRA. Several amendments to the mine plan and permit have occurred since the first permit approval. BBCB's current mine permit version was approved by the WDEQ/LQD in November of 2003. Annual reports, pursuant to Black Butte's federal coal lease and WDEQ/LQD mining permits have been submitted to pertinent state and federal agencies from 1977 to 2004.

2.2.2.2 Coal Leases

A federal coal lease acquisition would be required of the lessee to access and remove coal from the LBA tract portion of the project area. The surface ownership of section 16 is administered by the BLM and BBCB would be required to obtain a ROW to the land surface as a part of the Proposed Action. The mineral rights in section 16 are held by the State of Wyoming. State-owned coal in this area is not currently proposed for mining. BBCB will also need to secure a lease from the owners of private coal reserves in the project area.

2.2.2.3 Air Quality

Air quality permits including a Permit to Construct and an Operating Permit would be required from the WDEQ/Air Quality Division (AQD). The permits would address allowable particulate and other emission levels and would stipulate mechanisms to be used to control emissions. BBCB is currently working with the WDEQ/AQD to identify effective control measures at the Black Butte Mine that would minimize particulate emissions.

2.2.2.4 Water Quality and Appropriation

The WDEQ/Water Quality Division (WQD) would review the proposed mine and reclamation plan and if the plans conform and comply with applicable rules and regulations, specific environmental permits would be issued. The Wyoming State Engineer's Office (SEO) would review specific applications to install monitoring and production wells, and would issue permits and appropriations in accordance with the applicant's needs and available water resources.

2.2.2.5 Wetland and Stream Channel Alteration

A wetlands delineation conducted by a U.S. Army Corps of Engineers-certified wetlands delineator was performed in the project area. No wetlands were determined to be present. Modifications to ephemeral

stream channels in the project area would require a stream alteration permit from the Wyoming SEO. The permit application would be reviewed by the U.S. Army Corps of Engineers for compliance with applicable rules and regulations. A permit would be issued by the state if the application meets the criteria.

2.2.2.6 Sweetwater County Zoning Change

The project area zoning status would be reviewed. If required, modifications to county zoning would be sought with Sweetwater County.

2.2.2.7 Resource Recovery and Protection Plan

The MLA requires that before conducting any federal coal development or mining operations on a federal coal lease, the operator must submit to and have approved by the BLM, a Resource Recovery and Protection Plan. As part of the Proposed Action, a detailed Resource Recovery and Protection Plan for the BLM would be prepared. The plan would describe how the proposed operation would meet the MLA requirements for due diligent development, production, resource recovery and protection (i.e., efficient recovery of the federal coal reserves), continued operation, maximum economic recovery, and the rules detailed in Title 43 C.F.R. Part 3480 for the life-of-mine. BBCC would mine the lease according to the approved plan, respective lease terms, and appropriate rules and regulations.

2.2.3 Mine Plan

The mine plan would include information about the proposed mine facilities (including the facilities necessary to mine the coal), mine equipment, coal reserves, mining methods, and associated activities such as treatment of mine water, water requirements, control of hazardous material, solid wastes, reclamation, employment, and general environmental protections. The content of the mine plan would be the basis for the WDEQ/LQD permit approval.

The approved Black Butte Mine permit (BBCC 2003, as revised) includes monitoring and mitigation measures required by SMCRA and Wyoming state law. If BBCC acquires the lease, these monitoring and mitigation measures would be extended and modified as necessary to cover proposed operations in the project area. The permit would have to be approved before coal removal could take place. Permit-specified monitoring and mitigation measures are considered to be part of the Proposed Action. The mine plan would be finalized and formally submitted to the WDEQ/LQD following the successful leasing of the LBA tract. The following is a summary of the preliminary proposed mine plan in the Proposed Action.

2.2.3.1 Project Area Mine Facilities

Proposed mine facilities include a haul road to the Pit 8 hopper, a 34.5 kilovolt (kV) distribution power line, a mobile equipment substation, topsoil stockpiles, a pit buffer, and various ponds/water control structures as required by WDEQ. The approximate haul road and powerline locations in relationship to the project area boundary, topsoil stockpile areas, pit buffer, and the proposed pit outline are presented in **Figure 2.1**. Proposed surface disturbances are presented below in **Table 2.2**.

It is anticipated that approximately 2,250 acres of surface disturbance would occur in the project area. Of this total anticipated disturbance, approximately 840 acres would be disturbed in the LBA tract.

Table 2.2 Approximate Surface Disturbances in the Project Area

Component of Proposed Action	Total Disturbed Acres
Haul Road	101
Light Use Roads	Included in other disturbances
Power Distribution Line	41
Top Soil Stockpiles	75
Ponds/Water Control Structures	3
Mine Pit	1,570
Mine Pit Buffer	460
Total Anticipated Surface Disturbance	2,250

2.2.3.2 Haul Road and Light-Use Roads

Haul trucks would be used to transport the coal from the project area to the existing Pit 8 hopper at the Black Butte Mine. Coal from the Pit 8 hopper would be transported by conveyor to the coal processing and loadout facility. The Pit 8 hopper, coal processing, and loadout facilities are located outside the project area. The proposed haul road would be approximately 28,021 feet long (5.31 miles) with an operational road width varying between 80 to 100 feet and overlaid by two feet of scoria. The operational haul road would fall within a ROW width of 200 feet. The scoria, which is found on the mine site, serves as a wearing surface which is easily maintained and sufficiently durable to withstand anticipated vehicle use. Placement of the haul roads would be on stable material to prevent erosion. Cut slopes would be minimized and, where practicable, revegetation practices would be conducted. The grade of the haul road would not exceed 10 percent and the road surface would be sloped toward the road ditch to provide drainage. (See **Figure 2.2** for typical haul road design.)

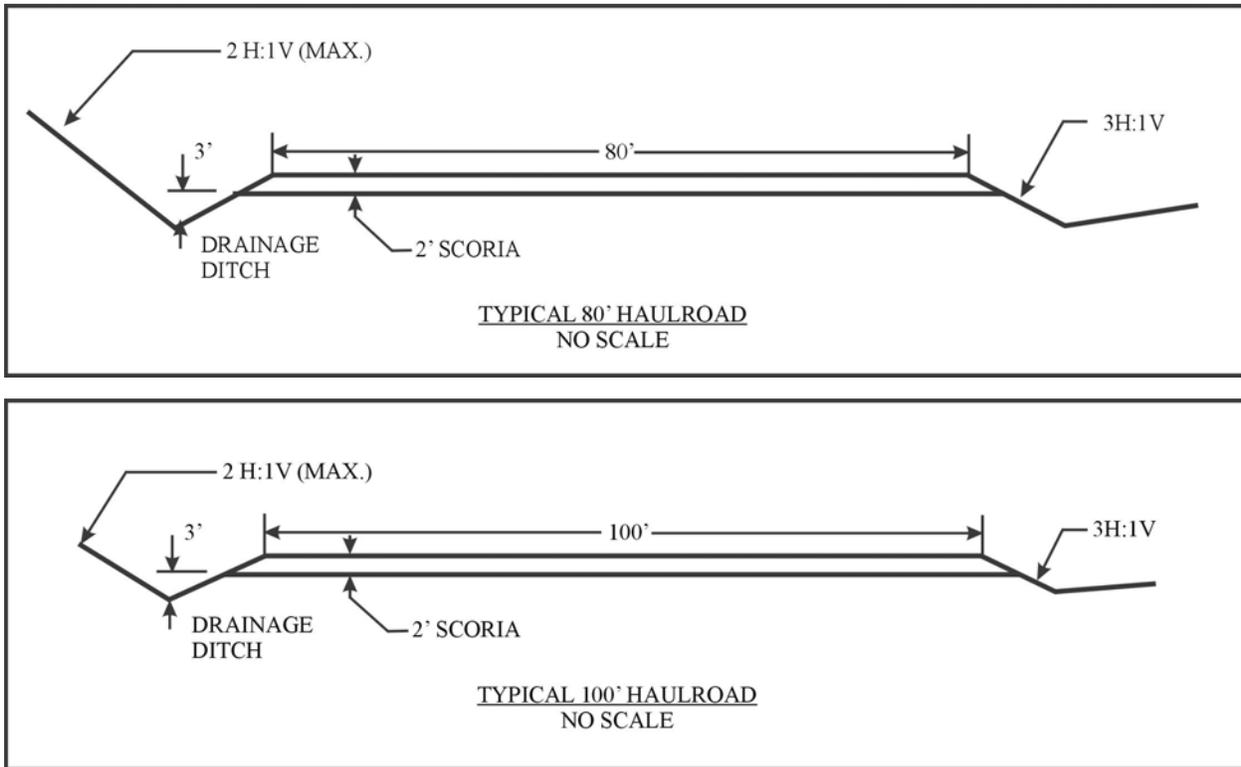
Ditches and culverts would be designed to pass the runoff from a peak flow from the design storm (based on the WDEQ/LQD Environmental Quality Act, 1980) as specified in WDEQ/LQD Guideline 8. Culverts would be covered with a minimum of one foot of compacted fill, or in accordance with design calculations based on loading weights, and would be placed on minimal slopes to reduce erosion. All roads, culverts, and ditches would be designed and constructed using standard engineering practices.

Maintenance on all haul roads would involve dust suppression, grading, and preventive measures due to wet and/or slippery conditions. Dust suppression would be accomplished by at least an annual application of magnesium chloride. Additional dust suppression would be performed as necessary. Periodic grading is required to maintain road surfaces and drainage. Caterpillar 16 motor graders would perform the required maintenance, which blade the haul road surface to fill in potholes and remove “high areas.”

Access around the project area would be primarily on haul roads, on mine pit surfaces, or on light-use roads built to service project area facilities. The surface disturbances associated with light-use roads are included in the surface disturbance estimates for the facilities. In the case where access is required to other portions of the project area, the roads would be designed to meet all appropriate road design standards. Light-use roads would be constructed for topsoil pile and powerline access, and field maintenance. Field design procedures would be used to minimize erosion and land disturbance. The approximate average road width would be 40 feet.

The culverts required for haul roads and light-use roads would be sized to convey the peak flow from the design storm, and would be capable of withstanding anticipated structural loads. Culvert inlets and outlets would be riprapped or provisions made for energy dissipation to control scour and erosion. Determination of the design storm would be based on the WDEQ/LQD Environmental Quality Act, 1980. A WDEQ/approved hydrology program would determine the peak flow rates and hydraulic analysis for culverts.

Figure 2.2 Typical Haul Road Designs



2.2.3.3 Power Distribution Line

Approximately 30,149 feet (5.71 miles) of new 34.5-kilovolt (kV) distribution powerline would be constructed in the project area. The approximate location of the 34.5-kV powerline is illustrated on **Figure 2.1**.

The proposed electrical service equipment would be similar in design to the existing 34.5-kV distribution system located at the Black Butte Mine. The proposed distribution powerline and hardware would be designed, constructed, operated, and maintained in conformance with the National Electrical Safety Code and other applicable codes and standards, Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 (APLIC 1994), Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996 (APLIC 1996), and Avian Protection Plan Guidelines (APLIC and USFWS 2005).

Construction of the proposed powerline would be conducted using standard electrical construction techniques and equipment, would only involve use of wheeled vehicles driving along the ROW, and would not involve any topsoil salvaging operations. The only area to be physically disturbed by the proposed powerline would be where individual power pole structures and anchors would be installed.

2.2.3.4 Topsoil Stockpiling

Prior to surface disturbance, suitable surface soil materials or topsoil that is salvageable by conventional methods (i.e., truck/loader and dozers) would be stripped from all operational terrain, including roadways, sediment ponds, spoil areas, and pit areas. Topsoil removal depth would be determined before stripping activities occur. An intensive soil survey has been completed in the project area; including an Order I soil survey, soil chemical/physical analyses, and a soil type suitability determination. Chemical and physical analyses included texture, pH, electric conductivity, sodium adsorption ratio, saturation percentage, coarse fragments, boron, and bedrock. Lab analytical procedures for these parameters were based on the

most recent revision of WDEQ/LQD Guideline Number 1. Additional analyses may be required during WDEQ/LQD permitting.

Before the equipment moves into an area to strip topsoil, the outer limits of the area would be defined and staked. BBCC would salvage all available topsoil until the limiting depth is reached. In areas where there is a chemical limitation to topsoil stripping (e.g., sodium adsorption ratio, electric conductivity), the areas would be adequately staked for depth. Each area would be visually inspected by BBCC personnel for verification that the salvage work was completed.

A majority of all soil stripped from the mine area would be stockpiled outside the disturbed area. However, as mining activity progresses, concurrent regrading and reclamation would occur. This would allow for immediate topsoil replacement. This may be delayed where special handling of overburden is a problem, as waste rock (spoils) of unsuitable quality must be covered by a minimum of four-feet of suitable material before retopsoiling may occur. Spoil material directly underlying topsoil must meet specific chemical and physical criteria to be considered suitable. Only the topsoil that cannot be directly applied would be stockpiled.

Topsoil stockpiles would be designed, constructed, and maintained to minimize erosion. Generally the stockpiles would be oblong with an approximate 5:1 slope from end-to-end with an approximate 3:1 slope on either side. Topsoil piles would be constructed by trucks depositing the soil in dumps. Upon completion of the stockpile, it would be seeded with a temporary seed mixture, developed in coordination with the WDEQ/LQD for the reclamation plan, to further minimize the effects of erosion. Toe ditches would be constructed around soil stockpiles to contain runoff.

2.2.3.5 Ponds/Water Control Structures

Water quantity and quality would be controlled and managed throughout the life-of-mine by the construction of reservoirs, diversion channels, and interceptor channels. Prior to mining, the drainage control area for the project area would be determined. Using currently accepted engineering methods, the total runoff quantity and volume for the various ponds, diversion channels, and interceptor channels would be calculated. Applications and formal designs for all pond structures would be filed with the Wyoming SEO and the WDEQ/WQD.

Ponds would serve primarily one of three purposes:

- Control of runoff and sediment from disturbed lands.
- Containment of pit inflow waters and waste process water.
- Retention of runoff from undisturbed areas above pits.

All ponds would be monitored for water quality of stored runoff. The stored water may be kept in ponds indefinitely as long as there is enough room to store the design event, or the pond may be dewatered using a portable pump when the stored water quality meets effluent standards. The inlet of the pump would be located above the maximum elevation of the designed sedimentation storage volume. If the stored water meets the effluent standards, the water would be discharged to a natural drainage way, or used for mine-related actions (e.g., dust control, reclamation needs). If the stored water does not reach effluent standards within a reasonable time period, the water would be pumped to water trucks or designated holding ponds for use in haul road dust abatement. Water discharge activities would be conducted in accordance with BBCC's existing National Pollutant Discharge Elimination System discharge permit issued by WDEQ/WQD.

Diversion channels would be designed to convey the peak flow rates from the required design storm from existing, undisturbed natural drainages. Determination of the design storm would be based on Guideline No. 8, "Hydrology" (WDEQ/LQD). The design storm is based on the life of the diversion. Diversion

channels are required to prevent runoff inflow and sediment deposition in the mining pit, which could seriously hamper operations and contaminate the exposed coal.

Most diversion channels would be trapezoidal in section with 2:1 side slopes. Some diversion channels require only a V-shaped ditch. Diversion channels would be topsoiled and seeded with grasses to minimize erosion.

Interceptor channels would be designed to capture runoff from disturbed areas, spoil areas or newly backfilled areas prior to reclamation and conveyance of the intercepted runoff to a pond for sediment control and discharge or evaporation. After completion of mining and as part of reclamation, all interceptor channels would be graded out to blend into surrounding topography, topsoiled, and seeded. Scour and erosion would be controlled with riprap or energy dissipators at appropriate locations.

Alternative sediment control measures (ASCMs) would be used in addition to, or in lieu of, sedimentation ponds when it can be demonstrated that ASCMs use would not degrade receiving waters. Generally, ASCMs would be used to provide short-term sediment control for areas not exceeding 30 acres of total drainage. Due to the variety of methods available for ASCMs and to ensure the most appropriate method for a given location and design period, the types of ASCMs to be utilized would be determined on a site-specific basis.

The types of ASCMs that may be utilized include:

- | | |
|------------------------------|---------------------------|
| Sediment fences | Detention basins |
| Straw bale check dams | Ring ditches |
| Loose rock check dams | Erosion control practices |
| Single-fence rock check dams | Vegetative cover |
| Wire-bound rock check dams | |

2.2.3.6 Mining Methods

Similar to the Black Butte Mine to the north, mining within the project area would be a surface coal mine operation with draglines, dozers, and trackhoes as the principal equipment for overburden excavation.

Front-end loaders would also be used to remove overburden or interburden as required. Ripping or blasting would be necessary for overburden and interburden removal. The typical dragline operation would be preceded by the leveling of blasted overburden to facilitate movement. The first cut to be made (box cut) would consist of the excavation of the overburden down to the surface of coal and spoiling to the side along the low wall. During excavation of the box cut, the dragline may also cut ramps for haul roads. These ramps would enter the pit roughly perpendicular to the strike. Upon completion of the box cut, the dragline would move to a "turnover cut". This cut would proceed parallel to the box cut, and the spoil excavated would be placed in the portion of the box cut from which the coal has been removed. Each cut would be approximately parallel to the strike and, as completed, the dragline would move down-dip to begin the next parallel cut.

Because of its relatively inexpensive cost per yard moved, the dragline would be the primary dirt mover. Overburden would be generally removed in 150-foot to 200-foot-wide cuts as the dragline moves along the strike. The spoil removed would be placed out-of-pit while in the box cut, and then placed into the previous cut as operations progress. A truck and trackhoe assisted operation may be utilized. Advantages of this method of overburden removal include reduction of dragline spoil rehandle, preparation of a level surface for the dragline, allowing the drill to reach coal, and availability of suitable overburden for special handling. Coal would be removed primarily by a Caterpillar 992 front-end loader and Caterpillar 777 haul trucks.

Figures 2.3 through Figure 2.6 illustrate the typical topsoil salvage and dragline techniques that may be utilized in the project area. The spoiling figures show a typical mining progression of overburden and interburden being removed to expose coal seams and how the resultant spoils are placed in the mined portion of the pit prior to the establishment of the final surface topography. During proposed operations, the depth of the working pit would range from 25 to 200 feet below surface due to the down-dip orientation of the target coal seam.

BBCC would determine if excess spoil exists for the pit. Those pits which are mined by dragline assisted with shovel would have an overburden swell factor somewhere between 17 and 28 percent. The volume of permanent out-of-pit spoil would be strictly dictated by BBCC's ability to achieve approximate original contours. A determination would be made of the total overburden to be mined and the associated percentage that would be placed permanently out-of-pit, thereby limiting the extent of disturbance to the area and obtaining a natural regraded surface. A geotechnical analysis of the stability of the permanent out-of-pit spoils would be made to ensure failure of those materials would not occur. These determinations would be evaluated for approval by the WDEQ/LQD.

Figure 2.3 Typical Topsoil Stockpiling Procedure

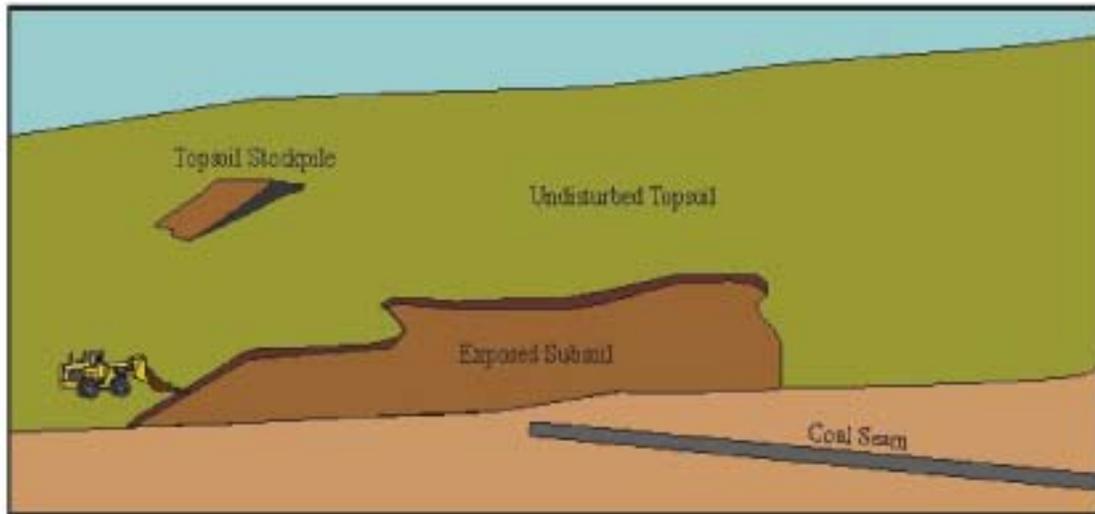


Figure 2.4 Typical Dragline Multiple Seam Spoiling Procedure

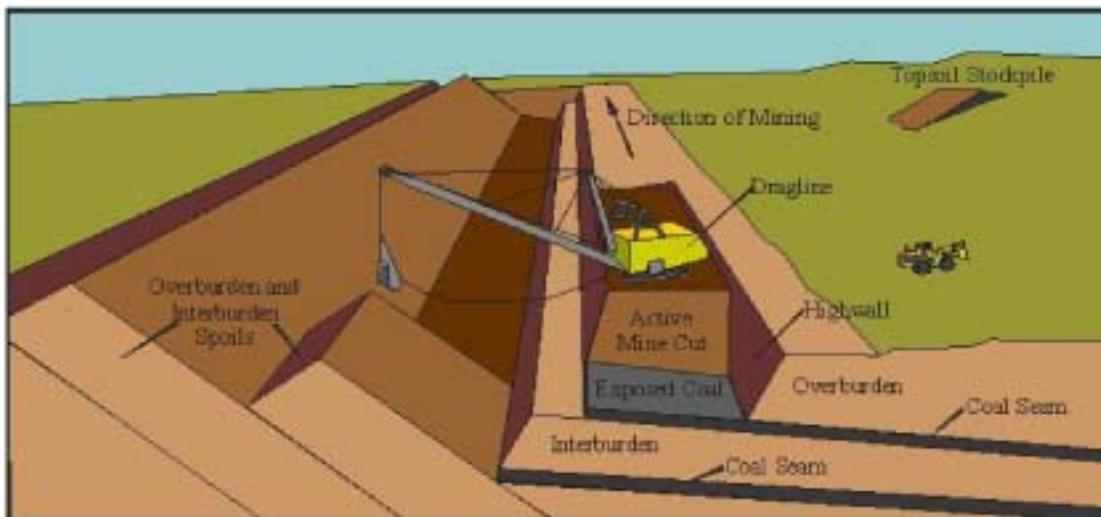


Figure 2.5 Typical Dragline Multiple Seam Spoiling Procedure

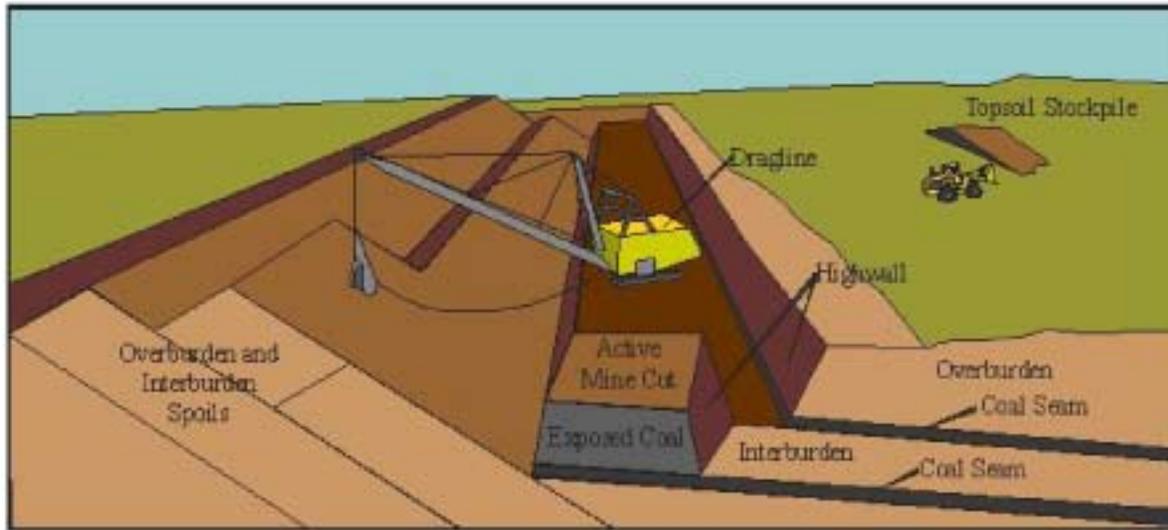
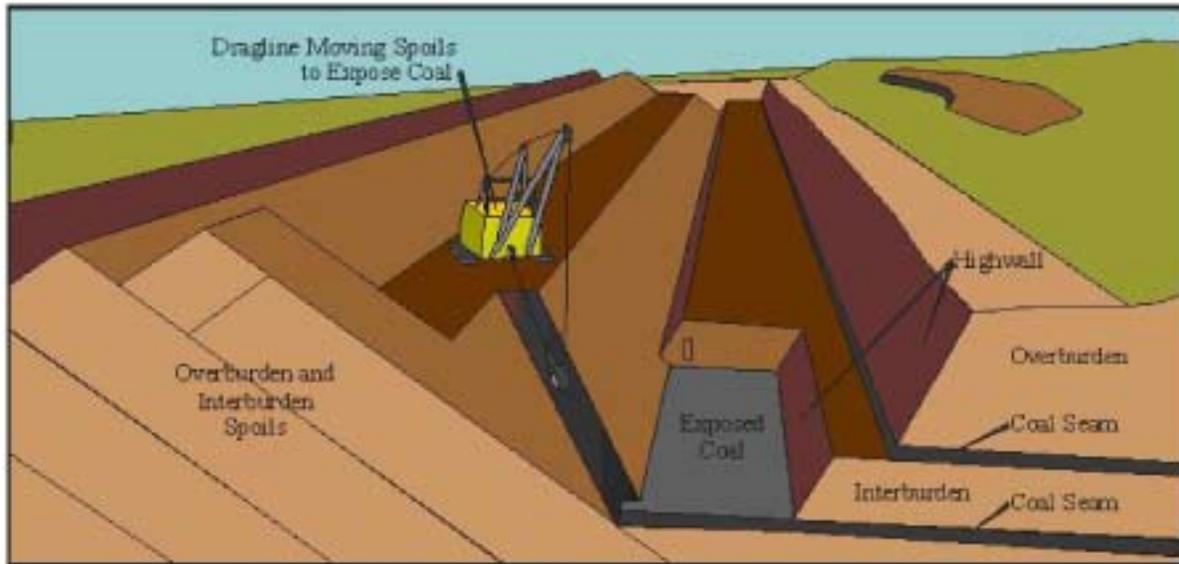


Figure 2.6 Typical Dragline Multiple Seam Spoiling Procedure



2.2.3.7 Mine Equipment

Table 2.3 lists the typical types of equipment that would be used under the Proposed Action during construction, mine operations, and reclamation. The specific number and equipment manufacturers and models would be determined as the project schedule is developed.

Table 2.3 Typical Major Equipment

Equipment Description	Number of Units
Bucyrus-Erie 1570W dragline w/78 cubic yard bucket	2
Caterpillar 992G front-end loader	2
Caterpillar 777 water truck (18,000 gallon)	2
Caterpillar 16H motor grader	2
Caterpillar D10N crawler tractor w/dozer	1
Caterpillar D10R crawler tractor w/dozer	3
Caterpillar D11R crawler tractor w/dozer	2
Caterpillar D11R CD crawler tractor w/dozer	2
Caterpillar 834 rubber tired dozer	1
Ingersoll-Rand Drill-DMM-3	2
Ingersoll-Rand Drill-DM45E	1
IT 28B, Dragline Support	1
IT 28G, Dragline Support	1
Caterpillar 950, Front End Loader	1
Caterpillar 5130 Excavator w/14 yard bucket	1
Caterpillar 777D, 100 Ton End Dump Trucks	12
Cable Reeler	1
Caterpillar 777A Lowboy Tractor	1
Smith Sanders Lowboy Trailer	1

2.2.3.8 Off Project Area Surface Support Facilities

Surface support facilities for the project would include those currently in use by BBCC and located within the Black Butte Mine permit area (outside of the project area). There would be no need for additional disturbances in the project area to construct and house these facilities. These facilities include the following:

- Office/Shop/Warehouse building
- Water treatment facility
- Coal processing and loadout facility
- Water and sewer facilities
- Explosive storage facility
- Parking areas
- Conveyor truss over the Union Pacific main rail line
- Bulk storage area
- Truck wash facility
- Bulk item storage facility
- Fuel storage and dispensing facilities
- Mine Power Electrical Substation

These existing facilities have been designed and constructed in accordance with standard engineering practices, and all applicable federal, state, and county regulations. Consideration of these facilities would be addressed in a mine permit revision.

2.2.3.9 Water Requirements

Depending on coal production, approximately seven million gallons of water per year would be utilized for dust suppression. This is an expected continuation of existing use at the Black Butte Mine. Water would be provided from retention ponds or from existing water wells located at the Black Butte Mine. All water sources would be permitted by the Wyoming SEO.

2.2.3.10 Blasting Plan

BBCC would conduct all blasting operations in compliance with WDEQ/LQD Rules and Regulations, Chapter VI, Section 4(a)(i-v) and 4(b)(i-iii). To make the general public aware of blasting operations, BBCC would publish its blasting schedule once a year. The public notice of the blasting schedule would be published in the regional newspaper. This same notice would also be mailed to any local governments or residences if their facilities or homes are within one-half mile of the permit area.

There would be three basic types of blasts: overburden blasts for dragline, overburden blasts for shovel, and coal blasts. As a safety measure, BBCC personnel would design blasts to minimize flyrock and airblast. Due to the mine's remoteness, preblasting surveys and seismographic recordings of blasting operations by BBCC would not be required.

2.2.3.11 Control of Hazardous Materials and Solid and Hazardous Waste

All solid waste, including normal trash and non-saleable scrap iron would be transported to the surface support facility and disposed of at a licensed waste facility. Trash receptacles would be located at the surface support facility (outside of the project area) and at appropriate locations throughout the project area. All receptacles would be collected regularly and transported from the permit area to selected and approved disposal sites.

Solid waste that would be produced at the surface support facilities and project area may include floor sweepings, shop rags, lubricant containers, welding rod ends, metal shavings, worn tires, packing material, used filters, and office and food wastes. Sewage is handled by WDEQ/permitted sewage systems at the existing surface support facilities. Portable toilets would be provided for workers at the project area. Waste from these would be transported to the sewage system at the surface support facility.

Maintenance and major oil changes for most moveable equipment would take place inside the service building at the existing Black Butte Mine. Used oil would be contained and disposed of in accordance with WDEQ Solid and Hazardous Waste Division guidelines. Mobile fuel trucks would be used to service and fuel mine equipment in the project area as appropriate. All fuel storage facilities and equipment would be constructed and operated in accordance with all applicable state and federal regulations.

BBCC has reviewed the EPA's Consolidated List of Chemicals Subject to Reporting Under the Superfund Amendments and Re-authorization Act of 1986, as amended, and EPA's List of Extremely Hazardous Substances as defined in 40 CFR 355, as amended, for hazardous substances used at the Black Butte Mine. BBCC maintains files containing materials safety data sheets for all chemicals, compounds, and substances, which would be used during the course of mining.

BBCC would be responsible for ensuring that all production, use, storage, transport, and disposal of hazardous or extremely hazardous materials as a result of mining are in accordance with all applicable federal, state, and local government rules, regulations, and guidelines. All mining activities involving the production, use, or disposal of hazardous or extremely hazardous materials would be conducted to minimize potential environmental impacts.

BBCC would prepare and implement several plans or policies to ensure environmental protection from hazardous or extremely hazardous materials. These include:

- Spill prevention, control, and countermeasure plans
- Spill response plans
- Inventories of hazardous chemical categories pursuant to section 312 of the EPA's Superfund Amendments and Re-authorization Act, as amended
- Emergency response plans

All mining operations would comply with regulations promulgated under the Resource Conservation and Recovery Act, Federal Water Pollution Control Act (Clean Water Act), Safe Drinking Water Act, Toxic Substances Control Act, Mine Safety and Health Act, and the Clean Air Act. In addition, mining operations would comply with all attendant state rules and regulations relating to hazardous materials reporting, transportation, management, and disposal. Acquisition of the LBA tract and other lands within the project area by BBCC would not change the current practices being implemented for Black Butte Mine nor the type and quantities of wastes generated or disposed of at the mine. Hazardous materials anticipated to be used or produced during the implementation of the Proposed Action fall into the following categories:

- Fuels - gasoline (potentially containing benzene, toluene, xylene, methyl tert-butyl, ether, and tetraethyl lead), and diesel fuel;
- Coolants/antifreezes;
- Lubricants - grease (potentially containing complex hydrocarbons and lithium compounds) and motor oil;
- Paints; and
- Solvents.

2.2.3.12 Post Mine Reclamation

BBCC would develop a site-specific, detailed reclamation plan in consultation with the WDEQ/LQD. The plan would include specifications for grading the surface to an acceptable contour, how salvaged topsoil is reapplied to an acceptable depth over suitable overburden, and how vegetation is re-established for the determined post mining land use. A detailed channel restoration plan would be developed for major drainages.

BBCC would be required to post a reclamation performance bond for all areas physically disturbed by mining operations with the State of Wyoming to ensure that it complies with all the reclamation requirements of the WDEQ/LQD permit and that reclamation requirements are met. Once mining and reclamation operations have been completed, BBCC would follow reclamation bond release procedures specified by WDEQ/LQD.

Reclamation bond release would occur after a 10-year bond release period (post-completion of permanent reclamation operations) on stable reclaimed land where revegetation standards have been met. WDEQ/LQD would release the full reclamation performance bond after strict reclamation standards have been met and the public has been provided an opportunity to comment.

Prior to reseeding, all compacted areas would be scarified by ripping or chiseling to loosen compacted soils. Scarification promotes water infiltration, soil aeration, and root penetration. Scarification would be done when soils are dry to promote shattering of compacted soils. Seedbed preparation would be conducted immediately prior to seeding to prepare a firm seedbed conducive to proper seed placement and moisture retention, break up surface crusts, and eliminate weeds. It is anticipated that chiseling would be sufficient because it leaves a surface smooth enough to accommodate a tractor-drawn drill seeder but rough enough to catch broadcast seed and trap moisture and runoff.

The seed mix used for revegetation would include a diverse mix of native perennial grasses, forbs, and shrubs. Reclamation would attempt to re-establish native plant communities with an emphasis on sagebrush steppe habitats. Establishment of native species would support post-mining land use by stabilizing the soil, providing livestock and wildlife forage, and providing thermal, nesting, and parturition cover for wildlife. Native species likely to be considered include bluebunch wheatgrass, bottlebrush squirreltail, needle-and-thread grass, and Wyoming big sagebrush. In general, reclamation operations would use weed-free seed, equipment, and methods that are appropriate for arid plains

conditions and those that have been successfully used for re-vegetation at other mines in the area. Special consideration of post mining habitat establishment for mule deer crucial winter range and sagebrush obligate species would be performed in coordination with the WDEQ/LQD, the Wyoming Game and Fish Department (WGFD), and BLM.

Fall and spring seeding would occur to take advantage of available moisture. During final reclamation and abandonment, as specified in the mine permit, BBCC would obtain necessary authorizations from the appropriate regulatory agencies to abandon facilities.

2.2.3.13 Avoidance of Public Nuisance and Endangerment

As specified under Wyoming Statute 35-11-406 (m)(viii), the director of the WDEQ can deny a permit to mine if the affected lands lie within 300 feet of any existing occupied dwelling, home, public building, school, church, community or institutional building, park or cemetery, unless the landowner's consent is obtained. None of these features occurs within 300 feet of the project area. The nearest occupied dwellings, homes, public buildings, schools, churches, or institutional buildings, parks, cemeteries, or community centers are located over 13 miles northwest of the project area in Point of Rocks.

2.2.3.14 Normal Operating Hours

Proposed mine operations would be identical to those at the existing Black Butte Mine. Mining operations would be proposed to occur 24 hours per day, seven days per week, and 52 weeks per year.

2.2.3.15 Signage

To facilitate health and safety requirements to the general public, all public access would be restricted/precluded within the project area for the life of the operation. An entrance identification sign would be posted and maintained at all major entrances into the project area. The signs would contain the name, address, and telephone number of the operator, the name of the local authorized agent, the WDEQ/LQD permit number of the operation, and notification of restricted access.

2.2.3.16 Fire Control

BBCC maintains a trailer-mounted fire extinguisher, water trucks, and dozers that may be utilized in the event of an equipment fire or wildland fire. BBCC also has established procedures to respond to and combat fires. All employees are trained in the use of hand-held fire extinguishers, and appropriate personnel are trained in the specific use of other firefighting equipment.

2.2.3.17 Weed Control

Designated or prohibited noxious weeds on lands within the project area would be controlled. In general, the following procedures would be instituted:

- Land disturbance would be kept to a minimum during the mining process.
- BBCC would utilize only certified weed-free mulch and seed during reclamation operations.
- Chemical herbicides may be used to control designated or prohibited noxious weeds. The local weed and pest agency would be contacted, and the situation would be addressed in compliance with appropriate regulations.

2.2.3.18 Estimated Employment Requirements

The existing Black Butte Mine employs a staff of 171 full-time personnel (Annual Report of the Wyoming State Inspector of Mines 2004). This staffing level is expected to remain stable through 2025 if the lease is awarded to BBCC, and mining operation is implemented.

2.2.3.19 Traffic Estimates

There would be an estimated traffic load of six unit trains per week to and from the existing Black Butte Mine facilities. Haul trucks would carry approximately 100 tons of coal per load from the project area to the Pit 8 hopper at the Black Butte Mine. The number of haul trucks required would be dictated by the distance between the coal loading area and the Pit 8 hopper on the existing permit area and the coal production quantity.

2.2.4 Resource Protection Measures

Beyond the standard and BLM special lease stipulations (**Appendix D**) including those contained in the Green River RMP and ROD (BLM 1997), BBCC would implement the following resource protection measures, WDEQ/LQD permit mitigation measures, and environmental performance standards measures. These stipulations, rules, and regulations would be adhered to on all project area lands.

2.2.4.1 Soil Protection Measures

BBCC proposes to minimize soil erosion by using the following measures:

- Topsoil stockpiles would be planted with an appropriate seed mixture.
- Seeding of reclaimed areas would occur after topsoil has been applied.
- Approved sediment control measures would be used when applicable.
- Surface disturbance would be limited to only those areas required by the operation.
- Extra caution would be used during wet weather to prevent excessive rutting.
- Any erosion occurring within the active mine area would be mitigated as necessary.

2.2.4.2 Surface and Groundwater Protection Measures

BBCC has installed 10 groundwater monitoring wells within the project area. Additional wells may be needed to meet permit requirements. Baseline data is currently being gathered to establish groundwater quality and quantity, with additional baseline monitoring to continue through 2006. A plan for monitoring during and after mining would be developed in consultation with WDEQ/LQD and WDEQ/WQD. Impacts on surface water would be minimized by timely reclamation of disturbed areas and by construction of ditches and berms to manage and control water within the disturbed areas of the Proposed Action. Additional sediment control measures or sediment ponds would be developed in consultation with the WDEQ (Section 2.2.3.5).

2.2.4.3 Big Game Protection Measures

The Proposed Action would limit impacts on big game (antelope, mule deer, and elk) by reclaiming lands for a post-mining use of range land for livestock and wildlife. The seed mix selected for reclamation would consist of native perennial grasses, forbs, and shrubs indicative of a sagebrush steppe habitat suitable to support post-mine land use by big game. Special attention would be given to habitat restoration of mule deer crucial winter range. Reclamation and habitat restoration would be coordinated with the WDEQ/LQD through the permit revision process.

2.2.4.4 Sagebrush Obligate Sensitive Species Protection Measures

Reclamation and habitat restoration measures would be developed by BBCC in coordination with the BLM and the WDEQ/LQD. These measures could include any or all of the following techniques: re-establishment of shrubs, forbs, and grasses indicative of sagebrush steppe communities in the region; grading of reclaimed lands to include swales and depressions; monitoring of greater sage-grouse leks on and adjacent to the project area before, during, and after mining. Though a 2005 field survey designed to identify greater sage grouse use and habitat within the project area did not identify any previously unknown lek locations, appropriate mitigation steps would be taken should any new leks become established during the life of the operation.

2.2.4.5 Raptor Protection Measures

The mine plan would include the continuation of the existing raptor monitoring and mitigation plan approved by the USFWS, BLM, WGFD, and WDEQ/LQD (BBCC 2005a). Monitoring in the project area has been on-going for several years and includes nest monitoring, territory assessment, and prey-base analysis.

State and federal regulations limit surface activities near active raptor nests. The size of the restrictive radius and the timing restrictions as identified in a No Surface Occupancy (Dunder 2005a) are as follows:

- During the nest building and incubation period, the distance for bald eagles and ferruginous hawks is one mile and for all other raptors, it is a half mile.
- Outside of the nest building and incubation period, the distances are 1,968 feet for all eagles, 1,313 feet for ferruginous hawks, and 815 feet for all other raptor species.

The distances may be modified depending on species of raptor and whether or not the nest is within the line of sight to construction and mining activities.

2.2.4.6 Air Quality Protection Measures

Under the Proposed Action, road watering, road maintenance, and the application of a chemical dust suppressant on haul roads and access roads would limit air quality impacts from fugitive dust emissions. A permit would be secured from the WDEQ/AQD prior to disturbance. In addition, contemporaneous interim reclamation would also reduce impacts on air quality by removing sources of fugitive dust. The following emission control measures from the approved 2006 Fugitive Dust Action Plan (BBCC 2006) would be used as applicable:

- Primary treatment strategy would include periodic water application (approximately 0.25-0.5 gallons per square yard) to the ground surface inside pit limits and temporary dirt roads as necessary to control fugitive dust using two Caterpillar 777 water trucks equipped with 18,000-gallon tanks.
- Secondary treatment strategy would include periodic calcium and magnesium chloride and water application (30 percent magnesium chloride solution at 0.3 to 0.5 gallons per square yard) to ground surface of major haul roads outside pit areas and scoria-treated roads. Re-treatment would generally be completed on a semiannual basis with water (primary) treatment applied as needed between chemical treatments.
- Special winter dust control strategies would include application of coal waste or scoria to snow covered or icy roads (with removal of the coal waste or scoria when road conditions improve).
- Pre-stripping areas of topsoil on the highwall side of the pit would be minimized.
- Any pre-stripped surface would be armored with temporary spoils (coarser materials).

- Where temporary spoils are not stacked, the pre-stripped surface would be ripped and/or seeded with the quick growing temporary seed mix (spring or fall seeding).
- Traffic over the pre-stripped area would be limited to a few designated routes and routes would be managed for dust suppression.
- Periodic WDEQ and BBCC evaluations of dust suppression activities and adjustment of plans as necessary would occur.
- Implement the following Air Monitoring Action Plan component of the 2006 Fugitive Dust Action Plan.
 - Periodically monitor air dust levels throughout the day. Actions taken would be recorded and turned into the environmental coordinator based on:
 - Action level short term (1 hour):
 - 300 $\mu\text{g}/\text{m}^3$ level
 - Ensure adequate water trucks are operating the area.
 - Ensure problem areas are addressed.
 - Record when and where watering activities are being done.
 - Record total water usage in gallons for this shift.
 - Action level (24 hour average):
 - 70 $\mu\text{g}/\text{m}^3$ level
 - Ensure adequate water trucks are operating the area.
 - Ensure problem areas are addressed.
 - Record estimated wind speed and direction.
 - Record weather conditions and possible external influences.
 - Consider modifying operations contributing dust.
 - Record actions taken.
 - Take photographic evidence, if possible.
 - 90 $\mu\text{g}/\text{m}^3$ level
 - Notify production superintendent.
 - Shut down special operations (topsoil strip, regrade, pre-strip, and other).
 - Water any areas causing problems.
 - Record actions taken.
 - 110 $\mu\text{g}/\text{m}^3$ level
 - Production superintendent will notify mine manager.
 - Shut down drill, and blasting in the area.
 - Record actions taken.
 - 130 $\mu\text{g}/\text{m}^3$ level
 - Production superintendent will notify mine manager.
 - Shut down all pit operations in the area.
 - Record time, date, and reading.

Additional emission control measures may be incorporated into the mine plan during the WDEQ permitting process or through other regulatory agency-initiated actions to account for high wind or persistent drought conditions.

2.2.4.7 Public Health and Safety Protection Measures

BBCC would conduct all mining operations in accordance with Mine Safety and Health Administration regulations and procedures. Mining activity would not be in close proximity to any public highway or civil structure. Active mining areas would be bermed or signed to prevent accidental entrance. Blasting area locations and blasting schedules would be posted in area newspapers. All applicable laws concerning the handling and disposal of hazardous wastes would be followed. Spill Prevention Control and Countermeasure Plans would be updated periodically and kept on file at the mine for use in case of spills.

BBCC employees would be required to wear hearing protection in areas where noise levels may cause hearing damage. Due to the remoteness of the project area, no produced noise abatement measures are proposed.

2.2.4.8 Cultural Resource Protection

Based on the results of a Class III cultural resource survey conducted within the project area, all historic and prehistoric resources that are potentially eligible for the NRHP that could be adversely affected by the Proposed Action would be protected from disturbance or would be appropriately mitigated if the site could not be avoided. Where necessary and appropriate, site-specific mitigation measures would be developed and implemented in accordance with the current cultural resource protection plan contained in BBCC's approved WDEQ/LQD permit. The site-specific mitigation measures would also be developed and implemented with the concurrence of the BLM, OSM, WDEQ/LQD, and the Wyoming State Historic Preservation Office.

If any cultural resources are discovered during construction or reclamation operations, work in the area of the discovery would be halted, the appropriate regulatory agency would be notified, and appropriate treatment plans would be implemented. BBCC employees would be instructed not to search for, scavenge, or remove any cultural resources found while working on the project.

2.2.4.9 Fluid Leasable Mineral Protection

At the request of oil and gas operators with valid federal fluid mineral leases in the project area, the leases would be suspended until that time when oil and gas activities could be resumed without conflict with coal mining operations. BBCC would support this action if allowed by the BLM. Directional drilling is an option for oil and gas operators to access potential oil and gas resources. Based on increased costs and risks, and apparent unsuitability, this would likely not be a viable oil and gas recovery opportunity in the project area (BLM 2005b).

2.2.4.10 Adaptive Management Strategy

Should identified measures not perform to standards; the regulatory agencies (BLM, OSM, WDEQ/LQD, and AQD, etc.) and industry require the flexibility to mitigate impacts when more site and project specific information becomes available. This transition from prescriptive-based stipulations to adaptive management concepts of performance-based standards, would allow the agencies to move toward the implementation of adaptive management principles recognizing that knowledge about natural resource systems is sometimes uncertain and changing. These principles will help the regulatory agencies make decisions effectively by utilizing a rigorous combination of management, research, and monitoring so that credible information is gained and management activities can be modified, over time, based on a continuous understanding gained from new information.

2.2.4.11 Public Land Survey

A licensed surveyor for BBCC would re-establish any Public Land Survey monuments removed as part of the normal mining operations. This action would likely occur after final reclamation has been completed and accepted by the WDEQ/LQD, but could be accomplished earlier in certain cases where the land surface is no longer being utilized in support of mining operations.

2.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Proposed Action would not be approved and the LBA tract would not be leased or developed for extraction of federal coal reserves by BBCC. Though current mining operations would continue for an additional four years, BBCC may decide to re-evaluate future mining operations based upon known reserves within the leases currently held.

The No Action Alternative allows a comparison of the economic and environmental consequences of leasing and mining LBA tract lands under BBCC's Proposed Action versus not leasing and mining them. Not leasing this land in a configuration associated with the existing Black Butte Mine at this time may result in a bypass of federal coal, which may not be in the public's best financial interest. However, selection of the No Action Alternative would not preclude the future leasing and mining of these lands as a stand-alone mine should economic conditions prove favorable (see Section 2.4.2).

BBCC's ability to sustain historic coal production levels would be limited to the remaining economically recoverable coal reserves located within their existing Black Butte Mine permit area. Current projections based on existing contracts indicate production would continue through 2008 at 2.2 million tons per year (BBCC 2003). In 2009, production would decline and eventually cease (BBCC 2005a). Employment levels at the mine would be substantially reduced from the current 171 employees and the remaining employees would be used to service the Black Butte Mine's reclamation commitments.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

The BLM reviewed three potential alternatives during the course of alternative development. Based on technical, economic, and/or environmental factors, none of these alternatives was considered to be a reasonable alternative to the Proposed Action nor would they effectively address the purpose and need for the proposal as described. None of these alternatives were carried forward for detailed analysis in this EIS. The rationale for eliminating each alternative from further analysis is discussed below.

2.4.1 Accessing Federal Coal Reserves by Underground Mining Methods

An alternative suggested during public scoping identified mining of coal reserves in the project area by use of underground recovery methods. BLM reviewed the technical feasibility aspects and determined that regional geology and anticipated surface cover within the project area would not facilitate this mining method. The coal seams of the Almond Formation underlying the project area are very different from those of the Fort Union Formation currently being mined via underground techniques by the Bridger Coal Company north of the project area. The Almond Formation has a steeper grade (10 percent) and thinner coal seams. The main Fort Union coal seam is up to 25 feet thick, whereas the Almond Formation seams range from 5.5 feet to eight feet thick, with some as thin as two feet, or less.

Although some of these seams may be minable using underground methods, there are three primary considerations that preclude underground mining for the proposed lease:

- The main coal seams are highly variable in thickness and tend to split into a number of thin, discontinuous seams along strike towards the north and the south ends of the project area, and to a

lesser extent down-dip to the east. The parting thickness between these coal splits also increases dramatically towards the north and the south.

- In typical underground mining operations with splitting seams, operators must wash the coal if it is diluted with parting or interburden. BBCC does not currently have a coal washing operation and has not proposed one for development of the project area.
- The seams progresses downward to the east from a western outcrop/subcrop at about a 10 percent slope. Most longwall mining systems used in underground mining require a slope no greater than five or six percent, and a slope of less than three percent is preferred.

If the local geology was consistent and coal seams were not split, BBCC (or any coal mining company), would need to invest in high capital equipment and methodologies to safely and economically develop the project area. Assuming an objective of maximum recovery, a mining company would have to invest in a longwall mining package and refit any existing or proposed operations to facilitate this methodology. Because underground mining requires an entry portal, the process would require opening a significant box cut, or face at depth. A mine operator would not be able to recover the majority of the coal reserves identified in the project area due to the nature of underground mining, where pillars would need to be left in place permanently. Furthermore, longwall mining is risky in shallow overburden situations due to the tendency to cave to the surface in those conditions. This has the effect of crushing-out the support pillars surrounding the longwall panel and causing heavy damage, or even loss of the equipment, and also creating a very hazardous working situation for underground miners. Given the geological constraints of this case, the cost of developing an underground mining operation would be greater than the cost for surface mining. For these reasons, this alternative was found to be technically impractical and uneconomical and was therefore eliminated from further consideration.

2.4.2 Non-BBCC Coal Lease

This alternative assumes that the BLM would award the lease to a bidder other than the current applicant. Because there are no adjacent mines that could incorporate the coal reserves into an existing operation, a successful bidder other than BBCC would have to establish a new stand-alone mine and associated facilities and infrastructure.

A new stand-alone mine would require considerable initial capital expenses, including the construction of new external transportation facilities (e.g., rail loop or paved access road), surface facilities (e.g., coal-processing facilities, coal load-out facilities), internal transportation facilities (e.g., conveyors or haul roads), utilities and communication facilities (e.g., powerline, transformers, water wells, telephone lines), and support buildings (e.g., offices, shop, change house, and warehouse).

The new coal mine would compete for customers with established mining operations in the immediate area (i.e., Bridger Mine, Leucite Hills Mine, and Black Butte Mine) and in the region (e.g., P&M Kemmerer Mine). No other companies have expressed an interest to the BLM in coal exploration or development activity in the LBA tract. Further, the size of the LBA tract and the small amount of estimated federal coal reserves within would not be sufficient to make a new, stand-alone mine economically practical. For these reasons, it is unlikely that the LBA tract would attract additional bidders interested in starting a new mine. Therefore, this alternative was eliminated from consideration and is not analyzed in detail in this EIS.

In the event that the successful bidder for the federal coal reserves within the LBA tract is not the BBCC, that bidder would be required to submit detailed mine development information, including mine and reclamation plans and mine and support facility requirements. Because any new mine facilities not associated with the Proposed Action have not been addressed in an analysis to date, this NEPA analysis would be reviewed and supplemented as necessary.

2.4.3 Postpone Competitive Lease Sale

Under this alternative, the sale of the federal coal reserves within the LBA tract would be postponed more than five years. Postponement would be based on the assumption that coal prices would rise in the future, thus increasing the fair market value of the area resulting in a higher bonus bid when the coal is sold.

The leasing and mining of federal coal generates three sources of revenue to federal and state governments: (1) a bonus bid is paid at the time the coal is leased, (2) a fee of \$3.00 per acre is paid annually, and (3) a royalty payment (based on 12.5 percent of the gross value of the coal for surface mining methods and eight percent of the gross value of the coal for underground mining methods) is collected when the coal is sold. The royalty payment is normally larger than the bonus bid, and because it is collected when the coal is sold, it includes a mechanism for government revenues to increase if prices rise. Although postponing the lease sale until prices rise could conceivably result in a higher bonus bid paid for the LBA tract, it would not necessarily result in higher royalty payments. The process for leasing and permitting a coal tract typically takes several years; if a sale is postponed until the prices increase, coal prices would not necessarily remain high until the coal is actually mined.

The economic concept of “net present value of money” suggests that future economic values must be financially discounted due to (1) the effect of inflation and (2) the analysis that money earned today is more valuable than undetermined revenues earned in the future because it can be invested at a known rate. Therefore, unless coal prices are both increased and sustained, it is in the government's best financial interest to lease the coal tract today rather than waiting an unspecified period of time in hope that the price of coal would increase in the future. Therefore, this alternative was eliminated from consideration and not analyzed in detail because the potential economic benefits of postponement are not predictable and because the effects of mining at a later time would be similar to those discussed herein.

2.4.4 Conveyor Extension

This alternative assumes that an overland conveyor extension from the LBA tract to the Pit 8 hopper would be constructed. This alternative has been considered but determined to be economically unfeasible based on the following analysis.

In its May 23, 2006 response to the LBA tract Draft EIS, the EPA requested a comparison between LBA tract emissions with and without an overland conveyor connecting the LBA tract with the existing Pit 8 truck dump. The option of an extended conveyor system to reduce fugitive emissions was not considered in the DEIS for economic reasons. The following discussion presents a Best Available Control Technology (BACT) analysis as required for new emission sources by the WDEQ.

Under the Proposed Action, coal would be transported from the LBA tract to Pit 8, placed in the Pit 8 hopper, crushed and placed on an existing overland conveyor to the Black Butte Mine prep plant and train loadout. Based on the length of the LBA tract pit, the average gradient to haul coal out of the pit, and the distance between the LBA tract and Pit 8, it is estimated that a conveyor connecting the LBA tract with the Pit 8 hopper would eliminate 62 percent of the coal hauler vehicle-miles traveled. **Table 2.4** contrasts PM₁₀ and NO_x emissions from the LBA tract coal haulage with emissions that would be avoided by a new conveyor. Mine-wide emissions are provided for reference. PM₁₀ and NO_x emissions in **Table 2.4** were calculated based on activity levels from a mine plan formulated by BBCC, and standard emission factors provided by WDEQ.

A recent study completed by Kiewit Mining Group for the Buckskin Mine estimated current conveyor costs at \$850 per linear foot. Using this assumption, the cost of a 4.25-mile-long conveyor from Pit 14 to Black Butte Mine's Pit 8 would be estimated at \$19 million. An additional capital investment of approximately \$3.5 million would be required to build a new truck dump hopper and primary crusher at Pit 14. The Pit 8 hopper would still be needed for delivery of coal from Pit 8 in the near term and from the Pit 3 highwall mining operation in 2009.

Table 2.4 Emissions Avoided with Conveyor

Year	Pit 14 Production (tons coal)	PM ₁₀ Emissions (tons/yr)			NO _x Emissions (tons/yr)		
		Mine Total	Proposed Pit 14 Haul Road	Pit 14 Haul Rd emissions avoided with conveyor (tons)	Total NO _x (tons)	Proposed Pit 14 Haul Road NO _x (tons)	Pit 14 Haul Rd emissions avoided with conveyor (tons)
2008	2,562,000	1,020	60.8	37.7	473	50.2	31.1
2009	2,463,000	1,054	58.5	36.3	501	48.2	29.9
2010	2,868,000	1,075	68.1	42.2	475	53.3	33.0
2011	1,961,000	1,028	46.6	28.9	468	38.4	23.8
2012	2,721,948	1,003	64.6	40.1	447	53.3	33.0
2013	3,329,228	1,028	79.1	49.0	486	65.2	40.4
2014	2,827,442	1,028	67.1	41.6	490	55.4	34.3
2015	2,610,154	975	62.0	38.4	497	51.1	31.7
2016	2,270,538	973	53.9	33.4	481	44.5	27.6
2017	2,414,781	903	57.3	35.5	542	47.3	29.3
2018	515,359	678	12.2	7.6	237	10.1	6.3

The Control Cost Analysis (**Table 2.5**) summarizes the capital, operating, and maintenance costs incurred by building a new conveyor and hopper at the LBA tract. It also shows cost savings that would result from a reduced truck fleet if a conveyor were installed.

Table 2.5 Control Cost Analysis

Category	Value
Conveyor Capital	\$19,074,000
Cost to Construct Pit 14	\$3,500,000
Total Capital	\$22,574,000
Average Cost of Capital	8.0%
Annual O&M Cost (% of Conveyor Cost)	2.0%
Project Life (years)	11
Levelized Annual Conveyor Cost	\$3,085,898
Truck Ownership & Operating Cost (\$/year)	\$934,431
Net Levelized Annual Cost	\$2,151,467
PM10 Emissions Avoided (tons/year)	35.5
PM10 Control Cost (\$/ton PM10)	\$60,563
NOx Emissions Avoided (tons/year)	29.1
NOx Control Cost (\$/ton of NOx)	\$73,846

Capital costs are reduced to a levelized annual cost based on project life and typical cost of capital. This figure is combined with conveyor operating and maintenance costs minus haul truck operating cost savings to yield a net annual cost increase of approximately \$2.15 million. Dividing the differential annual cost by the average annual emissions savings developed in the previous table, yields a cost per ton for each pollutant controlled. As shown in **Table 2.5**, control costs would exceed \$60,000 per ton of PM₁₀ emissions eliminated and \$73,000 per ton of NO_x emissions eliminated. Spreading the costs over both pollutants simultaneously results in a still-prohibitive \$33,000 per ton of pollutant.

In light of commonly accepted criteria for BACT analysis, the foregoing indicates that replacing truck haulage with a conveyor is not economically feasible. Factors contributing to high incremental emissions control costs include a large capital investment, short project duration, and marginal emissions reductions. Thus, this alternative is economically unfeasible and was eliminated from further consideration.

2.5 COMPARISON OF ALTERNATIVES

The following tables compare the impacts from the Proposed Action and No Action Alternative, including a summary comparison of projected coal reserves, surface disturbance, mine life, and projected federal, state and local revenues (**Table 2.6**), the magnitude of direct and indirect impacts (**Table 2.7**), and a comparative summary of cumulative impacts (**Table 2.8**). The tables are presented to give a concise summary of the alternatives in a comparative form. The environmental consequences are fully analyzed in Chapter 4. These summary impact tables are derived from the following explanation of impacts and magnitude. Under NEPA, all federal agencies are required to provide a detailed statement on:

- The environmental impact of the Proposed Action;
- Any adverse environmental effects that cannot be avoided;
- Alternatives to the Proposed Action;
- The relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- Any irreversible and irretrievable commitments of resources (42 USC 4332[2]).

Table 2.6 Comparison of Coal Production, Surface Disturbance, and Mine Life

Item	No Action Alternative (existing Black Butte Mine)	Added by the Proposed Action
Coal Reserves ¹ (as of 1/1/06)	8.9 million tons	34.6 million tons
Federal Lease Acres ²	14, 902 acres	1,399 acres
Total area to be disturbed ³	14,920 acres	2,250 acres
Permit Area ⁴	38,053 acres	4,359 acres
Average annual post 2005 coal production	2.2 million tons	0 ⁵
Remaining life of mine (as of 1/1/06)	4 years	20 years
Average number of employees	171	0 ⁶
Total projected federal, state, and local revenues from existing coal reserves (as of 1/1/05)	\$30 million to \$76 million	\$160 million to \$300-million
¹ No Action Alternative coal quantities shown are the estimated remaining production quantity. Proposed Action coal quantity represents minable coal. ² Under the Proposed Action, acreage includes the LBA tract only. Under the No Action Alternative acreage does not include state and private coal within the permit area. ³ Includes areas reclaimed at the existing Black Butte Mine and anticipated disturbance over life of mine ⁴ The permit area encompasses all federal, state, and private lands to be mined or otherwise containing ancillary facilities used to support mining activities. ⁵ The annual production rate would remain unchanged from current mining. ⁶ No additional employment is expected by Proposed Action.		

Impacts can be beneficial or adverse, and they can be a primary result of an action (direct) or a secondary result (indirect). They can be permanent (persisting beyond the time the reclamation bond is released), long term (ending after mining ceases and before the reclamation bond is released), or short term (persisting only during mining). The level of impacts also may vary. The basis for the conclusions regarding significance are the criteria set forth by the CEQ (40 CFR 1508.27) and the professional

judgment of the specialists doing the analyses. Impacts may range from negligible to substantial. Impacts can be significant during mining but be reduced to less than significant levels following completion of reclamation. Definition of the magnitude of impacts associated with the Proposed Action and No Action Alternatives are presented in Chapter 4.

Table 2.7 Summary Comparison of Direct and Indirect Impacts

(Chapter 4 contains additional description of impacts.)

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>AIR QUALITY Coal mining operations would increase emissions of air pollutants which may increase concentrations of particulate matter, as well as CO, NO₂, and SO₂.</p> <p>Indirect impacts include emissions from coal combustion (electrical power production).</p>	<p>Direct short-term concentrations of particulate matter may increase and may exceed the 24-hour PM₁₀ NAAQS.</p> <p>Indirect impacts are long term and may range in magnitude but would occur regardless of alternative.</p>	<p>Same as the No Action Alternative but expanded in duration and area from coal removal in the project area.</p> <p>Indirect impacts are long term and may range in magnitude but would occur regardless of alternative.</p>
<p>GEOLOGY AND MINERALS The topography following reclamation would be gentler and more uniform.</p> <p>Coal, overburden, and interburden would be removed. Overburden and interburden would be replaced. Replaced interburden and overburden would contain similar lithologies, but dissimilar physical characteristics from pre-mining material. Unsuitable overburden and interburden material would be placed in areas where it would not affect groundwater quality or revegetation success.</p> <p>No loss of the coal bed natural gas is anticipated. Conventional oil, gas, and coal bed natural gas (CBNG) resources could not be developed in active mining areas.</p>	<p>Impacts would be moderate and permanent on the existing Black Butte Mine.</p> <p>Impacts would be moderate and permanent on the existing Black Butte Mine.</p> <p>Impacts would be negligible and short term on the existing Black Butte Mine.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.7 (cont.) Summary Comparison of Direct and Indirect Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>SOILS</p> <p>Changes to physical properties would include increased near-surface bulk density and more uniformity in soil type, thickness, and texture.</p> <p>Changes in chemical properties would include more uniform soil nutrient distribution.</p> <p>Changes in biological properties would include a reduction in organic matter and microorganism populations. The existing plant habitat in stockpiled soils would be reduced.</p> <p>The WDEQ permit requirements would reduce the potential for increased erosion and sedimentation.</p>	<p>Impacts would be moderate and long term to permanent on Black Butte Mine. Some changes to physical properties would be beneficial.</p> <p>Impacts would be moderate and long term to permanent on the Black Butte Mine. Some changes to the physical properties would be beneficial.</p> <p>Impacts would be moderate and long term to permanent on the Black Butte Mine. Some changes to the physical properties would be beneficial.</p> <p>Impacts would be moderate and long term to permanent on the Black Butte Mine. Some changes to the physical properties would be beneficial.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.7 (cont.) Summary Comparison of Direct and Indirect Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>WATER RESOURCES</p> <p>Runoff events would carry additional sediment loads from disturbed sites. Potential increases in runoff, wind and water erosion, and sedimentation within the project area due to disturbances to vegetation and soil resources. In some cases where pre-mining stream channel function is poor, reclamation may improve the erosion and sedimentation characteristics.</p> <p>Surface water depletion from the Colorado River system would occur due to evaporative losses from retention ponds.</p> <p>Groundwater potentiometric surface drawdown would propagate from the area of coal removal.</p> <p>Groundwater in the backfilled aquifer, following mining activities, is predicted to exhibit an increase in total dissolved solids concentrations as backfilled materials are saturated. Over time the groundwater quality of the water in the backfill aquifer will return to near pre-mine conditions. It is expected that the water quality of the backfill aquifer will have the same use classification (Class III, livestock) and the groundwater in the area prior to mining.</p>	<p>Impacts would be minor and short term to long term on Black Butte Mine area due to on-going mining. Impacts would be addressed under the present mine sediment control and reclamation plan.</p> <p>Impacts would be moderate and short term on the existing Black Butte Mine and downstream due to on-going mining.</p> <p>Impacts would be minor and long term on the Black Butte Mine area due to on-going mining.</p> <p>Impacts would be minor and long term on the Black Butte Mine area due to on-going mining.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Impacts would be addressed through sediment control and reclamation activities.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.7 (cont.) Summary Comparison of Direct and Indirect Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>VEGETATION (including invasive species)</p> <p>During mining, progressive removal of native vegetation would result in increased erosion, loss of wildlife and livestock habitat, and loss of wildlife habitat carrying capacity.</p> <p>After reclamation, vegetation patterns would be changed, vegetation diversity would be decreased, shrub density could be reduced and wildlife carrying capacity would potentially be reduced.</p>	<p>Impacts would be moderate and short term to long term on Black Butte Mine. Steps to control invasion by nonnative plant species would be continued.</p> <p>Impacts would be moderate, trending toward minor and long term.</p>	<p>Same as the No Action Alternative, but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative, but expanded in area due to mining in project area.</p>
<p>WILDLIFE AND FISHERIES (including special status species)</p> <p>During mining, wildlife would be displaced from and habitat would be lost in active mining areas. Wildlife movement through the project area would be restricted and shifts in habitat utilization would occur during the life-of-operations. Nesting and foraging habitat for all species would be lost. Suitable habitat for sagebrush-obligate species would be disturbed. Mine related traffic would increase wildlife mortality.</p> <p>After reclamation, big game habitat carrying capacity on reclaimed lands would be restored, but habitat diversity may decrease. Wildlife use may diminish available forage on reclaimed area and hinder reclamation success.</p>	<p>Impacts would be minor to moderate and short term to long term on Black Butte Mine area.</p> <p>Impacts would be minor to moderate and long term on Black Butte Mine area.</p>	<p>Same as the No Action Alternative, but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative, but expanded in area due to mining in project area.</p>

Table 2.7 (cont.) Summary Comparison of Direct and Indirect Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>Direct impacts on breeding raptors could include temporary or permanent displacement, or nest abandonment from construction or operations noise and activity; loss of brood (i.e., egg or young); destruction or alteration of nesting or roosting habitat; and/or destruction or alteration of foraging habitat or resources. However, because raptor protection and mitigation measures are built into the Proposed Action, it is unlikely that breeding raptors would incur impacts from implementation of the Proposed Action.</p> <p>Indirect impacts on raptors could include a decrease in available prey, such as small mammals that rely upon sagebrush habitats, and subsequent displacement, nest abandonment, or otherwise failed breeding attempts.</p> <p>Impacts on BLM-sensitive species could include direct loss of habitat, temporary or permanent displacement; and restriction of movement (caused by mine pit, haul roads, etc). However, to the extent that suitable, unoccupied habitat is available adjacent to the project area, populations would remain relatively unaffected. If suitable, occupied habitat is available nearby. Individuals would likely still be able to utilize the cover and forage resources therein, but could suffer from the effects of competition if the areas became congested by overuse from displaced species.</p>	<p>Impacts would be minor to moderate and long term on Black Butte Mine area.</p> <p>Impacts would be minor to moderate and long term on Black Butte Mine area.</p> <p>Impacts would be negligible to moderate and long term, depending on the species on existing Black Butte Mine area.</p>	<p>Same as the No Action Alternative, but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>WILDHORSES Loss of forage would displace individuals to nearby suitable habitat. Because necessary resources for wild horses exist throughout the entire HMA, the loss of these acres would not likely impact wild horse populations.</p>	<p>Impacts would be minor and short term on Black Butte Mine area.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.7 (cont.) Summary Comparison of Direct and Indirect Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>LAND USE, GRAZING, RECREATION, AND TRANSPORTATION</p> <p>Public access would be eliminated during the life-of-operations (active mining) to ensure public safety, and restricted during post-mine reclamation to assist the establishment of suitable vegetation.</p> <p>Livestock grazing use in active mining areas would be restricted during the life of the mine and until adequate reclamation is achieved.</p> <p>Oil and gas production and transportation facilities would be restricted from active mine areas during mining. Subcoal oil and gas reservoirs would not be accessible for development during mining and before reclamation.</p> <p>Hunting and other recreational activity access would be restricted during mining.</p> <p>Loss of use of two-track routes in project area boundaries. Railroads would be used to ship coal; employees would travel to and from work on existing roads.</p>	<p>Impacts would be moderate to substantial and short term to long term on Black Butte Mine area.</p> <p>Impacts would be moderate to substantial and short term on Black Butte Mine area.</p> <p>Impacts would be minor to moderate and short term on Black Butte Mine.</p> <p>Impacts would be moderate and short term on Black Butte Mine.</p> <p>Impacts would be minor and short term for mining operations within the Black Butte Mine area.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.7 (cont.) Summary Comparison of Direct and Indirect Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>VISUAL RESOURCES</p> <p>Alterations to line, form, character, and texture would occur. Mining in the project area would not be visible from any major travel routes. Portions of the Black Butte Mine area and ancillary facilities proposed for use by this project would be highly visible from Interstate 80 and routes within the project area.</p> <p>As the land is reclaimed, the surface disturbance from mining would be recontoured with re-creations of existing landforms occurring where practical. Revegetation of land surfaces would buffer visual impact; however, until vegetation has matured, the lack of sagebrush would set disturbed areas off of undisturbed areas. When revegetation maturation is complete it would be difficult to distinguish disturbed areas from undisturbed areas.</p>	<p>Impacts would be moderate and short term on the Black Butte Mine area during mining. Impacts would be minor and permanent following reclamation.</p> <p>Impacts would be moderate and short term on the Black Butte Mine area during mining. Impacts would be minor and permanent following reclamation.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>CULTURAL RESOURCES (including Native American Concerns)</p> <p>Historic and prehistoric sites and isolated artifacts would be disturbed. All sites that meet the eligibility requirements for the NRHP would be avoided or mitigated through data recovery. Potential for vandalism and unauthorized collection would increase.</p>	<p>Impacts would be moderate and long term to permanent.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area. No Native American Concerns identified in the project area.</p>
<p>SOCIOECONOMICS</p> <p>Federal, state and local governments would receive revenues from royalties and taxes. Sweetwater County would benefit from economic development, stable employment, and taxes.</p>	<p>Impacts would be moderate and short term for mining operations on existing mine area while mining continued. Following cessation of mining and reclamation activities, impacts would be moderate and permanent.</p>	<p>Impacts would be moderate, beneficial, and short to long term for mining operations on expanded area of coal removal.</p>

Table 2.8 Summary Comparison of Cumulative Impacts

(Chapter 4 contains additional description of impacts.)

RESOURCE	Magnitude Type and Duration of Impact	
	No Action	Proposed Action
<p>AIR QUALITY Far field visibility and atmospheric deposition could cause impacts on Bridger Wilderness Area and terrestrial ecosystems.</p>	Impacts would be moderate and long term within the cumulative impact assessment area (IAA).	Same as the No Action Alternative but expanded in area due to mining in project area.
<p>GEOLOGY AND MINERALS Coal would be removed from the area and would not be available for use in the future.</p> <p>Conventional oil and gas development and CBNG would be postponed.</p>	<p>Impacts would be moderate but permanent in the cumulative IAA.</p> <p>Impacts would be minor and short term in the cumulative IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>SOILS Changes to physical, chemical and biological properties of soils in the disturbed areas of the IAA.</p> <p>Potential for increased erosion and sedimentation in the IAA prior to reclamation.</p>	<p>Impacts would be moderate and long term to permanent in the IAA.</p> <p>Impacts would be moderate and long term in the IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>WATER RESOURCES Storm water and snowmelt events that occur within the project area and in combination with other disturbances in the assessment area with surface water retention systems would result in decreased contributions to stream flow. Drawdown of the potentiometric water surface in water bearing units would occur.</p>	<p>Impacts would be minor and short term to long term in the cumulative IAA.</p> <p>A localized and minor impact would occur in the cumulative IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.8 (cont.) Summary Comparison of Cumulative Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>VEGETATION (including invasive species) Progressive removal of native vegetation would result in increased erosion, loss of wildlife and livestock habitat, and loss of wildlife habitat carrying capacity.</p> <p>After reclamation, vegetation patterns would be changed, vegetation diversity would be decreased, shrub density could be reduced and wildlife carrying capacity would potentially be reduced.</p>	<p>Impacts would be negligible in the cumulative IAA.</p> <p>Impacts would be negligible in the cumulative IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p> <p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>WILDLIFE (including special status species) Wildlife would be displaced from and habitat would be lost in surface disturbed areas. Wildlife movement could be restricted.</p> <p>Impacts on special status species could include permanent displacement and restriction of movement. This might include loss of habitat and potential for establishment.</p>	<p>Impacts would be minor to moderate and long term in the cumulative IAA.</p> <p>Impacts would be likely impact but are minor for Colorado River endemics in the cumulative IAA. The USFWS has determined that any water withdrawal from the Colorado River system may constitute a may affect status and may jeopardize Colorado River threatened and endangered fish species. Impacts to migratory birds, raptors, sage grouse, mountain plover, pygmy rabbit, white-tailed prairie dog, and swift fox would be negligible to minor in the cumulative IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area. Impacts would be minor to moderate and long term in the cumulative IAA. Same as the No Action Alternative but expanded in area due to mining in project area. Impacts would likely impact but be minor for Colorado River endemics in the cumulative IAA. Impacts to migratory birds, raptors, sage grouse, mountain plover, pygmy rabbit, white-tailed prairie dog, and swift fox would be minor to moderate in the cumulative IAA.</p>
<p>WILD HORSES Loss of forage would displace individuals to nearby suitable habitat.</p>	<p>Impacts would minor and long term in the cumulative IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>

Table 2.8 (cont.) Summary Comparison of Cumulative Impacts

Resource	Magnitude, Type and Duration Of Impact	
	No Action	Proposed Action
<p>LAND USE, GRAZING, RECREATION, AND TRANSPORTATION Other land uses in disturbed areas would be precluded for the mine life and restricted during final reclamation. Grazing, oil and gas production, and transportation facilities would be prohibited and restricted from active mine areas. Hunting and other recreational activity access would be restricted for the mine life.</p>	<p>Impacts would be minor to moderate for livestock grazing, recreation, and transportation in the cumulative IAA. Impacts would be minor in the cumulative IAA for oil and gas production.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>VISUAL RESOURCES Alterations to line, form, character, and texture would occur. Revegetation of land surfaces would buffer visual impacts; however, until vegetation has matured, the lack of sagebrush would set disturbed areas off of undisturbed areas.</p>	<p>Impacts following reclamation would be moderate and permanent in cumulative IAA.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>CULTURAL RESOURCES (including Native American Concerns) Loss of information about heritage in the analysis area and in the region if these sites are not identified and inventoried prior to disturbance. Any loss or damage to unidentified cultural or historical sites or resources associated with the assessment area could be substantial.</p>	<p>Impacts would be moderate and permanent in the cumulative IAA for known sites. Impacts may be greater on private lands where cultural inventories are not required.</p>	<p>Same as the No Action Alternative but expanded in area due to mining in project area.</p>
<p>SOCIOECONOMICS The tax base to the county, state, and federal governments would increase. Employment opportunities and the population of Sweetwater County would increase. Property values, the need for more schools, medical facilities, and other community services would also increase.</p>	<p>Impacts would be substantial and long term in the cumulative IAA. The cessation of mining at the end of the Black Butte Mine’s permitted reserves would create a negative and moderate impact that would slow growth impacts associated with known and reasonably foreseeable actions.</p>	<p>Impacts would be substantial and long term in the cumulative IAA with the additive impact of the mine contributing a stable base for reasonably foreseeable future actions to build tax base on. However, the need for additional community services would be realized sooner than in the No Action Alternative.</p>