
2.0 THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

2.1.1 Overview

As discussed in Chapter 1, BCC has modified their original LBA area to reduce the amount of federal coal acreage based on exploratory core drill results. The following Proposed Action reflects these changes. Under the Proposed Action, coal on federal lands within the TMRT would be offered for lease at a competitive sale, subject to standard and special BLM coal lease stipulations (refer to Appendix A). An estimated 44 million tons of in-place coal reserves exist within the federal lands in the TMRT area, and an estimated 121.5 million tons of in-place coal reserves exist within the entire TMRT area (including federal, state, and private mineral rights) that would be mined over an approximate 15- to 20-year period. Because the TMRT is located within an area of checkerboard coal ownership (a pattern of alternating sections of federal, state, and private mineral rights), the use of federal land is needed for optimal mine development (refer to Figure 2.1). Under the Proposed Action, all coal within the TMRT would be mined utilizing underground longwall mining technologies, and a minimal amount of surface-disturbing activities would occur. A majority of the additional surface-disturbing activities for mine-related facilities (i.e., surface support facilities, powerline, overland conveyor, and access road) would occur within areas that have already been disturbed within the existing Jim Bridger Mine lease and mine permit area. An exception would be for a separate electric powerline required for underground mining equipment and surface support facilities. These areas are discussed in more detail later in this chapter.

Underground mining operations would begin at the highwall near Ramp 14 where continuous mining machines would be utilized to establish the main entry and working room for longwall mining equipment. Once adequate working room has been established, underground longwall mining equipment would be assembled and put into service. Under the Proposed Action,

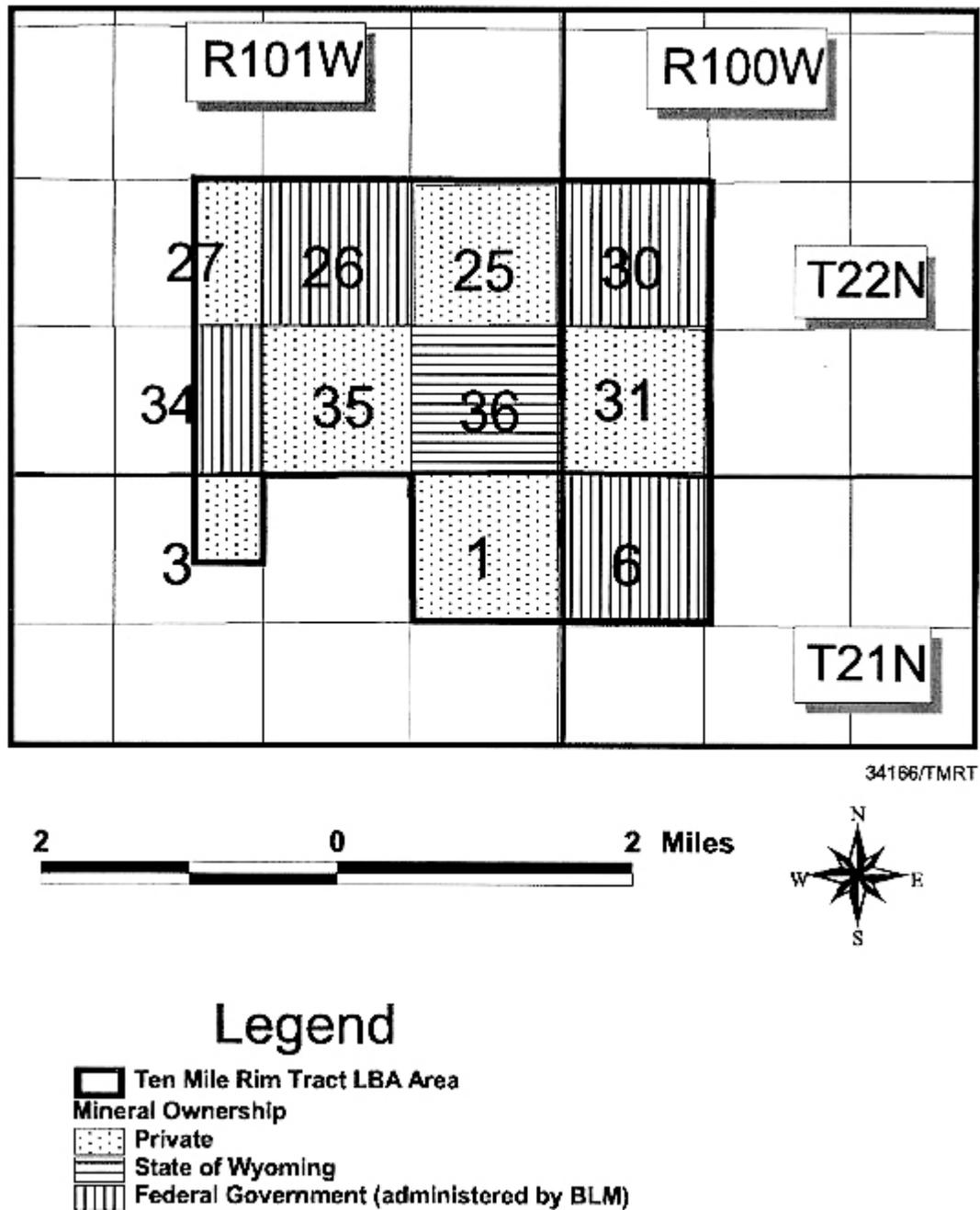


Figure 2.1 Mineral Ownership Within the TMRT.

longwall mining would account for a majority of the coal mined from the TMRT. Estimated production from the underground mine could range from 4.5 to 5.5 million tons per year at full production for the next 15-20 years. Once the coal is mined, it would be loaded on to an electric conveyor system and transported directly to the Jim Bridger Power Plant, located approximately 4-5 mi south of the TMRT.

2.1.2 Mine Permit and Other Required Permits/Approvals

Under the Proposed Action, BCC (if the successful bidder) would collect and analyze detailed baseline environmental information for the TMRT and associated ROW area. The mine permit amendment application would be prepared in accordance with WDEQ/LQD rules, regulations, and guidelines. Whereas Chapters 3.0 and 4.0 of this EA presents generalized environmental baseline information for the TMRT area, the mine permit amendment application would include detailed site-specific baseline information collected during field surveys for cultural resources, soils, vegetation, wildlife, hydrology, etc., including a mine and reclamation plan. The application would also include site-specific monitoring and mitigation measures, as well as detailed calculations for the reclamation performance bond. The amount of the reclamation performance bond would be reviewed and, if appropriate, approved by WDEQ/LQD to ensure that the mine operator (i.e., BCC) complies with all the requirements of the *Wyoming Environmental Quality Act* and the WDEQ/LQD permit and that reclamation requirements would be met.

Under WDEQ/LQD permitting regulations, the public would be provided with several opportunities to comment on the mine and reclamation permit amendment application prior to a final decision on the permit application by WDEQ/LQD.

BCC (if the successful bidder) would also prepare all necessary information and would apply for any required permits/approvals including but not limited to those presented in Table 1.1. Mining operations would not begin within the TMRT until all required permits/approvals are obtained from the appropriate regulatory agencies.

2.1.3 Resource Recovery and Protection Plan

As part of the Proposed Action, BCC (if the successful bidder) would prepare a detailed Resource Recovery and Protection Plan (R2P2) for BLM. The R2P2 would describe how the proposed operation would meet 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 promulgated in Title 43 C.F.R. Part 3480 for the life-of-mine (LOM). MLA requires that, before conducting any federal coal development or mining operations on federal coal lease, the operator must submit an R2P2 within 3 years of the effective date of the lease. The lessee is obligated to mine the lease according to the approved R2P2, respective lease terms, and appropriate rules and regulations.

2.1.4 Description of the TMRT Area

The TMRT area is located in portions of T21N, R100W; T22N, R100W; T21N, R101W; and T22N, R101W; 6th Principal Meridian (P.M.) in Sweetwater County, Wyoming. The TMRT includes approximately 5,916 acres, of which 2,242 acres of coal reserves are owned by the federal government and administered by the BLM, 640 acres of coal reserves are owned by the State of Wyoming and administered by the WOSLI, and 3,034 acres of coal reserves are privately owned (refer to Figure 2.1). A detailed description of mineral and surface ownership for the TMRT is presented in Table 2.1. A combined estimated 121.5 million tons of federal-, state-, and private-owned in-place coal reserves are located within the entire TMRT. A more accurate estimate of federal coal reserves would be included in the tract sale notices, if this EA is approved and if a competitive sale is held. The Proposed Action assumes that the applicant (BCC) would be the successful bidder if a competitive sale is held. This EA has been prepared on the basis of the mining operations proposed by BCC.

Table 2.1 Description of TMRT.¹

Legal Location	Acres	Mineral Owner	Surface Owner
T21N, R100W			
Section 6: Lots 8-14, S2NE, SENW, E2SW, SE	649.88	BLM	BLM
T22N, R100W			
Section 30: Lots 5-8, E2W2, E2	633.56	BLM	BLM
Section 31: Lots 1-4, E2W2, E2	633.36	UPLRC	RSGA
T21N, R101W			
Section 1: Lots 1-4, S2N2, S2	640.16	UPLRC	UPLRC
Section 3: Lots 1 and 2, S2NE	160.03	UPLRC	UPLRC
T22N, R101W			
Section 25: All	640.00	UPLRC	UPLRC
Section 26: Lots 1-16	639.22	BLM	BLM
Section 27: E2	320.00	UPLRC	UPLRC
Section 34: Lots 1, 2, 6, 7, 8, and 13, NESE, SWSE	319.52	BLM	BLM
Section 35: All	640.00	UPLRC	UPLRC
Section 36: All	640.00	State	BLM
Total Combined Acreage	5,915.73		
Mineral Lease Acreage by Owner	640.00	State	
	2,242.18	BLM	--
	3,033.55	UPLRC	--
Total	5,915.73		

¹ BLM = federal, Bureau of Land Management; RSGA = private, Rock Springs Grazing Association; State = State of Wyoming; UPLRC = private, Union Pacific Land Resources Corporation (succeeded in interest by Anadarko Land Corporation).

2.1.5 Mine Plan

The mine plan includes information about the proposed mine facilities (including the associated facilities necessary to mine the coal); mine equipment; background information about the coal reserves; information about the mining methods; and associated activities such as treatment of mine-water; water requirements; control of toxic, hazardous, and solid wastes material; subsidence and associated reclamation; reclamation of mine facilities; avoidance of public nuisance and endangerment; employment; and general environmental protection requirements. As with most underground coal mines, surface disturbance would be limited to the construction

of associated facilities (such as the surface support facilities, overland conveyor system, access road, and powerlines) and areas disturbed due to mine subsidence. BCC (if the successful bidder) would utilize both previously undisturbed and disturbed areas for the construction of the associated facilities. Approximately 28 acres of new disturbance (i.e., previously undisturbed areas) and 37 acres of existing disturbed area (i.e., previously disturbed areas) would be utilized for the construction of the associated facilities. In addition, an estimated 59 acres of new disturbance (i.e., previously undisturbed areas) would be disturbed due to the repair of potential subsidence from underground mining (refer to Table 2.2). Therefore, a total of 124 acres of disturbed and undisturbed area would be affected by the Proposed Action--37 acres of previously disturbed area would be affected and 87 acres of previously undisturbed areas would be affected (refer to Table 2.2).

2.1.5.1 Location and Description of Additional Mine Facilities

Prior to the initiation of underground mining operations, additional mine facilities would be required and would be constructed. These facilities include surface support facilities, an

Table 2.2 Acres Affected by the Proposed Action.

Component of Proposed Action	Location of Proposed Disturbance ¹		
	Previously Disturbed Areas (acres)	Previously Undisturbed Areas (acres)	Total (acres)
Surface support facilities	15	0	15
Overland conveyor system and temporary staging area	20	23	43
Powerline and temporary staging area	2	2	4
Mine access roads	0	3	3
Surface disturbance due to underground mining	0	59	59
Total by Category	37	87	124

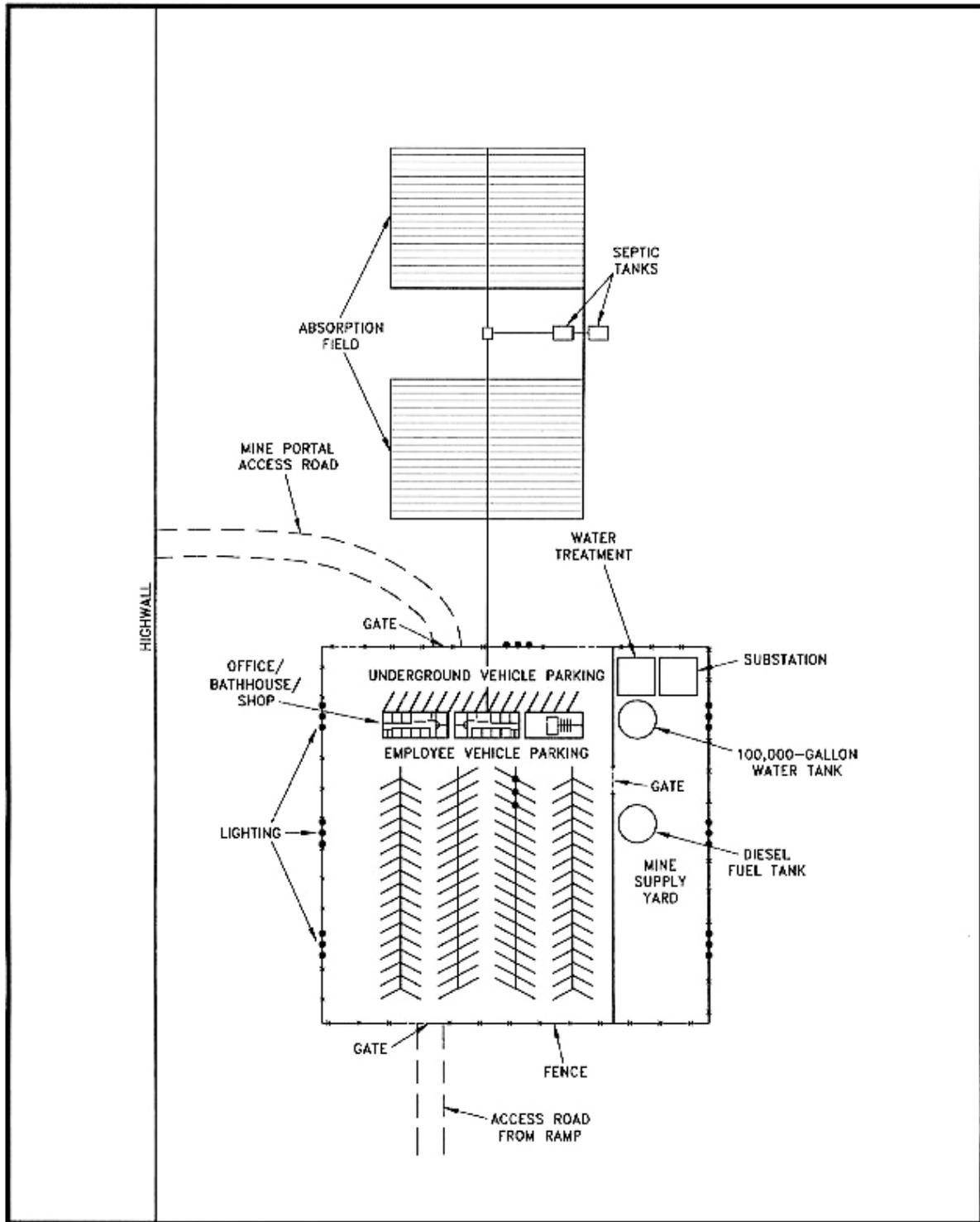
¹ Includes areas located inside and outside of the existing mine permit area.

overland conveyor, a powerline, and access roads. All of the associated facilities would be constructed within the existing BCC mine permit boundary, except for 6 acres required for a segment of the powerline that requires an ROW application and is discussed later in this section.

Surface Support Facilities. The proposed surface support facilities would be located within the previously disturbed area of the Jim Bridger Mine, so there would be no new disturbance as a result of these facilities. An appropriately sized area (approximately 15 acres) would be graded and leveled on the nearby spoil pile to allow the construction of the required surface support facilities. The surface facilities that would be located on the north side of Ramp 14 and would include an office, a warehouse, an employee bathhouse, a lighted parking area, a material storage area, associated structures such as water storage and treatment equipment, an electric substation, a diesel fuel tank, and a septic system with septic tanks and absorption field for the treatment of waste water from the bathhouse and office. A conceptual layout of the underground mine surface support facilities is presented in Figure 2.2 and would be located as illustrated on Figure 2.3.

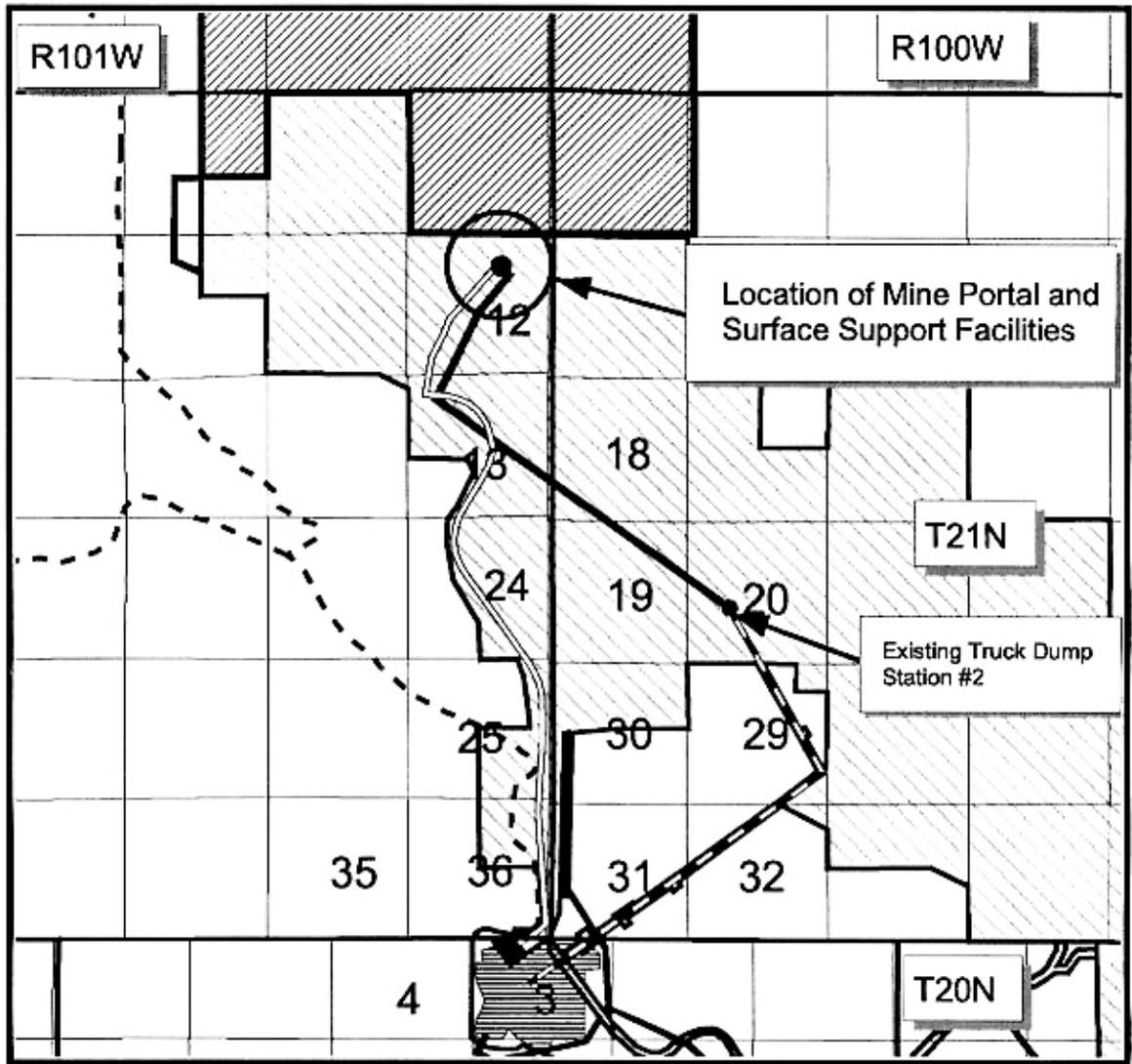
Overland Conveyor System. A covered electric overland conveyor system would be utilized to transport the coal from the underground operations to the Jim Bridger Power Plant. Approximately 17,000 ft of the new overland conveyor (60- or 72-inch wide) would be constructed from the mine portal at Ramp 14 to the existing Truck Dump Station #2 (refer to Figure 2.3). From Truck Dump Station #2, the existing overland conveyor system would transport the coal the remaining 20,000 ft to the Jim Bridger Power Plant. Installation of the proposed overland conveyor system would be completely within the existing Jim Bridger Mine lease and permit area; therefore, no additional ROW grants from the BLM or other parties would be required for construction of the proposed overland conveyor system.

Assuming the full 100-ft wide construction area would be disturbed by construction activities, approximately 7,000 ft (or 16 acres) of the new 17,000-ft overland conveyor system would be located on previously disturbed lands and approximately 10,000 linear ft (or 23 acres) of new conveyor system would be located on previously undisturbed land.



J:\165\FINAL\WNE FACILITIES.dwg

Figure 2.2 Typical Surface Support Facilities Layout.



- Legend
- Proposed TMRT LBA Area
 - Proposed Surface Support Facilities
 - Existing Mine Road
 - Proposed Overland Conveyor
 - Existing Overland Conveyor
 - County Road 15
 - State Highway 377
 - Existing BCC Office and Shop Complex
 - Existing Bridger Mine Permit Area
 - Jim Bridger Power Plant

1 0 1 Miles



Note: This Figure shows only select existing mine facilities.

Figure 2.3 Major Transportation Systems.

The new overland conveyor system would be similar to the existing overland conveyor system utilized at the Jim Bridger Mine. Use of the overland conveyor system would greatly reduce particulate emissions (i.e., dust) typically generated during the transportation of coal by haul trucks. The coal would also be sprayed with a light coating of water and/or water-based dust suppressant agent, and the use of semicircular metal covers on the overland conveyor and the use of enclosed transfer points would further reduce coal dust emissions from the operation.

Construction activities would be conducted utilizing standard construction techniques and equipment. Construction of the new overland conveyor system would involve the following:

- salvaging available topsoil from areas that have been previously undisturbed by other mining or mining-related activities,
- construction of a road-type surface for placement of the conveyor components,
- excavations for concrete footings for conveyor transfer points and anchors, and
- installation of major conveyor components (attached to the side of the conveyor) and the installation of the electrical and control system.

In addition, a temporary construction staging area, located near Ramp 14, would be required for a single (4-acre) material staging area. The temporary material staging area would be located on a previously disturbed area and would not result in any new disturbance.

Powerline. Approximately 38,500 ft (7.3 mi) of new and upgraded 34.5-kilovolt (kV) distribution powerline would be required for the Proposed Action to feed surface support facilities and underground mining equipment. The approximate location of the new and upgraded 34.5-kV distribution powerline is illustrated on Figure 2.4. Starting at the existing Jim Bridger Substation located southwest of the Jim Bridger Power Plant, approximately 7,000 ft of existing Bridger to Superior 34.5-kV powerline would be upgraded with new phase and neutral conductors. At a power pole structure location near the SE1/4 SE1/4 of Section 35, T21N, R101W, a new direct-feed electrical tap would be constructed from the existing Bridger to Superior transmission powerline. From the new tap, approximately 31,500 ft of new 34.5-kV

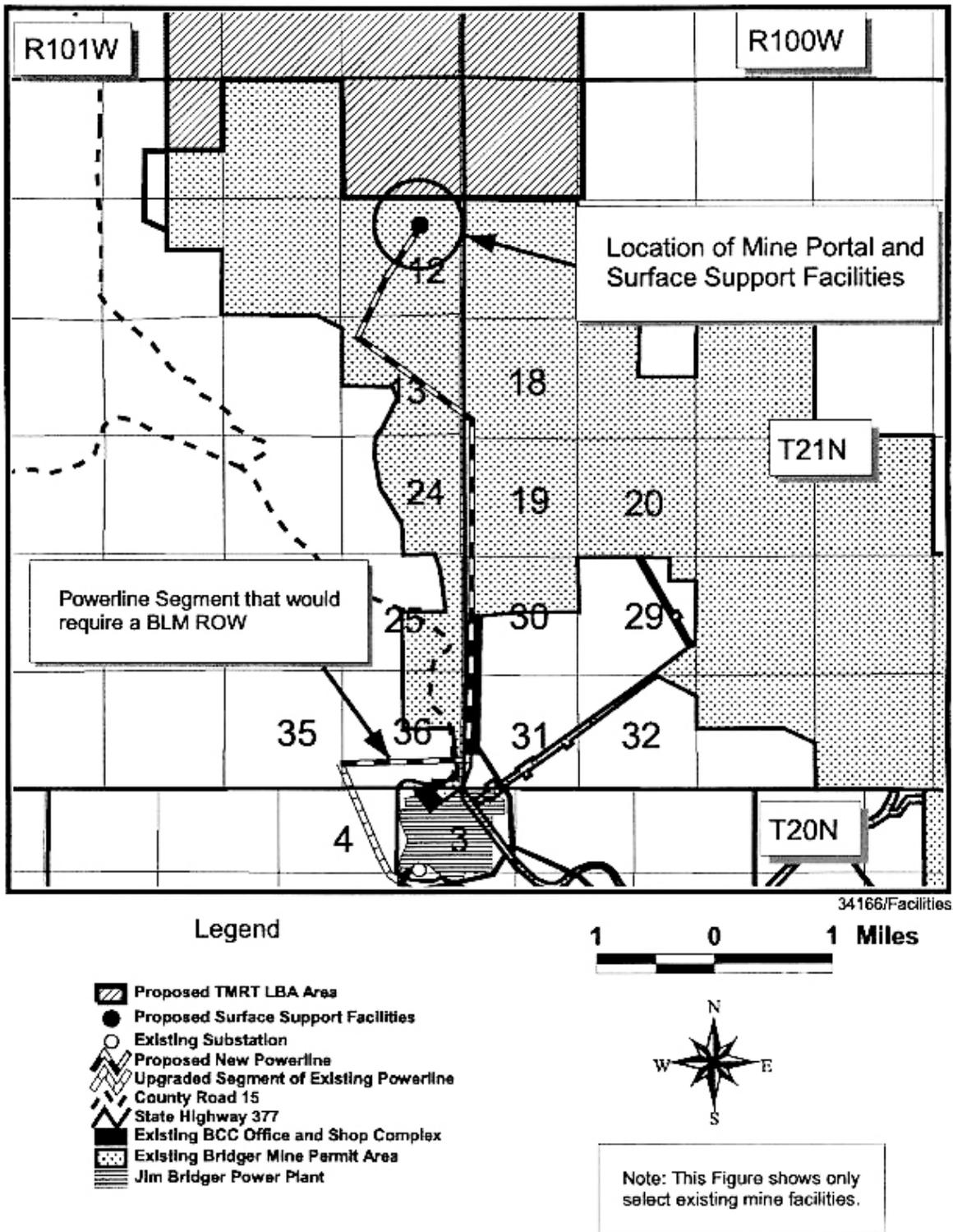


Figure 2.4 Powerline System.

powerline would be constructed to the proposed Surface Support Facilities area located in Ramp 14. An electric substation would also be installed at the Surface Support Facilities area located at Ramp 14.

Approximately 4,900 ft of the new powerline would cross BLM-administered land in Section 36, T21N, R101W. This portion of the proposed powerline would be located outside of the BCC WDEQ/LQD mine permit boundary or existing federal lease area and would require a ROW from the BLM (refer to Figure 2.5). Assuming a 50 ft-wide ROW, this segment of new powerline would require a ROW grant for approximately 6 acres from the BLM. The remaining 26,600 ft of the new distribution powerline between the new segment and Ramp 14 would be located within the existing federal coal lease and mine permit area, and no additional ROW grants from the BLM would be required. BCC would obtain any necessary easements from the appropriate nonfederal landowners for all powerline segments not located on BLM-administered land.

The proposed electrical service equipment would be similar in design to the existing 34.5-kV system located at the Jim Bridger 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), and *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (Avian Power Line Interaction Committee [APLIC] 1996).

Construction of the proposed powerline and modification of the existing powerline would be conducted utilizing 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 located where individual power pole structures and anchors would be installed. The new powerline would result in approximately 2 acres of total new disturbance. Modifications to the

Jim Bridger substation would occur within the existing fenced substation area and would not result in any new or additional disturbance.

In addition, a temporary construction area, located near the Jim Bridger Mine office and shop complex, would be required for a single (2-acre) material staging area. The temporary material staging area would be located on a previously disturbed area and would not result in any new disturbance.

Mine Access Roads. Access to the surface support facility would be primarily from existing public and private roads. From Point of Rocks, construction workers and miners would travel north approximately 8 mi on Wyoming State Highway 377 and then transition on to County Road 15 for approximately 1 mi. At this point, BCC would construct a new 0.4-mi long segment of road that would tie into BCC's existing mine road system (refer to Figure 2.5). The new access road segment would reduce traffic congestion and improve safety around BCC's office and shop complex. BCC would obtain a special use permit from the Sweetwater County Road and Bridge Department, and the road would meet all appropriate road design standards. Assuming the road disturbance would be approximately 50 ft wide, the new access road would result in approximately 3 acres of new disturbance.

Construction workers and miners would then enter the BCC mine property through a access control point and travel north approximately 4.2 mi on the existing mine road to the proposed surface support facilities located at Ramp 14 (refer to Figure 2.3). In order to improve public safety, the general public would not be allowed to enter the operational portion of the Jim Bridger Mine.

2.1.5.2 Mine Equipment

Table 2.3 lists the typical types of equipment that would be used under the Proposed Action during construction, exploration, mine operations, and reclamation. The specific number and

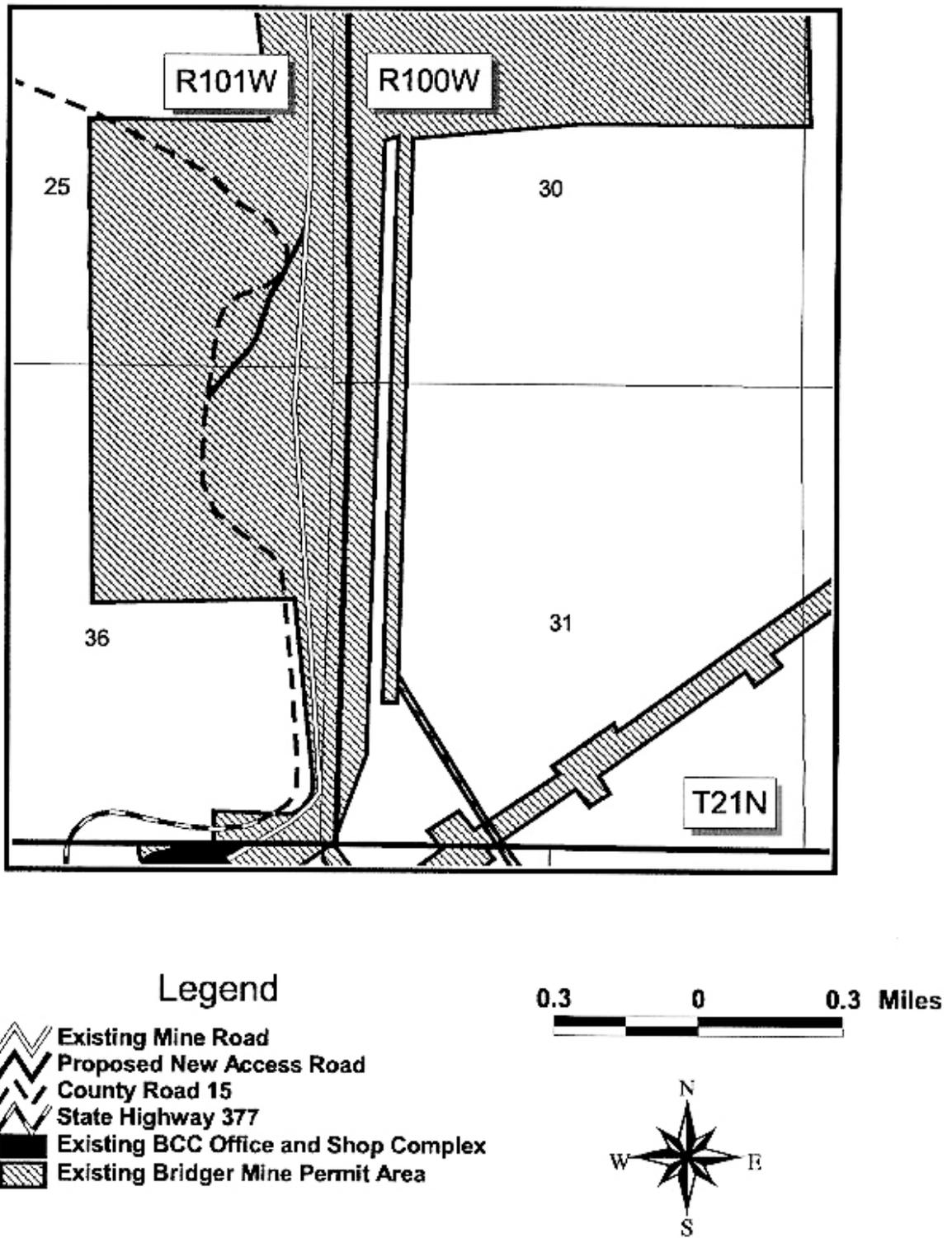


Figure 2.5 Proposed Mine Access Roads.

Table 2.3 Typical Major Equipment.

Continuous Mining Equipment	Longwall Mining System	General Mining Equipment
continuous miners	face conveyor	diesel tow vehicles
shuttle cars	shearer	compressors
roof bolters	shield supports	transformers
feeder breakers	stage loader/crusher	60-inch wide conveyors
rock dusters	lump breaker	60-inch wide drives
power centers	transformer	72-inch wide conveyors
scoops	scoop forklift	72-inch wide drives
belt takeup	petito mule	welders
	shield haulers	mantrips
	shield carrier	motor grader
	shearer carrier	tracked dozer
	mobile tailpiece	water trailer
	stage crusher	gravel trailer
	lighting/communications	material trailer
	rock duster	battery section scoop
	electrics/power center	load-haul-dump (LHD) equipment
	belt takeup	forklift
		bobcat-type front end loader
		communications equipment
		power distribution equipment
		coal analyzer
		rock dusters
		water pumps
		ventilation fan and motor

equipment manufacturers and models would be determined as the project schedule is developed. Construction equipment (e.g., motor graders, cranes, backhoes, flatbed trucks, forklifts, pickups, etc.) and construction personnel would only be on-site during construction of the specific facilities or equipment (e.g., the longwall mining system).

2.1.5.3 Nature of Coal and Coal Reserves

Existing data on coal resources within the TMRT have been developed from numerous surface exploration drill holes. The data indicate a good-quality coal resource with approximately 121.5 million tons of in-place underground-minable coal. Up to seven coal seams are present within the proposed TMRT area; however, only the D-41 coal seam of the Fort Union Formation is economically recoverable using underground mining methods. The D-41 coal seam has a thickness that would allow a mining height ranging from 7 to 11 ft and a heat content of approximately 9,000 to 9,500 British Thermal Units (BTUs) per pound. Within the TMRT, the minable coal is approximately 200 to 1,000 ft below ground surface. Sulfur content is approximately 0.6% (1.2 pounds sulfur dioxide [SO₂] per million BTU) and, with blending at the Jim Bridger Power Plant, it would be compatible with SO₂ requirements specified in the federal *Clean Air Act*, as amended (42 U.S.C. §7401 et seq.) (Wyoming State Geological Survey 1998).

Should the lease be issued, additional exploration drilling may be completed within the TMRT to further delineate the volume and quality of coal to be mined. Exploration drilling would be conducted in accordance with BLM standard environmental stipulations. If exploration drilling is required prior to the approval of the WDEQ/LQD mine permit amendment, BCC would apply for a coal exploration permit and would conduct drilling in accordance with applicable BLM and WDEQ/LQD rules and regulations. All drill holes would be abandoned and reclaimed in accordance with applicable BLM and WDEQ/LQD rules and regulations. Based on the existing exploration drill hole data, BCC proposes to start underground mining at the highwall area of Ramp 14 within the existing BCC surface mining operation.

2.1.5.4 Mining Methods

During the first 2 years of underground mine development, most of the effort would be devoted to the establishment of the main mine entry and gateroads (a gateroad is a roadway that provides access to the working panel). The main entry will be started at the highwall located at Ramp 14. The main entry and gateroads would be cut into the highwall utilizing continuous mining machines equipped with rotating drums with bits that cut coal directly from the exposed coal face (refer to Figure 2.6) and then load it onto a conveyor or into shuttle cars that haul it to a electric conveyor. The continuous mining equipment could then cut around individual blocks of coal, referred to as longwall panels (refer to Figure 2.7). In addition to the establishment of longwall

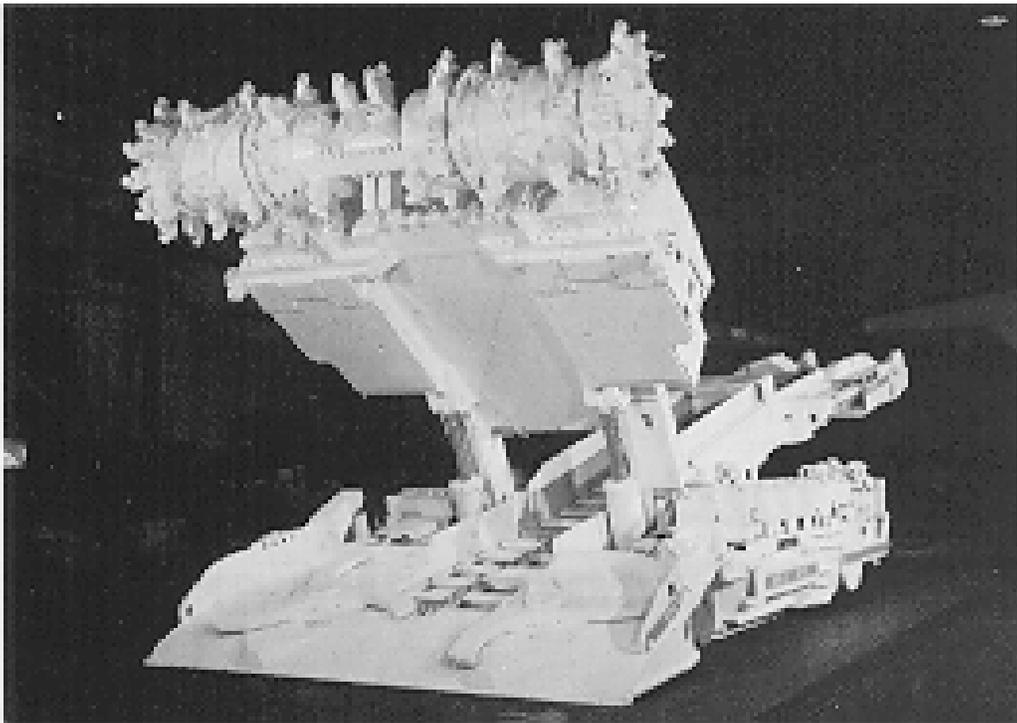


Figure 2.6 Typical Continuous Mining Equipment.

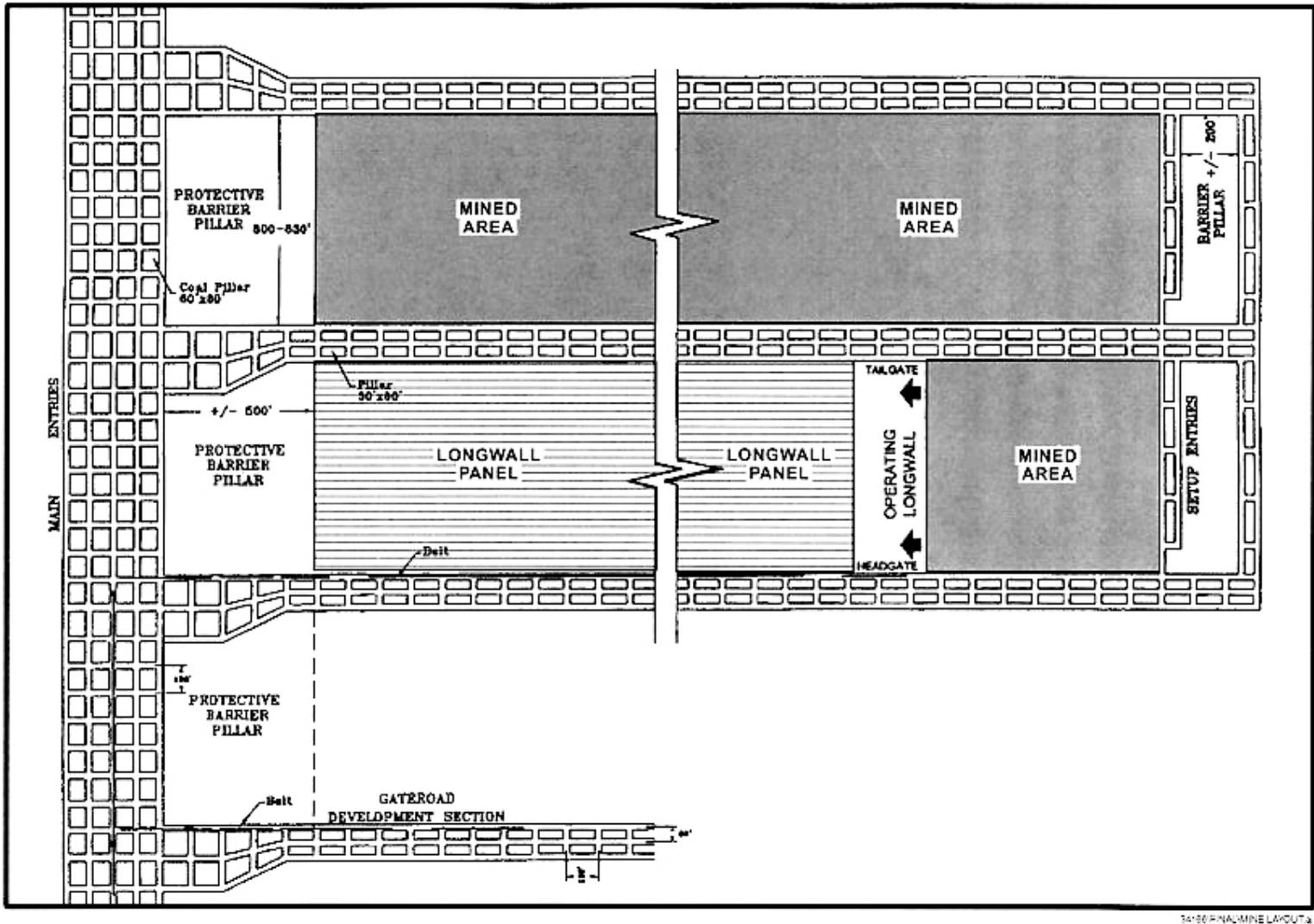


Figure 2.7 Typical Longwall Panel with Main Entry and Submain Entry.

panels, the continuous mining equipment is utilized to establish gateroads with pillars for roof support and entryways to the panels for equipment access and air ventilation. Each panel would be approximately 750 to 850 ft wide and range from 10,000 to 15,000 ft long. Once the initial panels have been developed, a longwall mining system would be installed.

While the continuous mining equipment continues to develop gateroads, entries, and longwall panels, the longwall mining system would mine the exposed coal face of each panel. The longwall mining system would be equipped with a shearer that has two rotating drums for cutting the coal, a self-advancing hydraulic roof support system, and a conveyor to transport the coal (refer to Figures 2.8 and 2.9). The rotating drum would move down and up along the coal face, cutting approximately 24-36 inches of coal with each pass. BCC expects to remove a minimum height of 7 ft to a maximum of 11 ft of coal from the D-41 coal seam. The hydraulic roof support system would automatically move towards the receding coal face, and the roof would be allowed to cave into the mined-out areas (refer to Figure 2.10).

Cut coal would fall onto an armored face conveyor to be transported to a headgate belt conveyor and out to the surface via the main entry, where it would be automatically transferred onto another electric covered conveyor system that would transport the coal to the power plant stockpile (refer to Figure 2.9). At the end of each pass, the drum would continue in the opposite direction for another pass.

The underground mine would be ventilated with a blowing fan system located at the mine portal, and BCC does not anticipate the need for any vertical ventilation shafts to the surface of the TMRT area.

Estimated production for the underground mine may range from 4.5 to 5.5 million tons per year at full production for the next 15 to 20 years, depending upon geologic and economic conditions from the underground operation. Total production from surface and underground mining operations at BCC is expected to remain at approximately 6.2 million tons per year but would depend on coal supply requirements of the Jim Bridger Power Plant.

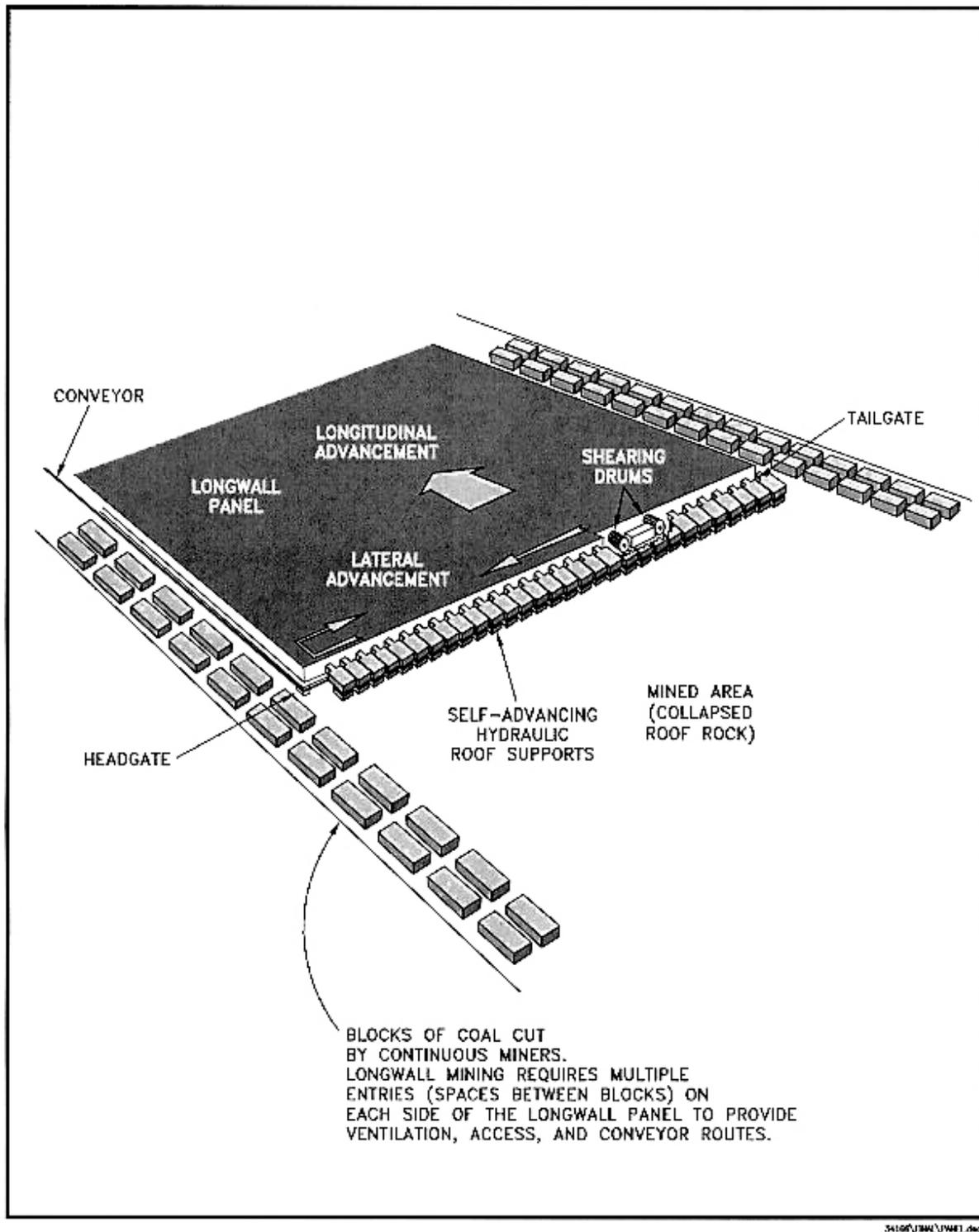


Figure 2.8 Typical Longwall Mining System.

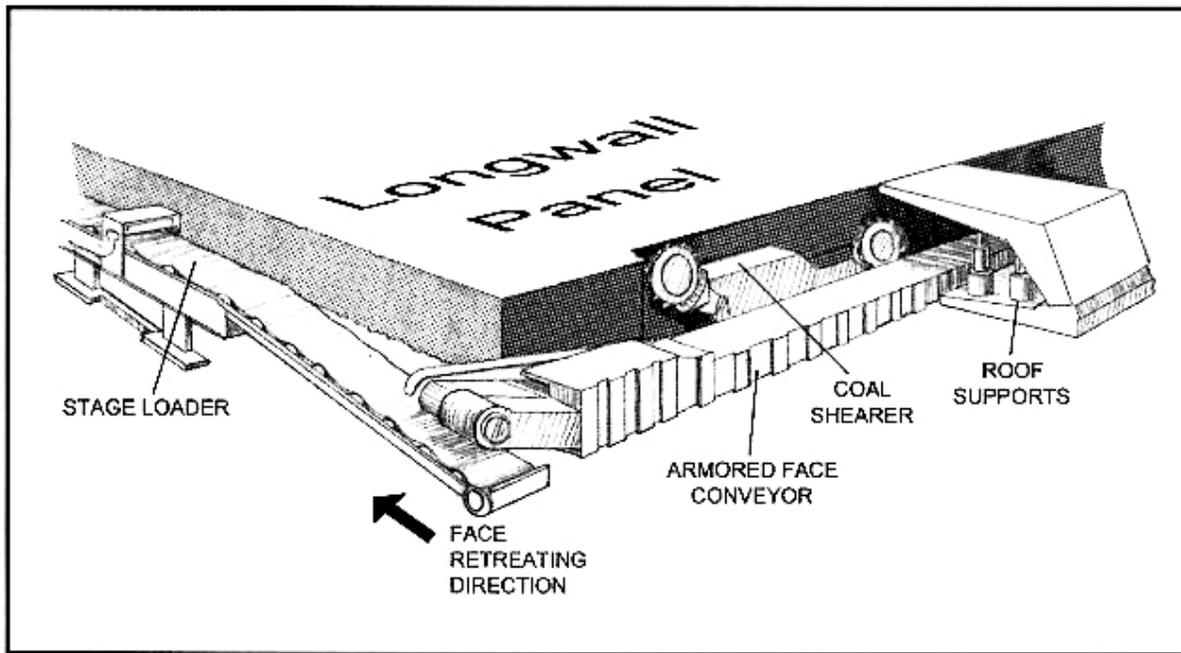


Figure 2.9 Close-up of Major Components of Longwall Mining System.

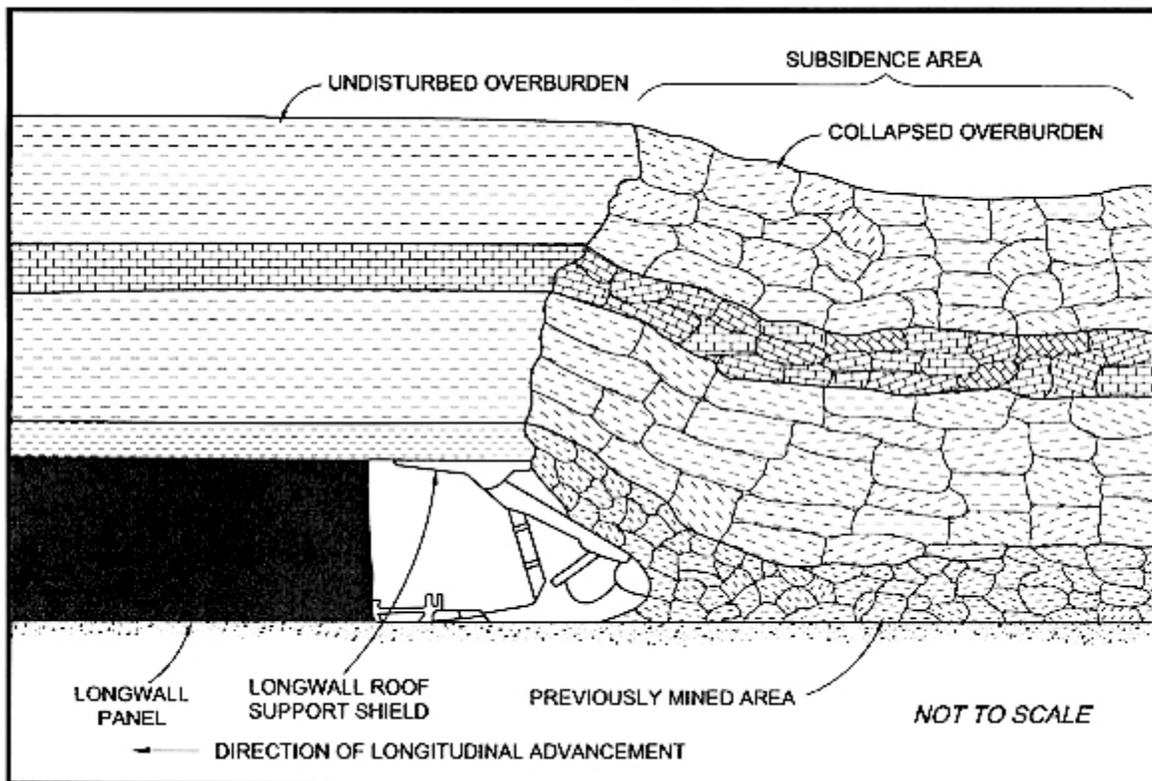


Figure 2.10 Typical Trough Subsidence Due to Longwall Mining.

2.1.5.5 Mine-Water Discharge and Treatment

Excess mine water not needed for dust suppression and not used at the surface support facilities would be pumped into an existing WDEQ-approved holding pond where the water would be monitored and discharged into the Deadman Wash drainage channel if it meets approved National Pollutant Discharge Elimination System (NPDES) discharge standards. This activity would be conducted as part of ongoing mine dewatering operations conducted at the Jim Bridger Mine and in accordance with BCC's existing NPDES discharge permit issued by WDEQ/WQD.

2.1.5.6 Water Requirements

Depending on coal production, approximately 100,000 to 500,000 gallons of water per day would be utilized for dust suppression and equipment washdown and at the surface support facilities. Water would be provided either from underground mine dewatering operations or from existing water wells located within the Jim Bridger Mine. All water sources would be permitted by the WSEO.

2.1.5.7 Control of Toxic, Hazardous, and Solid Waste Materials

Acid-Forming/Toxic Materials. Acid-forming or toxic materials are not expected to be created or encountered during mining operations.

Hazardous Materials and Waste. BCC has reviewed the U.S. Environmental Protection Agency's (EPA's) Consolidated List of Chemicals subject to Reporting Under Title III of the *Superfund Amendments and Reauthorization Act of 1976* (SARA) (as amended) and EPA's List of Extremely Hazardous Substances as defined in Title 40 C.F.R. Part 355 for hazardous substances proposed for use in this project. BCC maintains a file containing Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances that are or would be used during mine development, mining, and reclamation. 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;
 - combustion emissions - nitrogen dioxide (NO₂), carbon monoxide (CO), and nonmethane hydrocarbons (NMHCs);
 - coolants/antifreezes;
 - lubricants - grease (potentially containing complex hydrocarbons and lithium compounds) and motor oil;
 - paints;
 - solvents;
 - powerline emissions - ozone and NO₂; and
 - wood preservation for powerline poles.

BCC and its contractors would comply with all applicable federal laws and regulations. BCC and its contractors would handle and store all hazardous substances in an appropriate manner to prevent contamination of soil and water resources. Any release of hazardous substances (leaks, spills, etc.) in excess of reportable quantities, established in Title 40 C.F.R. Part 117, would be reported as required by the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), as amended. If a release of a reportable quantity of any hazardous substances occurs, a report would be furnished to WDEQ and all other appropriate federal and state agencies. Prior to construction of any facilities associated with the Proposed Action, inventories of hazardous chemical categories pursuant to Section 312 of the SARA, as amended, would be updated.

Unanticipated release events (such as spills or leaks) are always possible; however, BCC is committed to all planning and emergency procedures regarding spill prevention, reporting, and cleanup standards required by local, state, and federal laws and regulations should an incident occur.

Fuel Storage. During the construction phase of the Proposed Action, fuel storage would be provided from the existing Jim Bridger Mine facilities. Upon completion of construction

activities, a permanent fuel storage facility would be provided at the Surface Support Facilities (refer to Figure 2.2). In addition, mobile fuel trucks would be used to service and fuel mine equipment. All fuel storage facilities and equipment would be constructed and operated in accordance with all applicable state and federal regulations. Prior to the implementation of the Proposed Action, BCC would update the mine's existing Spill Prevention, Control, and Countermeasure Plan (SPCCP), as necessary, in accordance with Title 40 C.F.R. Part 112.

Disposal of Nonhazardous Materials (Solid and Nonsolid). Portable toilets would be provided for workers on-site and at the proposed change house located at Ramp 14, and the waste would be properly disposed of through the septic system or at an approved waste disposal facility on an as-needed basis. Solid waste such as garbage and other discarded solid materials would be collected at a designated collection site and disposed of at an approved solid waste management facility. Solid waste would not be imported or disposed of within the TMRT area. Spills of petroleum products may occur during mining due to periodic equipment maintenance and/or accidents. Petroleum-contaminated soils would be disposed of at an approved facility capable of accepting such waste. All nonhazardous material would be disposed of in accordance with appropriate local, state, and federal regulations.

2.1.5.8 Subsidence and Associated Reclamation

As each coal panel is mined out, the longwall system, including the roof support equipment, would advance toward the receding coal face, and the roof located above the mined-out coal panel area would be allowed to cave into the mined-out area (refer to Figure 2.10). The collapsed material provides considerable support for the overlying strata, but the strata would eventually settle, leading to subsidence on the surface. Although inevitable, trough subsidence caused by longwall mining is generally uniform and more predictable than subsidence due to room-and-pillar mining (U.S. Department of Energy 1995).

As part of the WDEQ/LQD permit to mine, BCC would be responsible for the development of a mine subsidence plan that would include detailed calculations concerning the amount of

anticipated subsidence, measures to be taken to prevent or minimize the impacts of subsidence, measures to be taken to prevent, lessen, or mitigate material damage or loss of value of physical property in the area, and a subsidence monitoring and mitigation plan.

In accordance with WDEQ/LQD rules and regulations, the surface areas located above underground-mined areas would be monitored annually and for a minimum of 5 years after the completion of underground mining operations. This would allow BCC and WDEQ/LQD to assess subsidence and the adequacy or need for reclamation effort. BCC would be responsible for the repair of areas of surface subsidence for a period of 5 years following completion of mining operations as directed by WDEQ/LQD (WDEQ/LQD Rules and Regulations, 2002, Chapter 7, Section 2. [a][iv]). Reclamation of areas of subsidence that require corrective action would be initiated after the subsidence has occurred and it has been determined that corrective actions are required. Areas of subsidence and erosional features would be monitored and appropriate corrective actions (i.e., reclamation and revegetation efforts) instituted if conditions warrant. Additional erosion control features would also be employed as needed. All mitigation and corrective actions would be conducted in accordance with the approved WDEQ/LQD mine permit and as directed by WDEQ/LQD.

2.1.5.9 Reclamation of Mine Facilities

The postmining land use would continue to be livestock grazing and wildlife habitat. Reclamation of mine facilities (i.e., surface support facility, powerlines, overland conveyor, etc.) would begin when underground mining operations have been completed. All support facilities associated with the Proposed Action would be dismantled and removed and the land reclaimed in accordance with the approved mine and reclamation permit issued by WDEQ/LQD.

Permanent reclamation procedures for areas located within the existing Jim Bridger Mine would typically include disassembly and relocation of underground mining equipment, removal and demolition of mine facilities (buildings, conveyors, powerlines, etc.), backfilling and grading of overburden, topsoil replacement, and revegetation operations (e.g., seeding and mulching

operations). WDEQ/LQD would approve permanent reclamation seed mixtures and seeding and mulching rates. WDEQ/LQD is responsible for reviewing and approving all mine and reclamation plans prior to the initiation of actual mining operations. BCC would utilize only weed-free reclamation materials (e.g., seed, mulch).

BCC would be required to post a reclamation performance bond for all areas physically disturbed by mining operations (including areas of repaired subsidence) 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, BCC would follow reclamation bond release procedures specified by WDEQ/LQD. Reclamation bond release procedures for an underground coal mine are identical to surface coal mines, including the 10-year bond release period after the completion of permanent reclamation operations, and they require that a stable land form exists on disturbed areas and that 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.

2.1.5.10 Avoidance of Public Nuisance and Endangerment

Nearby Dwellings. As specified under *Wyoming Statute* (W.S.) 35-11-406 (m)(viii), the director of the WDEQ can deny a permit to mine if the affected lands lie within 300 ft of any existing occupied dwelling, home, public building, school, church, community or institutional building, park or cemetery, unless the landowner's consent is obtained. There are no occupied dwellings, homes, public buildings, schools, churches or institutional buildings, parks, cemeteries, or community centers within 300 ft of the proposed TMRT area. The nearest occupied dwellings, homes, public buildings, schools, churches or institutional buildings, parks, cemeteries, or community centers are located approximately 8 mi west of the TMRT in the community of Superior.

Normal Operating Hours. Mine operations within the TMRT would be identical to the existing Jim Bridger Mine: 24 hours per day, 7 days per week, 52 weeks per year except for designated holidays. Holidays would generally be excluded from the operations schedule. Additionally, the mine would be scheduled for 2 weeks per year idle time for annual vacations. Maintenance activities would still continue during mine idle times.

Entrance Sign. An entrance identification sign would be posted and maintained at all major entrances into the existing Jim Bridger Mine and the TMRT area. The sign would contain the name, address, and telephone number of the operator, the name of the local authorized agent, and the WDEQ/LQD permit number of the operation.

Blasting Plan. Limited blasting would be required with underground mining operations. Blasting operations would also continue as needed for the existing surface mining operations in accordance with applicable WDEQ/LQD and federal Bureau of Alcohol Tobacco, Firearms, and Explosives regulations. Blasting operations conducted in association with the Proposed Action would be much smaller in size than those currently associated with the existing surface mining operation.

Fire Control. BCC maintains a fire engine, water trucks, and dozers that may be utilized in the event of an equipment fire or wildfire. BCC also has established procedures to respond to and to 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.

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

- Land disturbance would be kept to a minimum during the mining process.
 - BCC will utilize only certified weed-free mulch and seed during reclamation operations.
 - Chemical herbicides may be used to control noxious or prohibited weeds. The local weed and pest agency would be contacted, and the problem would be
-

addressed in compliance with appropriate regulations. If required, a Pesticide Use Plan would be prepared and approved by WDEQ/LQD and BLM prior to application of pesticides.

Prevention of Endangerment. Mining operations would be conducted in a manner intended to prevent or minimize endangerment to the public safety and human and animal life. The TMRT area would continue to be utilized for livestock grazing; therefore, public access to the TMRT and the mine highwall portion of the lease area cannot be completely restricted or eliminated. However, in accordance with the *Wyoming Environmental Quality Act* and OSM regulations, mine entrance signs would be posted on all major roads leading on to the TMRT area, and mine employees would be instructed to watch for unauthorized personnel and to notify mine management if unauthorized personnel are observed within the TMRT.

Since the TMRT would be incorporated into an existing WDEQ/LQD permit area, speed limits would be established for the TMRT area to promote safe conditions for the public and to decrease potential encounters with grazing animals and wildlife. Currently, speed within the Jim Bridger Mine is limited to 45 mi per hour due to the conditions in the area. All construction workers, contract haulers, and miners would be advised of the speed limit.

2.1.5.11 Employment

Under the Proposed Action, approximately 10-75 temporary construction workers would be required to construct the powerline, the covered conveyor, and support mine facilities and to assemble mining equipment. Construction operations may start in mid-2005 and would continue through the end of 2006; however, precise dates would depend upon the overall project schedule, weather conditions, and the approval of all required regulatory permits and authorizations.

Current surface-mining operations at the Jim Bridger Mine utilize approximately 350 employees. Under the Proposed Action, there would be a transition of some employees between jobs while operations are conducted at both the surface and underground mining operations. After the

initial startup of underground mining operations (including development of main entries, gateroads, and initial longwall production), the projected number of underground employees may range from 180 to 250. However, the total number of employees would depend upon production levels from both the surface and underground mining operations. The total number of employees may range between 250 and 400 employees. Therefore, under the Proposed Action it is possible that there could be a net increase of approximately 50 employees at the BCC.

2.1.5.12 Cultural Resource Protection

Under the Proposed Action, BCC (if the successful bidder) would enter into a cultural resource programmatic agreement with BLM, OSM, WDEQ/LQD, and Wyoming State Historic Preservation Office. This agreement would specify survey, testing, protection, and mitigation measures that would be implemented by BCC to address and protect National Register of Historic Places (NRHP)-eligible historic and prehistoric sites within the TMRT area. The programmatic agreement would demonstrate compliance with all applicable cultural resource laws and regulations.

In addition, BLM Class III surveys would be conducted on those areas that are located outside of the TMRT, have not been previously surveyed, and would be physically disturbed by the construction activities. All historic and prehistoric resources that are potentially eligible for the NHRP 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 BCC's approved WDEQ/LQD permit. The site-specific mitigation measures would also be developed and implemented with the concurrence of the BLM, OSM, WDEQ/LDQ, and the Wyoming State Historic Preservation Office.

BCC would also commit to the following: if any cultural resources are discovered during construction or reclamation operation, work in the area of the discovery would be halted, and the

appropriate regulatory agency would be notified and appropriate treatment plans would be implemented. BCC employees would be instructed that they would be working on both private and public land and not to search for, scavenge, or remove any cultural resources found while working on the project.

2.1.5.13 General Environmental Protection

Existing federal and state rules and regulations that require extensive monitoring and mitigation for all underground coal mines in Wyoming would be applied to this project to mitigate the environmental consequences associated with coal mine development and operations. Under the Proposed Action, BCC would be required to conduct detailed environmental studies in accordance with WDEQ/LQD rules and regulations prior to permit issuance and would be required to conduct environmental monitoring and mitigation if the permit would be approved. In addition, the public would have several opportunities to comment on the permit application if the Proposed Action would be approved. Therefore, for the purpose of this EA, it is assumed that BCC would adhere to applicable sections of Chapters 4 and 7 of WDEQ/LQD's Coal Rules and Regulations (WDEQ/LQD 2002) and BLM's mitigation guidelines described in the Green River RMP for surface-disturbing activities (BLM 1997a). In addition, this analysis assumes standard and special coal lease stipulations would apply (refer to Appendix A).

In addition to specifying permit requirements, WDEQ/LQD rules and regulations also outline general and specific environmental protection performance standards for underground coal mining operations. These applicable rules and regulations would be adhered to on BLM-administered lands, private lands, and state-owned lands.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the TMRT coal lease application would be rejected and the area contained in the application would not be offered for competitive coal sale at this time. However, rejection of the application would not affect the already leased and permitted surface

mining activity at the Jim Bridger Mine. For the purpose of this analysis, the No Action Alternative assumes that the TMRT would not be mined in the immediate future. This assumption is highly speculative since private minerals within the project area (refer to Figure 2.1) may be developed without the development of the federal minerals. However, this approach is not preferred by the applicant, has not been discussed with the BLM, and would not be utilized as the No Action Alternative. The purpose of the No Action Alternative is to allow a comparison of the economic and environmental consequences of mining these lands versus not mining them. Not leasing this land in a configuration associated with the existing Jim Bridger surface coal mine at this time may result in a bypass of federal coal, which may not be in the general public's best financial interest. However, selection of the No Action Alternative would not preclude the possibility of subsequent leasing for these lands as a stand-alone underground mine as described in Section 2.3.1.

Under the No Action Alternative, the Proposed Action would not be selected and BLM would not offer the federal coal within the TMRT lease area for sale. As a result, BCC's ability to sustain historic coal production levels would be limited to the remaining coal reserves located within the existing lease area that would be economically recoverable using existing surface mining operations and highwall mining methods. Undoubtedly, there would be a decrease in the amount of coal mined at the Jim Bridger Coal Mine with a corresponding reduction in the number of miners employed at BCC. BCC would continue to produce coal at some reduced level as long as the costs were competitive with market alternatives for the Jim Bridger Power Plant. BCC has not completed a detailed analysis of the No Action Alternative mining scenario and does not have specific information on how long surface mining operations could continue or how many workers would be required for on-going mining and reclamation operations under the No Action Alternative.

In addition, representatives for the adjacent Jim Bridger Power Plant would need to secure alternative coal supplies from non-BCC sources for the power plant. These coal supplies would likely be transported by rail to the plant on the existing railroad spur line from Union Pacific Railroad Company's main line located near Point of Rocks, Wyoming.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Several alternatives were identified and reviewed during the preparation of this EA. At the conclusion of the review, the EA team screened out the following alternatives as not feasible and not warranting further analysis in this EA.

2.3.1 Hold a Competitive Sale of Federal Coal Lands that Would Maximize the Potential for a New Stand-alone Mine

This alternative assumes that the BLM would award the TMRT lease to a successful bidder but not the current applicant. Since there are no adjacent mines that could incorporate the coal reserves into an existing lease, the successful bidder (assuming it would not be the current applicant) would be required to establish a new stand-alone mine. Due to the depth of the coal (200-1,000 ft below the surface) within the TMRT, it is assumed that the tract would be too deep for surface mining and would, therefore, have to be mined utilizing underground technologies.

A new stand-alone underground 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-loadout facilities), internal transportation facilities (e.g., conveyors or haulroads), utilities and communication facilities (e.g., powerline, transformers, water wells, telephone lines), and support buildings (e.g., offices, shop, change house, and warehouse). In addition to the above items, vertical shafts or inclined ramps would be necessary to provide access to the targeted coal seams because a stand-alone operation would not be able to access the highwall portal located within the Jim Bridger Mine.

In addition, the increased recovery of the remaining coal resource on the existing Bridger coal lease (accessible only from the TMRT area) would not be accomplished because these coal reserves have already been leased to BCC and could only be economically recovered by underground mining methods. However, if the federal coal reserves within the TMRT area were to be leased to another bidder (not the current applicant), the underground reserves located within the existing Jim Bridger lease area and near the TMRT area would likely be bypassed.

This would result in a total potential loss of reserves of more than 5 million tons of federal, state, and private coal reserves, with the subsequent loss of revenue to the federal and state governments.

A new stand-alone mine would also require extensive environmental baseline data collection and permitting efforts that would take 2 to 4 years to complete. The new underground coal mine would also have to compete for customers with established mining operations in the immediate area (e.g., Bridger Mine, Leucite Hills Mine, and Black Butte Mine) and the region (e.g., Wyoming Powder River Basin). No other companies have expressed an interest to the BLM in coal exploration or development activity in the TMRT. As a result of these constraints, it would be difficult to anticipate exactly how another company would physically mine and transport the coal to market.

In order to help offset the considerable initial capital expenses of a new mine and to attract the serious attention of another bidder, the BLM would likely have to consider enlarging the TMRT. The enlarged tract would be offered for competitive sale, subject to standard and special lease stipulations. A successful bidder for the enlarged tract would still face the same initial facility development costs and market considerations discussed above. Furthermore, enlarging the tract enough to make it attractive for a new mine start may lower the fair market value of the coal per ton and would likely result in a lower bonus bid per ton paid to the federal government. For these reasons, it is unlikely that the TMRT or an enlarged TMRT 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 EA.

In the event that the successful bidder for the federal coal reserves within the TMRT area is not the current applicant, the successful bidder would be required to submit detailed mine development information to the BLM, including mine and transportation plans and mine and support facility requirements. The BLM would then utilize this information to undertake additional environmental analysis in compliance with NEPA because any new mine facilities not associated with the Proposed Action have not been addressed in the current EA.

2.3.2 Smaller Sale Area

Under this alternative, the BLM would lease only approximately one-half of the identified federal coal reserves within the TMRT. Specifically, the E½ of Section 34, T22N, R101W, and all of Section 6, T21N, R100W, would be the only federally owned coal lands included in this alternative. This alternative would also include Sections 35 (privately owned coal lands) and 36 (state-owned coal lands), T22N, R101W, and Section 31 (privately owned coal lands), T22N, R100W. Leasing of only one-half of the proposed tract may have the effect of making the project, as a whole, uneconomic because of the extensive capital investments necessary to start an underground mine of the same capacity and with only one-half the coal reserves anticipated in the Proposed Action. In addition, the applicant may feel that the risk of leasing one-half of the tract would be too high, due to a lack of flexibility in the mine plan when mine plan modifications become necessary. Mine plans are evolving documents, and there is no way of knowing precisely the nature of the deposit until the initiation of actual mining operations.

Therefore, this alternative is determined not economically feasible, was eliminated from consideration, and is not analyzed in detail in this EA.

2.3.3 Larger Sale Area (Originally-Applied-for LBA Tract)

Under this alternative, the BLM would lease approximately three times as much of federal coal as identified in the current TMRT LBA, area and the size would be similar to the originally-applied-for LBA Tract. The larger TMRT LBA area was identified during the initial public scoping of this EA that was released to the public in November 2001. However, results of additional exploration drilling conducted within a larger TMRT LBA area by the current applicant during 2001 to 2003 indicated that the quantity and quality of coal within the larger TMRT LBA area was unacceptable and would not justify proceeding with the leasing process for the larger LBA area at this time. It is possible that the successful bidder of the lease sale may apply for a subsequent lease or lease modification if the proposed LBA were leased and mined.

Therefore, this alternative is determined not economically feasible, was eliminated from consideration, and is not analyzed in detail in this EA. The elimination of this alternative from the detailed analysis in this EA would not result in the permanent bypass of any federal coal reserves.

2.3.4 Postpone Competitive Lease Sales

Under this alternative, the sale of the federal coal reserves within the TMRT would be postponed more than 5 years on the assumption that coal prices would rise in the future, thus increasing the fair market value of the tract and resulting in a higher bonus bid when the coal is sold.

There are two sources of revenue to federal and state governments from the leasing and mining of federal coal: a bonus bid paid at the time the coal is leased and a royalty payment (based on 8% of the gross value of the coal) is collected when the coal is sold. The royalty payment is the larger of the two income sources, and since it is collected when the coal is sold, a mechanism is already in place for government revenues to increase if prices rise.

Although postponing the lease sale until prices rise may conceivably result in a higher bonus bid paid for the tract, it would not necessarily result in higher royalty payments. It typically takes several years to lease and permit a coal tract, and coal prices would not necessarily remain high until the coal is actually mined if a sale is postponed until the prices increase.

There is also the economic concept of net present value of money; that means that future economic values must be financially discounted due to the effect of inflation and 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 expected to increase and stay at these higher levels, it is in the government's best financial interest to lease the coal tract today instead of waiting an unspecified period of time in hopes that the price of coal will increase in the future.

Current surface mining operations at BCC are nearing their economic limits and will likely be completed within approximately 5 years. At that time, permanent reclamation operations will proceed within the entire mine area, including the area in and around Ramp 14 and highwall area where the potential surface support facilities would be located. If there are no definitive plans or prospects to leave the Ramp 14 area and associated highwall area open, BCC would be required by WDEQ/LQD to permanently reclaim this area. If these areas are permanently reclaimed before underground mining operations are conducted in the TMRT LBA area, the cost of reinitiating underground mining operations would likely be much higher than those anticipated under the Proposed Action. This situation would then be similar to the stand-alone mine alternative discussed above and may actually result in a major impact on the economic viability of the entire project.

Therefore, this alternative was eliminated from consideration and not analyzed in detail in this EA because the potential economic benefits are not completely predictable and because the impacts of mining coal at a later time would likely be similar to stand-alone alternative discussed above.

2.3.5 Hold a Competitive Sale of Federal Coal Lands as a Continuation of Existing Surface Coal Mining Operations

Under this alternative, the current lease applicant would mine the federal coal reserves within the TMRT area as a continuation of existing surface coal-mining operations. Underground mining operations would not be implemented as described in the Proposed Action. Strip ratios (i.e., the thickness of overburden compared to the thickness of coal) in the TMRT are much higher than in the existing coal lease and permit area. While surface mining operations may be utilized to extract the coal, it would be much more difficult and costly to surface mine the high-strip-ratio coal found in the TMRT. In addition, surface mining of the TMRT would also result in increased disturbance, environmental impacts, and costs compared to the Proposed Action. This alternative would not be economically feasible given the alternative sources of coal available in the immediate area and region and the availability of other mining technologies (i.e.,

underground longwall mining). Therefore, this alternative was found to be unreasonable and was eliminated from consideration and is not analyzed in detail in this EA.
